RETROSPECTIVE RECALL OF EARLY TELEVISION VIEWING: RELATIONS WITH ADULT AGGRESSIVE BEHAVIOR

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TABLE OF CONTENTS

Chapter Page

LIST OF TABLES

Table Page

CHAPTER I

INTRODUCTION

Television viewing is considered to be an important topic of study for developmental psychologists because this medium is consumed across the entire lifespan and viewing of television dominates the free time of most individuals. Many in the field of psychology have recognized television as a major source of socialization of children, in addition to parents, peers, and teachers, and, accordingly, have studied how this medium affects thoughts, feelings, and actions. Because television viewing continues throughout the lives of most persons, it is necessary to examine and understand longitudinal influences of TV on viewers' cognitive, emotional, and behavioral development. This study will evaluate the role of television in long-term psychological and behavioral development. Specifically, it will extend the lines of existing longitudinal research by using a retrospective method to examine the relationship between early television viewing and current aggressive thoughts and behaviors.

CHAPTER II

REVIEW OF THE LITERATURE

To understand the long-term impact of television on the psychological and behavioral development of viewers, it is necessary to examine the specific mechanisms by which individuals are influenced by media exposure. One major mechanism is described by social cognitive theory, a general theory of behavioral acquisition and maintenance that is central to socialization and development (Bandura, 1986). Social cognitive theory posits that individuals learn vicariously through observation of others' behaviors, which allows them to expand their knowledge and behavioral repertoires quickly through information communicated via a large variety of social models. For a modeled behavior to be learned, an individual must attend to and retain the modeled behavior, they must be capable of reproducing the behavior, and there must be reinforcement or motivation to perform the behavior. In modern societies, many of the values, cognitions, and behaviors of a culture are learned from extensive modeling in the symbolic environment of the mass media (Bandura, 2002). Symbolic modeling in the mass media has tremendous reach and psychosocial impact because a single model can broadcast new ways of thinking and behaving simultaneously to numerous people in widely dispersed locales.

A second mechanism by which individuals are influenced by exposure to television is described in script theory (Huesmann, 1986). Scripts are memory schemas for recurring experiences that help to interpret and guide one's experiences and offer behavior norms about what is expected to occur in a given situation. Huesmann (1986) used script theory to account for how knowledge gained from repeated exposure to television situations can prompt certain beliefs or stable patterns of response when similar situations are encountered in real life. The more a script is rehearsed and used to govern behavior, the more firmly established in memory it becomes.

Taken together, social cognitive theory and script theory offer viable explanations of how repeated exposure to television content facilitates the formation of viewers' attitudes and beliefs about the real world and how they should behave in given situations. Evidence in support of these theories comes from numerous research findings on the effects of television exposure on viewers.

Television and Aggression

Psychologists have studied the effects of exposure to violent media content on viewers' aggression for several decades. In that time approximately 3000 to 4000 studies have been published (Grossman & deGaetano, 1999; Huston et al., 1992). A multitude of short-term laboratory and field experimental studies have repeatedly found that exposure to violent media content increases the aggressive behavior of children, teenagers, and adults (for reviews see Anderson et al., 2003; Bushman & Huesmann, 2001; Comstock, 1980; Geen, 1990; Geen & Thomas, 1986; Huesmann, Moise, & Podolski, 1997). A substantial number of short-term experimental studies have also found that exposure to violent media content causes increases in aggressive beliefs and cognitions (for reviews

see Berkowitz, 1993; Bushman & Huesmann, 2001; Geen, 2001; Rule & Ferguson, 1986). In addition to short-term studies, a majority of longitudinal studies, in which individuals are followed across years of development, have found a significant relationship between early exposure to televised violence viewing and subsequent aggression (Anderson, Huston, Schmitt, Linebarger, and Wright, 2001; Chowhan & Stewart, 2007; DuRant, Champion, & Wolfson, 2006; Eron, Huesmann, Lefkowitz, & Walder, 1972; Huesmann, Lagerspetz, & Eron, 1984; Huesmann, Moise-Titus, Podolski, & Eron, 2003; Ostrov, Gentile, & Crick, 2006). These longitudinal studies corroborate, under natural conditions, findings of short-term experimental and correlational research on the topic of TV violence and viewer aggression.

Anderson and Bushman (2002) proposed a unifying framework for the explanation of aggressive behaviors, thoughts, and emotions called the General Aggression Model. A portion of this model describes how exposure to violent media content can produce a combination of short-term arousal, aggressive emotions, and aggressive cognitions that may lead to immediate aggressive behaviors, as well as long-term aggressive beliefs and expectation schemas that may lead to the formation of aggressive behavior scripts. Television violence plays a significant role in the development and maintenance of aggressive behaviors in heavy TV viewers.

Long-term exposure to TV violence also can influence viewers' expectations about the likelihood of violence in the real world. Gerbner (1969) proposed that viewers may come to regard the world as a mean and scary place, referred to as a "mean world view," due to the high amounts of violence and crime seen on television. Gerbner, Gross, Morgan, and Signiorelli (1980) examined the effects of exposure to violent television

content on viewers' perceptions of the world around them and found that heavy viewing of TV violence was related to increased mean world beliefs, as measured by items such as "you can't be too careful in dealing with people" or "on an average day a policeman usually pulls out his gun more than five times," or "I am afraid to walk in my own neighborhood at night."

The relationship between TV violence and its effect on viewers is sometimes moderated by viewers' perceptions of TV realism and their identification with television characters (Anderson et al., 2001; Huesmann et al., 1984; Huesmann et al., 2003; Wiegman, Kuttschreuter, & Baarda, 1992). Potter (1988) found that heavy TV viewers were more likely to accept what they saw on TV as reflective of the real world and thus were more likely to be affected by the content they viewed than low TV viewers. Potter also found that high perceived TV realism amplified the relationship between viewing violent television content and viewers' perceptions of the real world as a mean and scary place (Potter, 1986). Regarding viewers' identification with TV characters, Bandura (1969) argued that observational learning from live or televised models should be facilitated by perceived similarity between the observer and the model; thus, the more an individual can identify with violent TV characters, the stronger the observational learning should be from those models. Identification with TV characters was found to be a moderating variable in the longitudinal studies of Huesmann et al. (1984) and Huesmann et al. (2003).

Retrospective Recall of Past TV Viewing Patterns

This review of the literature has described how exposure to television has both short-term and long-lasting effects on viewers' subsequent development, specifically in

the area of aggression. Longitudinal research is vital to the understanding of the lasting impact of television on child, adolescent, and adult development in society. However, relatively few longitudinal studies currently exist when compared to the number of short-term studies that have assessed similar effects. Longitudinal studies are infrequent in the literature because they are costly and usually very time-intensive. An alternative method to studying long-term relationships is the retrospective recall method. In retrospective studies, investigators gather information about past exposure to particular variables via participant report or archival data collection and then assess the relationship of those variables to a current variable of interest. Currently, there are no retrospective studies of television effects, but one study has provided evidence that recall of early TV viewing patterns is valid (Potts, Belden, & Reese, 2008), which could allow the use of retrospective studies in the area of long-term TV effects. Those authors found that young adults' were able to accurately recall their childhood television viewing patterns. In that study, validity of retrospective viewing reports was assessed by examining the consistency of the reported viewing with expected natural viewing patterns and also by measuring participants' recall of content from selected programs. Results for the viewing frequency reports indicated an ecologically valid pattern of TV viewing, that is, persons reported a small number of frequently-watched programs, a somewhat larger number of occasionally-watched programs, and a much larger number of never/rarely-watched programs. Results for the measure of recall of content from those programs indicated that participants recalled more content from frequently-viewed programs compared to recall of programs that were less frequently viewed, and did so with near-perfect

accuracy. This was interpreted as evidence of validity of the reported viewing frequency of those programs.

The findings of Potts et al. (2008) are consistent with research demonstrations of very long-term memory for various experiences (Bahrick, 1984; Huang, 1997). These indicate that some material learned early is accessible for decades and may never be forgotten across the lifespan. These findings also parallel research findings that demonstrate relatively accurate stimulus frequency estimation (Blair & Burton, 1987; Hasher & Chromiak, 1977; Hasher & Zacks, 1979; Hasher & Zacks, 1984; Zacks & Hasher, 2002), as well as findings of accurate recall of one's own behavior frequency (Menon, 1993). Together, these suggest that humans appear to be quite accurate in their ability to judge how often experienced events occurred (Sedlmeier, Betsch, & Renkewitz, 2002) and how often they have engaged in particular behaviors. The rehearsal and repetition involved in television viewing likely strengthens the accuracy of memories for program content and viewing frequency, and facilitates frequency encoding which can be reported at a later time.

In the following section, a study will be proposed that will extend the lines of research of existing longitudinal studies by examining the relationship between retrospective reports of television viewing and current psychological states.

CHAPTER III

STATEMENT OF PURPOSE

The retrospective television viewing procedure developed by Potts et al. (2008) produced evidence of valid reports of past television viewing. The purpose of the current study is to use this retrospective recall methodology to assess the relation of past television viewing practices to current aggressive characteristics in young adults. Short-term experimental studies have shown that exposure to violent television content causes increases in aggressive behavior and aggressive and hostile cognitions. Longitudinal studies of early television exposure have corroborated the short-term findings regarding aggressive behavior outcomes across a longer time span. The current study will use the retrospective procedure in an effort to replicate the long-term findings that early exposure to violent television content is associated with increased aggressive behaviors. We will also extend longitudinal findings by examining the relationship between early exposure to violent television content and subsequent aggressive cognitions, beliefs, and judgments. Specifically, we will assess the relationship between past violent TV exposure and current (1) hostile attribution bias, which is the tendency to perceive harmful actions by others as intentional rather than accidental; and (2) aggressive beliefs and values, including the use of violence in general, the use of violence for self-defense, the use of corporal punishment to discipline children, justification of violence,

and beliefs about gun ownership and use. Additionally, we will also examine the relationship between past exposure to violent television content and a mean world view (Gerbner et al., 1980), which refers to elevated perceptions of crime and victimization.

Despite the abundance of short-term studies which have found that exposure to prosocial content on television produces immediate increases in prosocial behavior and cognitions, no longitudinal evidence of this relationship exists. The longitudinal studies that have examined prosocial TV content have found that exposure is associated with a reduction in subsequent aggressive behaviors. Therefore, the current study will also examine the relationship between prosocial TV exposure and decreased aggressive outcomes.

A final goal of the current study will be to demonstrate further the validity of participants' retrospective television viewing reports. Consistent with Potts et al. (2008), this will be achieved through an assessment of participants' recall of specific content of TV programs from the years 2000, 2005, and 2010. For a selection of programs, participants will be asked to record the names of as many characters and actors as they can remember from those programs. Based on the memory principle that more frequent exposure to any material means better memory of that material, it is expected that participants will recall more content from frequently viewed programs than from programs viewed less frequently.

Hypotheses

Aggression

From both short-term and longitudinal studies of television and aggression it is expected that there will be significant positive relationships between violent TV content

exposure scores and all aggression measures (Anderson & Bushman, 2002). Measures of aggressive behavior, expectations of aggression, and aggressive beliefs and values were selected because they represent components of the General Aggression Model; a model that explains the psychological processes through which violent media exposure produces short-term and lasting effects on aggressive behavior (Bushman & Anderson, 2002).

After accounting for variables found previously to be empirically related to aggression or television viewing, such as gender, SES, and parental discipline style (Eron et al., 1972; Huesmann et al., 1984; Huesmann et al., 2003), we hypothesize that a significant positive relationship will exist between violent content exposure scores in each year and measures of participants' current physical and verbal aggression. Crime dramas, in particular, contain high amounts of violence, so viewing of this program genre is expected to be significantly and positively related to current physical and verbal aggression. Longitudinal studies have found that exposure to prosocial TV content reduces aggressive behavior, so we hypothesize that past exposure to this content will be negatively related to current physical and verbal aggression.

There is also expected to be a significant positive relationship between violent content exposure scores in each year and participants' hostile attribution biases. Kuntsche (2004) found a significant short-term relationship between the number of hours per day spent watching television and participants' hostile attribution biases, and Zillmann and Weaver (1999) found that exposure to various violent films over four consecutive days was significantly related to hostile attributions made one day after exposure to the last violent film. It seems likely that prolonged exposure to televised media violence would also produce perceptions of hostility in the behavior of others, so a

positive relationship is expected between violent exposure scores in each year and participants' current hostile attribution biases.

We expected that exposure to violent television content over time is associated with changes in viewers' beliefs about the use of aggression in a variety of contexts, even if the viewer does not display overt aggression. Therefore, we hypothesize that violent TV exposure scores in each target year will be positively related to a variety of aggressive beliefs and values, including the use of violence in general, the use of violence for self-defense, the use of corporal punishment to discipline children, and justification of violence (Blumenthal, Kahn, Andrews, & Head, 1972; Cohen & Nisbett, 1994), as well as positive beliefs about gun ownership and use.

Watching violent television over time may also influence viewer's perceptions of the world around them. Viewers may come to regard the world as a mean and scary place, referred to as a "mean world view," (Gerbner, 1969) due to high amounts of violence and crime they see on television. Based on those findings, it is hypothesized that there will be a significant, positive relationship between violent content exposure scores in each year and participants' mean world view scores. Mean world view scores, in turn, are expected to be positively related to participants' hostile attribution biases because after adopting a television-cultivated belief that the world is a mean and scary place, individuals may preemptively attribute hostile intent to the actions of others (James & McIntyre, 2000).

Finally, research has shown that viewers' perceptions of TV realism and their identification with television characters moderate the relationship between exposure to violent TV content and subsequent aggressive outcomes (Anderson et al., 2001;

Huesmann et al., 1984; Huesmann et al., 2003; Wiegman et al., 1992). Thus, it is expected that the relationships between violent television exposure scores in each year, and hostile attribution bias, all aggressive cognition outcomes, and mean world view scores, will be moderated by perceived TV realism and identification with TV characters. Specifically, the relationships between violent television exposure scores in each year and all aggressive outcomes are expected to be greater for individuals with higher perceptions of TV realism and identification with TV characters.

Accuracy and Validity of Retrospective Viewing Reports

A replication of findings of Potts et al. (2008) is expected, meaning that participants are expected to show an ecologically valid pattern of selective television viewing denoted by viewing frequency reports of a small number of favorite television programs "watched often during the season", a larger number programs for which "a few episodes were watched", and an even larger group of programs that were either "never heard of" or "heard of, but never watched". Another method for assessing the accuracy of persons' recall for past television viewing patterns will be the inclusion of several false programs in the list of actual programs as was done by Potts et al. It is predicted that, when assessing program viewing frequency, false programs will be rated by the majority of participants as "never heard of." Validity of self-reported past television viewing frequency will also be obtained by asking people to recall characters/actors from a selection of programs that were previously assigned various viewing frequency ratings. We predict that participants will recall more characters/actors from frequently viewed programs compared to programs reported as occasionally viewed, and in turn will recall more from those programs than from programs reported as never watched.

CHAPTER IV

METHOD

Participants

One hundred twenty-two males and two hundred forty-nine females were recruited for the study, all college students at a large Midwestern university who received course credits for their participation. Mean age was 19.12 years (*SD* = 1.90). The retrospective recall purpose of the study required that all participants be of a relatively narrow cohort, namely, 18-22 years of age; for this reason, data from ten participants older than 22 years were excluded from the analyses. All recruitment and experimental procedures were given prior approval by the university IRB and were in accordance with ethical research guidelines of the American Psychological Association.

Materials

Demographic Information

All measurement was done on the online survey data collection site *Survey Gizmo* (www.surveygizmo.com). General demographic information was obtained from participants, including gender and socioeconomic status, for use as control variables in the analysis of the relationships between television viewing measures and current aggression outcomes (see Appendix A). SES was measured by asking participants to

report the highest level of education achieved by their father or male guardian and the highest level of education achieved by their mother or female guardian, and then averaging the two levels. This method has been used in previous studies as the primary measure of SES (e.g., Huesmann et al., 2003).

Aggression Measures

Aggressive Behavior

Aggressive behavior was evaluated with the short form of the Buss-Perry Aggression Questionnaire, a 12-item measure that assesses physical aggression and verbal aggression (Diamond & Magaletta, 2006) (see Appendix B). Both subscales contain three items and have demonstrated good internal reliability for both genders (physical aggression: $\alpha = .72$ for males and $\alpha = .77$ for females; verbal aggression: $\alpha = .66$ for both genders). The physical aggression subscale contains items such as, "Given enough provocation, I may hit another person" and the verbal aggression subscale contains items such as, "I often find myself disagreeing with people." For each statement, participants responded on a 5-point Likert scale ranging from "very unlike me" to "very like me."

Hostile Attribution Bias

The Conditional Reasoning Test for Aggression (CRT-A) was developed by James and McIntyre (2000) to identify individuals who use reasoning biases, called justification mechanisms, to rationalize aggressive and hostile thoughts and actions. These justification mechanisms include a hostile attribution bias in which an individual perceives hostility in the behavior of others and reasons that aggression is justified as a means of self-protection. Participants were presented with 22 conditional reasoning

problems, each representing generic social conflicts and adversarial situations based on a justification mechanism for aggression, and asked to indicate which of four options is the most reasonable conclusion based on the information given (see Appendix C). For example, participants were presented with the following scenario, "A large number of business partnerships break up. One reason for the large number of breakups is that dissolving a partnership is quick and easy. If the partners can agree on how to split the assets of the partnership fairly, then they can break up simply by filling out the appropriate forms. They do not need to engage lawyers." The four answer options included one aggressive alternative, "If one partner hires a lawyer, then he/she is not planning to play fair," one nonaggressive alternative, "Partners might resolve their differences if breaking up was harder and took longer," and two illogical alternatives, "The longer a partnership has existed, the less likely it is to break up," and "The younger partner is more likely to initiate the break up." Participants were given one point for each aggressive alternative selected so that higher scores indicate that justification mechanisms are instrumental in the participant's reasoning and that the participant is implicitly prepared to justify aggressive thoughts and actions. The CRT-A has been shown to be reliable, with an internal consistency of .76, and empirically valid by predicting actual aggression in both field and laboratory settings (e.g., identifying individuals likely to commit student conduct violations, aggressive fouls in intramural basketball, and theft) (James & LeBreton, 2010).

Aggressive Beliefs and Values

Because this study concerns the long-term impact of exposure to televised violence, many of the questions examining current aggressive beliefs and values were

assessed with survey items taken from past studies of individual differences in orientations toward violence (Blumenthal et al., 1972; Cohen & Nisbett, 1994) (see Appendix D). Reliability coefficients for these items could not be determined, but they have been shown to be empirically valid (Cohen & Nisbett, 1994). In some cases, the original survey items were modified in order to be more relevant to the current undergraduate demographic, but the scenarios on which the items are based represent the same empirically valid assessments of aggressive cognitions used by Cohen and Nisbett.

Violence in general. All items assessing current aggressive cognitions about the use of violence in general were taken from Blumenthal et al. (1972) and Cohen and Nisbett (1994). Sample items were, "An eye for an eye and a tooth for a tooth is a good rule for living," "Many people only learn through violence," and "It is often necessary to use violence to prevent violence." For each statement, participants responded on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree."

Violence for self-defense. All items used to assess current aggressive cognitions about violence for self-defense were taken from Blumenthal et al. (1972) and Cohen and Nisbett (1994). Items included, "A person has a right to kill another person in a case of self-defense," "A person has a right to kill another person to defend his or her family," and "A person has a right to kill another person to defend his or her home." For each statement, participants responded on a 5-point Likert scale from "strongly disagree" to "strongly agree."

Use of corporal punishment to discipline children. One item from Cohen and Nisbett (1994) was used to assess current beliefs regarding the use of violence in disciplining children. The item was "It is sometimes necessary to discipline a child with

a good hard spanking" and used a 5-point Likert scale from "strongly disagree" to "strongly agree".

Justification of violence. Current aggressive cognitions about the justification of physical violence in response to a social insult or affront were assessed with hypothetical scenarios based on items in the Cohen and Nisbett study which were modified to increase their relevance to the current college-aged sample (see Appendix E). For these hypothetical scenarios, participants were asked to "rate how justified physical violence is in response to the following situations." Examples of the hypothetical scenarios presented to participants included, "You find out that somebody you know slightly is spreading vicious rumors about you that are completely untrue," "At a party, a complete stranger has their hands all over your date," and "You accidentally bump into another person while walking down the street and they curse at you and then insult your appearance." Participants responded on a 7-point response scale indicating that violence was "not at all justified" to "completely justified."

Beliefs about gun ownership and use. This measure asked participants about gun ownership, the purpose for gun ownership, their gun use, and their estimations of future gun use for protection (see Appendix F). A sample question from this measure was, "In your estimate, what are the chances in your lifetime that you will ever have to shoot a firearm at someone who you perceive to be a threat to you or a friend/family member?". Response options ranged from "0%" to "100%," in increments of 10 percent. This measure was developed for use in this study.

Mean World View

This measure was developed by Gerbner et al. (1980) to assess the degree to which pervasive themes in mass media shape viewers' perceptions about those themes in the real world. Gerbner et al. found that heavy viewers of TV believed that the real world is a "mean and scary place," due to the high degree of crime and violence depicted on television. The items assess participants' perceptions of themes of crime, violence, law enforcement, and victimization in the real social world. Instead of the dichotomous answer sets used by Gerbner and colleagues, namely a realistic answer and a "TV answer," the items in this study provided participants with a scaled response set in which values ranged from a realistic approximation of behavior to a TV approximation of behavior (see Appendix G). For example, one item asked "About what percentage of all people in the U.S. commit serious crimes – is it closer to 3% (realistic answer), 12% (TV answer), or somewhere in between?". Reliability coefficients could not be obtained for this measure, but empirical validation has been shown (Gerbner et al., 1980).

Control Variables

In addition to gender and SES, parental discipline style has been shown to be empirically related to aggression (Eron et al., 1972; Huesmann et al., 1984; Huesmann et al., 2003). Parent discipline style was assessed with one item, "During your childhood, what was the usual way in which your mother/father/primary guardian punished or disciplined you?," with response options of "did not punish or discipline," "nonphysical mild (scold, isolate, fine, remove privileges)," "nonphysical harsh (lock in closet, deprive of food)," "physical mild (slap, spank)," and "physical harsh (use object, punch, kick)" (see Appendix H). This item has been shown to be related to other measures of parental

discipline (Lynch et al., 2006). Religiosity was obtained for use as a control when testing the hypothesis that exposure to prosocial television will be negatively associated with aggressive behavior. Religiosity was assessed with the Organizational Religiousness Subscale of the Brief Multidimensional Measure of Religiousness/Spirituality (Fetzer Institute & National Institute on Aging Working Group, 1999) (see Appendix I). This subscale measured involvement in a formal public religious institution with two items ("In a typical year, how often do you go to religious service?" and "Besides religious service, how often in a typical year do you take part in other activities at a place of worship?") and had a 6-point response scale ranging from "not at all during the past year" to "more than once a week". Previous studies have shown high reliability scores for each subscale, ranging from .71 to .87 (Kendler, Liu, Gardner, McCullough, Larson, & Prescott, 2003; Yoon, 2005; Yoon & Lee, 2004).

Retrospective Television Viewing Reports

Measurement of TV Exposure

Retrospective TV viewing reports were obtained for three years: 2000, 2005, and 2010 (for an example, see Appendix J). Therefore, participants, most of whom were college freshman, were approximately eight years old in 2000, thirteen years old in 2005, and eighteen years old in 2010. Viewing reports were obtained for TV programs aired on both cable and network stations. For regularly broadcast programs, participants were given a program title, the name of the station which aired the program, and the day and time the program was aired, and asked to provide a rating of how frequently they recall viewing that program. Participants indicated their viewing frequencies of regularly broadcast programs, for example in the year 2000, by using the following scale: 0 = never

heard of that program (ever), never watched any episode; 1 = heard of it, but never watched any episode during the 2000 season; 2 = watched only 1 or 2 episodes during the entire 2000 season; 3 = watched a few episodes, maybe 1x/mo during the 2000 season; 4 = watched semi-regularly, 2-3x/mo, during the 2000 season; and 5 = watched often, nearly every episode, 4x/mo during the 2000 season. Participants were also asked to rate their viewing of other programs that were broadcast on an irregular schedule (e.g., *Too Young to Kill: 15 Shocking Crimes* aired on the E! channel). Because of the irregular broadcast schedule, participants were asked to indicate their viewing frequencies for these programs using the following scale: 0 = never watched; 1 = watched once; and 2 = watched more than once. Participants rated approximately 100 programs in each of the three years. To expedite the process, participants were informed that if they had never heard of the program, corresponding to a zero on the viewing frequency scale, they could skip the questions for that program. Finally, using methods from Potts et al. (2008), a small number of false program titles per year were added to the schedule in order to further verify the accuracy of participant reports.

Menon and Yorkston (2000) found that contextual cues facilitated frequency estimates of past behaviors. Therefore, prior to measurement of past TV viewing in a target year, participants were first asked four questions intended to orient their memory to a specific target year (see Appendix K). For example, when asked to recall television viewing and content from 2000, the participant were asked, “In what city did you live in the fall of 2000?”, “What school grade were you in during the fall 2000 semester?”, “List up to three teachers you had in fall 2000”, and “How old were you in the fall of 2000?”.

Upon completion of the retrospective TV viewing reports for each year, participants were asked about their general identification with TV characters (see Appendix L). For the year 2000 and the year 2005, participants were presented with the item, "In general, how much did you identify with television characters in 2000 (2005). By 'identification' we mean the extent to which you fantasized about being like them, incorporated their behaviors into your play when you were young and/or used their behaviors as a guide for your behavior, or in any other way emulated their behavior." For the year 2010, participants were presented with the item, "In general, how much do you identify with television characters in 2010. By 'identification' we mean the extent to which you fantasize about being like them, incorporate their behaviors into your actions and/or use their behaviors as a guide for your behavior, or in any other way emulate their behavior." These questions utilized a 5-point response scale ranging from "never" to "very often". This measure was created for the present study, but is based on empirically valid findings from Huesmann et al. (1984) and Huesmann et al. (2003) which suggest that individuals sometimes identify with television characters and this moderates effects of violent TV on their aggressive behavior.

Television Program Content Recall

Validation of TV Viewing Reports

After participants completed the television program viewing frequency reports for the first target year, a TV program content recall measure was administered for that year (for an example, see Appendix M). The experimenter selected one TV series from that target year to which they had assigned viewing ratings of "1: heard of it, but never watched any episode", one program they rated "3: watched a few episodes, maybe 1x/mo

during season", and one program they rated "5: watched often during season, nearly every episode, 4x/mo." Selection of programs for recall followed a formula predetermined to achieve a random selection of programs to be recalled. For each of these programs, the participants were asked to, "List as many characters or actors as you can remember from the program title listed above." Additionally, participants were asked how often they watched the program in reruns or in other seasons/years (0: never, 1: occasionally, 2: frequently) and whether they had ever discussed the program with peers or family members (0: no, 1: occasionally, 2: frequently).

Perceived TV Realism

As in the Potts et al. (2008) Study 2, participants' perception of the realism of television was measured, using the instrument created by Potter (1988) (see Appendix N). This measure assesses persons' judgments about the similarities between TV actors and their characters, the usefulness of TV characters' behavior for their own lives, and the similarities between TV characters and other persons in real life. Example items include: "The people I see playing parts on TV are just like their characters when they are off camera in real life," " I feel I can learn a lot about how to solve my own problems by watching Patrick Dempsey's character Dr. Derek Shepherd on *Grey's Anatomy*," and "On the TV show *Friends*, Chandler acts like someone I know in my life." Participants responded to each item using a 5-interval scale of agreement, from "1 - definitely disagree" to "5 - definitely agree." Potter's original scale was updated to include current actors, characters, and TV series with which participants were familiar. In addition to Potter's measure, also included was a single question which asked, "How realistic are

television programs in general?," with a response scale from "1 - completely unrealistic" to "5 - completely realistic."

Procedure

Participants were seated at computers in a lab room and all measures were presented as electronic questionnaire documents. The participants first completed the demographic information (i.e., age, gender, ethnicity, and SES) followed by the aggression measures (i.e., aggressive behavior, hostile attribution bias, aggressive beliefs and values, and mean world view), control variables (i.e., parental discipline style and religiosity), and perceived TV realism. To control order effects and fatigue effects, the aggression measures, control variables, and the perceived TV realism measure were counterbalanced using three pre-selected random orders.

Next, participants responded to contextual cueing questions designed to orient their memory to one of three target years (2000, 2005, or 2010), followed by the retrospective TV viewing report and the identification question for that year. Following these measures, participants completed the TV program content recall measure for that year, as well as the measures of rerun viewing and discussion of program with others. This process was repeated for each target year. As with the main outcome measures, control variables, and perceived TV realism measure, the target years were counterbalanced so that each year was presented first, middle, and last for different participants, in order to control order and fatigue effects. Program titles chosen for the TV program content recall measures were selected from different days of the week based on a prearranged pattern using a random number generator. Participants completed these questionnaires in approximately one hour and thirty minutes.

CHAPTER V

RESULTS

Retrospective Television Viewing Reports

The retrospective television viewing reports assessed past television viewing patterns by asking participants to rate their viewing frequency of network and cable programs for three target years (2000, 2005, and 2010). The integrity of the viewing frequency data were examined prior to testing hypotheses to determine if fatigue effects or measurement misuse were present and whether participants had sufficient exposure to the programs studied. Participants data were discarded if they reported "0: never heard of that program (ever), never watched any episode" for more than 95% of all programs asked about in a particular year. The rationale for this decision was that, even if participants had not watched these major network programs, they should have at least heard of some of the programs. If they had not, in other words if they indicated mostly '0s', then they may have been fatigued or did not complete the viewing reports honestly and thoughtfully. Application of this criterion resulted in 4 participants being removed from analyses involving the year 2000 and 2 from analyses of the year 2005 programs. No participants were removed from analyses for the year 2010. In all three target years, participants showed the expected pattern of viewing (see Table 1 for ratings percentages

from each year). Examination of the percentages of viewing frequency ratings by year revealed that, as participants got older, they gave fewer zero ratings and more one ratings. Thus, it appears that participants became more familiar with primetime network and cable programs as they aged.

Individual consistency across years in reported viewing levels was examined. A mean viewing score was computed by summing the individual viewing level ratings for all programs in a target year and dividing by the total number of programs in that year's list. The means and standard deviations for the total viewing scores obtained for each year were .50 (SD = .35), .67 (SD = .33), and .64 (SD = .30), for 2000, 2005, and 2010, respectively. These overall viewing level scores were significantly correlated with each other: $r_{00\text{-}05}$ = .70, $r_{00\text{-}10}$ = .50, and $r_{05\text{-}10}$ = .68, all ps < .001, indicating considerable consistency in overall TV viewing across years.

A one-factor within-subjects ANOVA was conducted on participants' average viewing levels to examine changes in viewing levels across the three target years. The difference between the average viewing scores for the years 2000, 2005, and 2010 was significant, $F(2, 654) = 63.34$, $p < .001$, $\eta^2 = .16$. Simple contrasts indicated higher average viewing scores in 2005 (M = .67, SD = .33) than in 2010 (M = .64, SD = .30), $F(1, 327) = 6.72$, $p = .01$, $\eta^2 = .02$, higher average viewing scores in 2005 than in 2000 (M = .50, SD = .35), $F(1, 327) = 145.02$, $p < .001$, $\eta^2 = .31$, and higher average viewing scores in 2010 than in 2000, $F(1, 327) = 50.26$, $p < .001$, $\eta^2 = .13$.

False programs

Discrimination in participants' viewing reports was examined via their ratings of the false program titles inserted in each year's schedule. Three hundred twenty-eight

participants rated 4 false titles in the year 2000, three hundred thirty participants rated 4 false titles in the year 2005, and three hundred thirty-two participants rated 4 false titles in the year 2010. Out of 3960 rating opportunities, 99.2% were given ratings consistent with no viewing. 81.25% were rated "0" and 17.95% were rated as "1". Only 0.8% were given ratings of 2 or greater. This indicates that, as predicted, the vast majority of persons had never heard of, or watched, any of the false TV programs.

Television Program Content Recall

The main analysis of the content recall data, designed to provide validation of the television viewing reports, consisted of planned contrasts using analysis of covariance comparing number of characters and actors recalled from 5-rated, 3-rated, and 1-rated programs. Exposure to program material other than actual viewing in the target years was examined as covariates (i.e., amount of program viewing in reruns or in other seasons/years and discussion of programs with peers or family members). Correlations between both of the covariates and the character/actor recall scores by ratings level are presented in Table 2. At each ratings level, the significant correlations between both covariates and the character/actor recall score provided justification for testing the covariate effect. Also, the significant correlations between both covariates in each year warranted the creation of a single composite score. Table 3 contains means and standard deviations for TV program characters/actors recalled and the composite covariate term according to program viewing level. Prior to testing the main analysis of the content recall data, the integrity of the recall scores was examined. Nineteen participants who recalled zero characters/actors from the program they rated as "5: watched often during season, nearly every episode, 4x/mo." were excluded from the analysis because we

determined that participants should be able to recall at least one character/actor from a program they watched with such frequency. Failure to do so was taken as evidence of fatigue effects in these participants' responses.

Differences between the number of characters/actors recalled for 5-, 3-, and 1-rated programs were initially analyzed without the covariate term. Planned contrasts indicated that significantly more characters/actors were recalled from 5-rated programs than from 3-rated programs, $F(1, 267) = 154.54$, $p < .001$, $\eta^2 = .37$, and more characters/actors were recalled from 3-rated programs than 1-rated programs, $F(1, 267) = 90.54$, $p < .001$, $\eta^2 = .25$. When the covariate term was added, planned contrasts still indicated that significantly more characters/actors were recalled from 5-rated programs than from 3-rated programs, $F(1, 266) = 13.25$, $p < .001$, $\eta^2 = .05$, with a significant covariate effect, $B = 1.76$, $\beta = .47$, $SE\ B = .20$, $t = 8.73$, $p < .001$. However, planned contrasts revealed no significant differences in the number of characters/actors recalled from 3-rated versus 1-rated programs. The covariate effect was significant, $B = 1.37$, $\beta = .47$, $SE\ B = .16$, $t = 8.58$, $p < .001$. Findings suggest that rerun viewing or viewing in other seasons/years and discussion of program information with family and peers accounted for recall differences between 3-rated and 1-rated programs more than reported initial viewing level.

To test the effect of year on content recall, character/actor recall scores and composite covariate terms were summed across viewing frequency and differences were tested between subjects by recall year. Table 4 contains means and standard deviations for TV program characters/actors recalled and the composite covariate term according to year. Planned contrasts indicated that significantly more characters/actors were recalled

in 2005 than in 2010, $F(1, 264) = 6.18$, $p = 0.01$, $\eta^2 = 0.02$. Additionally, the covariate term was significant, $B = 1.10$, $\beta = .28$, $SE\ B = .24$, $t = 4.62$, $p < .001$. Planned contrasts revealed no significant differences between the number of characters/actors recalled from the year 2000 versus the year 2005 or from the year 2000 versus the year 2010.

Aggression Measures

Aggressive Behavior

Participant reports of two types of current aggressive behaviors, physical and verbal, were assessed using two subscales from the short form of the Buss/Perry Aggression Questionnaire. Table 5 contains the means, standard deviations, and internal reliability coefficients for these subscales. Subscale responses indicated no statistical outliers and the subscales demonstrated good internal reliability. Concurrent validity was also demonstrated by significant positive correlations between these subscales and all other measures of aggression (see Table 6). The relationship between violent TV content exposure in each target year and each type of aggression was analyzed with separate hierarchical linear regressions in which gender was entered as a biosocial control variable in step 1, parental discipline style and parental SES were entered as social control variables in step 2, a general TV exposure score for a particular target year was entered in step 3, and a TV violence exposure score for a particular target year was entered in step 4. Similar hierarchical linear regression analyses were used to test subsequent relationships between exposure to violent TV content and all other aggression outcomes. Multicollinearity was diagnosed for each of these analyses via examination of residuals and scatterplots, as well as variance inflation factor and tolerance coefficients, and no evidence of multicollinearity was found.

The TV violence exposure scores, used as a predictor of current aggression measures, were created for each target year using programs that participants rated in the retrospective television viewing reports. To determine which programs were to be included, content ratings and descriptions of these programs were obtained from Internet sites such as Internet Movie Database and TV.com (www.imdb.com; www.tv.com). Programs that were described as containing moderate to high amounts of violent content were identified, and participants' ratings of those programs were summed to create TV violence exposure scores. Twenty-eight programs in the survey were identified as violent in the year 2000, twenty-five were identified as such in the year 2005, and forty-seven were identified as such in the year 2010. Table 5 contains means and standard deviations for the TV violence exposure scores from each target year. The general TV exposure score entered in step 3 was entered so that the relationship between exposure to violent TV content and current aggression outcomes could be evaluated after accounting for general television exposure. General TV exposure scores in each year were computed by summing participant ratings of all programs in that year that were not included in the violent TV exposure score. General TV exposure scores also did not include prosocial programs, which were identified for a later analysis. The general exposure scores were based on 50 programs in the year 2000, 68 programs in the year 2005, and 71 programs in the year 2010 (see Table 5 for means and standard deviations). Results of the hierarchical linear regressions testing the relationships between violent TV exposure in each target year and participants' current physical aggression can be seen in Tables 7-9. After accounting for gender, parental discipline style, and parental SES, and general television exposure, there was a significant positive relationship between exposure to

violent TV content in both 2000 and 2010 and participants' current physical aggression. No significant relationship was found between participants' current physical aggression and their exposure to violent TV content in 2005.

Significant positive relationships were hypothesized between violent TV exposure in each target year and participants' current verbal aggression. Hierarchical linear regression analyses, like those described previously, analyzed these relationships and the results appear in Tables 10-12. After accounting for gender, parental discipline style, and parental SES, and general television exposure, there was a significant relationship between exposure to violent TV content in all three years and participants' current verbal aggression.

Beyond overall TV violence exposure, exposure to crime dramas, in particular, was hypothesized to have a significant positive relationship to participants' current physical aggression because of the high amount of violence contained within this program genre. To test this hypothesis, a series of hierarchical linear regressions were used that were similar to those mentioned above with the exception of a modification to step 4 and the addition of a fifth step. First, programs were identified as crime dramas using Internet sites such as Internet Movie Database and TV.com (www.imdb.com; www.tv.com). Then, ratings of these programs in each target were summed to create crime drama exposure scores which were entered in step 5. Six programs were identified as crime dramas in the year 2000, fourteen programs were identified as crime dramas in the year 2005, and fourteen programs were identified as crime dramas in the year 2010 (see Table 5 for means and standard deviations). For each target year, crime drama exposure scores were subtracted from the violent exposure scores calculated previously

to create general violence exposure scores which were entered in step 4 (see Table 5 for means and standard deviations). After accounting for gender, parental discipline style, and parental SES, marginally significant relationships were observed between crime drama exposure in the years 2000 (β = .12, p = .07) and 2005 (β = .10, p = .09) and participants' current physical aggression, even after accounting for general television exposure and exposure to other violent TV genres. No significant relationship was found between participants' current physical aggression and their exposure to crime dramas in 2010.

Exposure to crime dramas was also hypothesized to have a significant positive relationship to participants' current verbal aggression. To test this hypothesis, a series of hierarchical linear regressions were used that were similar to those mentioned above. After accounting for gender, parental discipline style, and parental SES, there was a significant positive relationship between crime drama exposure in 2000 (β = .23, p = 001), 2005 (β = .16, p = .01), and 2010 (β = .13, p = .03) and participants' current verbal aggression, even beyond its relation with general television exposure and exposure to other violent TV genres.

An additional hypothesis stated that exposure to prosocial content in each target year would be negatively associated with participants' current physical and verbal aggression. To test this, a series of hierarchical linear regressions were conducted in which gender was entered at step 1, parental discipline, parental SES, and religiosity were entered at step 2, a general TV exposure score was entered in step 3, and a prosocial exposure score was entered in step 4. Television content studies have shown that family dramas and situation comedies contain more prosocial content than any other television

genre (Lee, 1988; Smith et al., 2006). Therefore, Internet Movie Database and TV.com (www.imdb.com; www.tv.com) were used to identify programs from the television viewing reports in each target year that were classified as family dramas or sitcoms, and then participant ratings of these programs were summed to create prosocial exposure scores. Thirty-eight programs were identified as prosocial in the year 2000, forty-one programs were identified as prosocial in the year 2005, and twenty-four programs were identified as prosocial in the year 2010 (see Table 5 for means and standard deviations). After accounting for gender, parental discipline style, parental SES, and religiosity, and general television exposure, there was no significant relationship between exposure to prosocial TV content in any year and participants' current physical aggression.

Hierarchical linear regressions, similar to those mentioned above, were used to test the relationships between prosocial TV exposure in each target year and participants' current verbal aggression. After accounting for gender, parental discipline style, parental SES, and religiosity, and general television exposure, there was no significant relationship between exposure to prosocial TV content in any year and participants' current verbal aggression.

Hostile Attribution Bias

Hostile attribution bias, which occurs when an individual perceives hostility in the behavior of others and reasons that aggression is justified as a means of self-protection, was assessed with the Conditional Reasoning Test for Aggression (CRT-A) (James & McIntyre, 2000). As stated previously, the response set to each CRT-A item includes an aggressive response, a non-aggressive response, and two illogical responses. James and McIntyre excluded participants from analysis if they had five or more illogical responses

which may indicate capricious or inattentive responding. Application of this criterion resulted in the removal of 17 participants for all analyses of the CRT-A. Although the mean number of aggressive responses given on the CRT-A in this study was consistent with the findings of James and McIntyre, the internal reliability of the scale was poor (see Table 5). An analysis of individual items within the scale failed to identify any items whose removal would strengthen the internal reliability of the scale, and a factor analysis of the scale did not indicate any suitable alternative factor structures. Therefore, despite poor internal reliability of the CRT-A in this sample, a decision was made to use the scale as James and McIntyre had originally proposed, namely a sum score, because of the good internal reliability and concurrent validity demonstrated in their study. Results concerning the relationship between violent TV exposure and hostile attribution bias in this study should be interpreted with caution because of the low internal reliability observed in the CRT-A. To test the hypothesis that there would be a significant positive relationship between exposure to violent TV content in each target year and participants' current hostile attribution biases, hierarchical linear regressions similar to those described above were conducted. Results can be seen in Tables 13-15. After accounting for gender, parental discipline style, and parental SES, and general television exposure, there was no significant relationship between exposure to violent TV content in any year and participants' current hostile attribution biases.

Aggressive Beliefs and Values

The relationships between exposure to violent TV content in each target year and participants' current aggressive beliefs and values was assessed with a scale consisting of items taken from Blumenthal et al. (1972) and Cohen and Nisbett (1994). These included

violence in general, the use of violence for self-defense, and the use of corporal punishment to discipline children. Scale responses indicated no statistical outliers and the scale demonstrated good internal reliability (see Table 5). Hierarchical linear regressions were conducted to assess the above relationship in each target year and results are presented in Tables 16-18. After accounting for gender, parental discipline style, and parental SES, and general television exposure, there was a significant relationship between exposure to violent TV content in 2010 and participants' current aggressive beliefs and values. Furthermore, there was a marginally significant relationship between exposure to violent TV content in 2000 and participants' current aggressive beliefs and values, but no significant relationship was found between participants' current aggressive beliefs and values and their exposure to violent TV content in 2005.

Justification of Violence

The hypothesized positive relationship between exposure to violent TV content in each target year and participants' current justification of aggression was assessed with a scale created for this study. The scale demonstrated good internal reliability and scale responses revealed no statistical outliers (see Table 5). Hierarchical linear regressions were conducted to test the hypothesis and results are presented in Tables 19-21. After accounting for gender, parental discipline style, and parental SES, and general television exposure, there was a significant positive relationship between exposure to violent TV content in the year 2010 and participants' current justification of physical violence. Marginally significant positive relationships were found between participants' current justification of physical violence and exposure to violent TV content in 2000 and 2005.

Beliefs about Gun Ownership and Use

The hypothesis that exposure to violent TV content in each target year would have a significant positive relationship with participants' current beliefs about gun ownership and use was assessed by a scale developed for use in this study. The scale demonstrated good internal reliability and scale responses revealed no statistical outliers (see Table 5). Hierarchical linear regressions were conducted to test the hypothesis and results are presented in Tables 22-24. After accounting for gender, parental discipline style, and parental SES, and accounting for general television exposure, there were significant positive relationships between exposure to violent TV content in the all three years and participants' current beliefs about gun ownership and use.

Mean World View

Mean world view, which is the tendency for viewers' to perceive the real world as a mean and scary place, was assessed by items taken from Gerbner et al. (1980) and modified by the researchers for this study. The scale response indicated no statistical outliers but the internal reliability of the scale was poor (see Table 5). An analysis of individual items within the scale failed to identify any items whose removal would strengthen the internal reliability of the scale, and a factor analysis of the scale did not indicate any suitable alternative factor structures. Therefore, despite poor internal reliability of the mean world view measure in this sample, a decision was made to use the scale as Gerbner and colleagues had originally proposed. Results concerning the relationship between violent TV exposure and mean world view in this study should be interpreted with caution due to the aforementioned low internal reliability of the mean world view scale.

To test the hypothesis that there would be a significant positive relationship between exposure to violent TV content in each target year and participants' current mean world view, hierarchical linear regressions were conducted and results are presented in Tables 25-27. After accounting for gender, parental discipline style, and parental SES, and general television exposure, there was no significant relationship between exposure to violent TV content in any year and participants' current mean world view. Participants' current mean world view scores were also predicted to have a significant positive relationship with their current hostile attribution biases. This hypothesis was tested using a Pearson's correlation coefficient and was supported (see Table 6).

Moderating Variables

For all significant, or marginally significant, relationships found between exposure to violent TV content and aggression outcomes tested above, viewers' perceptions of TV realism and their identification with television characters were examined separately as potential moderators. Moderating effects were only analyzed when there was a significant, or marginally significant, relationship because the researchers reasoned that an initial relationship had to be present before any variables could be tested as moderators of that relationship. To test for the moderating effect of perceived TV realism, interaction terms were created for each participant by multiplying their violence exposure scores in each target year by their response to the single item, "How realistic are television programs in general?" from the perceptions of TV realism scale. Because this item was significantly correlated with all other TV realism items, $r = .33$, $p < .001$, we determined that it would be an appropriate representation of

participants' perceptions of TV realism. To test for the moderating effect of identification with television characters, interaction terms were created for each participant by multiplying their violence exposure scores in each target year by their response to the identification item corresponding to that particular target year. Hierarchical linear regressions were then analyzed to test the hypotheses that perceived TV realism and identification with television characters would moderate the relationships between exposure to violent TV content and all current aggression outcomes. As before, gender was entered in step 1, parental discipline style and parental SES were entered in step 2, a general TV exposure score was entered in step 3, and a violence exposure score was entered in step 4. However, participant responses to the single perceived TV realism item or the single identification with television characters item were added to step 4 along with the interaction terms in their respective regressions. After accounting for gender, parental discipline style, and parental SES, and accounting for general TV exposure, none of the interactions between exposure to violent TV content in any year and either perceived TV realism or identification with television characters were significant predictors of any of the aggression outcomes. Thus, perceived TV realism and identification with television characters were not found to moderate the relationships tested in this study.

CHAPTER VI

DISCUSSION

The purpose of the current study was to use a retrospective recall methodology, initially developed by Potts et al. (2008), to assess the relation between past television viewing and current aggressive outcomes in young adults. The main hypothesis, that there would be a significant positive relationship between violent content exposure scores in each target year (2000, 2005, and 2010) and participants' current aggressive behaviors and cognitions, was generally supported and extended existing longitudinal research findings concerning television and aggression (Anderson et al., 2001; Chowhan & Stewart, 2007; DuRant et al., 2006; Eron et al., 1972; Huesmann, Eron et al., 1984; Huesmann, Lagerspetz et al., 1984; Huesmann et al., 2003; Ostrov et al., 2006; and Wiegman et al., 1992). Specifically, after accounting for certain social and demographic variables known to be related to aggression and television viewing (i.e., gender, parental discipline style, and parental SES) and after accounting for general television exposure, a significant positive relationship was found between both recent and past exposure to violent television content and a variety of current self-reported aggression outcomes, including physical and verbal aggressive behavior; aggressive beliefs and values regarding violence in general, violence for self-defense, and the use of corporal

punishment to discipline children; justification of violence in response to social conflict; and beliefs about gun ownership and use.

Aggression Measures

Aggressive Behavior

All past longitudinal studies on television and aggression, cited above, have focused on television's influence on overt aggressive behaviors over time. Consistent with this research, the current study found a relationship between participants' current reports of physical aggression and self-reported past exposure to violent TV content in the year 2000, when participants where around 9 years old, and recent exposure to violent TV content in the year 2010, when participants were around 19 years of age. As mentioned previously, social cognitive theory (Bandura, 1986)and script theory (Huesmann, 1986) offer viable explanations of how exposure to television content facilitates the formation of viewers' attitudes and beliefs about the social world and how they should behave in various situations. Frequent viewing of overt physical aggression enacted by televised models teaches viewers that physically aggressive behavior is within their capacity to perform and can be used to obtain desired outcomes, as well as specific situations in which aggressive action is warranted or normative.

Results of the longitudinal studies concerning television and aggressive behavior that were mentioned above have also analyzed the relationship between exposure to violent TV content over time and viewers' subsequent verbal aggression. This study replicated past findings by demonstrating a relationship between participants' current verbal aggression and past exposure to violent TV content in the years 2000 and 2005, and recent exposure to violent TV content in the year 2010. Frequent exposure to

verbally aggressive television models teaches verbal aggression to viewers and repeated exposure to these models results in the formation of verbal aggression scripts.

Support for the relationship between exposure to violent TV content and participants' current physical and verbal aggression was obtained from the physical aggression and verbal aggression subscales of the short form of the Buss/Perry Aggression Questionnaire (BPAQ) (Diamond & Magaletta, 2006). While both types of aggression have been identified in numerous college-aged samples and tested in a variety of situations (Diamond, Wang, & Buffington-Vollum, 2005), research linking the BPAQ with television exposure has been demonstrated in only one other short-term study (Santisteban, Alvarado, & Recio, 2007) in which the aggression scores on the BPAQ were positively correlated with time spent watching television. This study extends the findings of the Santisteban et al. study by showing a relationship between the BPAQ physical and verbal subscales and violent TV exposure across time and beyond general TV exposure, and expands the lines of existing longitudinal research on television and aggressive behavior.

Additionally, this study found a relationship between exposure to a specific genre of television violence, namely crime dramas, and participants' current physical and verbal aggression. A marginally significant relationship was found between participants' past exposure to crime dramas in the years 2000 and 2005 and their current reports of physical aggression, whereas a significant relationship was found between participants' current reports of verbal aggression and both their exposure to crime dramas in 2000 and 2005 as well as their current exposure to crime dramas in 2010. As no findings exist in the current longitudinal literature concerning exposure to specific genres of violence, this

finding extends past research by providing evidence that exposure to crime dramas has an additional, specific relationship to participants' current physical and verbal behaviors after accounting for both general TV exposure and exposure to other genres of violent television. Crime dramas depict, among other acts of physical aggression, threats and assaults, which are specifically measured by the items in the BPAQ. Furthermore, verbal aggression in the form of arguments, also measured by the BPAQ, and abusive language frequently occurs in crime dramas between criminals and police officers. As such, this program content makes the crime drama genre a highly likely candidate for learning of physical and verbal aggressive behavior.

Aggressive Beliefs and Values

To date, the relationships between exposure to violent TV content and subsequent aggressive thoughts, beliefs, and values have not been established in the longitudinal literature. The current study advances research in this area with findings of a marginally significant relationship between past exposure to televised violence in the year 2000 and participants' current aggressive beliefs and values, and a significant relationship between recent exposure to televised violence in 2010 and participants' current aggressive beliefs and values. As one gets older, overt displays of aggressive behavior become less frequent for the majority of the population because of a decline in the social acceptance of engaging in overtly aggressive behaviors as one develops from childhood into adulthood, and more severe punishments associated with overtly aggressive behaviors (e.g., imprisonment, fines, social stigma, injuries, etc.). Thus, the influence of televised violence on viewers does not decrease with age, but the way in which that influence is manifest may shift from overt behavior towards cognitions and attitudes. In the current

study, various types of aggressive beliefs and values used to govern one's actions were measured, including endorsement of general violence-related values (e.g., "an eye for an eye and a tooth for a tooth," "violence deserves violence," and "it is necessary to use violence to prevent violence"), the use of violence for self-defense, and the use of corporal punishment to discipline children. Common themes presented in violent television programs are consistent with general violence-related values like the ones mentioned above, as well as the use of violence to defend against outside threats and the application of force to achieve a desired result. Through observation learning, viewers may learn that violence is an appropriate and often necessary response to resolve conflict and its use can reward an individual with protection and obedience from others. Through this process, general aggressive beliefs and values are formed (Anderson & Bushman, 2002; Bandura, 1986).

Justification of Violence

One outcome included in this study, which has not previously been addressed in research on either short-term or longitudinal relations between television violence and aggression, is the justification of violence in response to a social conflict. Findings of this study revealed a marginally significant relationship between past television violence exposure in the years 2000 and 2005, and a significant relationship between recent exposure to television violence in the year 2010 and participants' current beliefs about the justification of violence. Violence on television committed by the protagonist is often depicted as justified violence (e.g., a criminal is shot by a police officer in the line of duty, a terrorist is killed to protect innocent civilians, a bully is "beat-down" to teach him not to pick on others, etc.). The repetitiveness of this depiction on television, coupled

with the rewards protagonists receive for committing acts of justified violence, are witnessed by viewers and are likely incorporated into their existing belief systems (Berkowitz, 1964; Hearold, 1986).

Beliefs about Gun Ownership and Use

Another outcome measured in this study which has been, to date, absent in either short-term or long-term studies of television and aggression, concerns viewer's beliefs about gun ownership and use. As hypothesized, this study found a significant positive relationship between both past (year 2000 and year 2005) and recent (year 2010) exposure to violent TV content and participants' current beliefs about gun ownership and use. Violent TV programs are rampant with situations in which criminals break into homes or characters are attacked and portray how the use of firearms is a reasonable and justified method for preventing theft and injury. Frequent viewing of these programs may reinforce viewer's beliefs that a gun ownership is necessary for protection and may create the mindset there is a high likelihood of having to use that firearm to protect themselves, their family and friends, or their property from others (Gerbner, 1978).

Hostile Attribution Bias

Significant positive relationships between exposure to violent TV content and participants' current hostile attribution biases and mean world view were hypothesized, but no such relationships were found in this study. Both of these outcomes measure expectations related to aggression, which have been proposed as one element in the General Aggression Model (Bushman & Anderson, 2002). As such, these outcomes should, theoretically, be related to violent TV exposure.

The Conditional Reasoning Test for Aggression (CRT-A), used in this study to examine hostile attribution bias, has been shown to predict specific instances of antisocial behavior and physical aggression in intramural sports (James & McIntyre, 2000). In this study, it was correlated with other measures which have demonstrated significant relationships with exposure to television violence in previous studies, so it is likely that the measure assessed hostile attribution bias as designed. However, these two measures have never been examined together in previous research, so it is possible that the CRT-A measures hostile attribution bias in a manner that is not related to violent television exposure, and thus additional research is needed to examine this relationship. Furthermore, while it seems likely that the generic social conflicts and adversarial situations presented in the CRT-A items reflect themes that are likely presented in television and learned by viewers, a content analysis of such themes in TV has not been reported, and would need to be conducted to explore this issue further.

Mean World View

Although the relationship between a mean world view and exposure to violent TV content has been demonstrated previously (Gerbner et al., 1980), it was not found in the present study. In accounting for this non-finding, Gerbner's research was conducted during the late 1970s and early 1980s when there was somewhat more violence in society, compared to present levels. Furthermore, the current study was conducted using a college-educated sample with perhaps more access to sources of accurate information on crime and violence in the real world than other populations, and the campus on which this research was conducted is located within a safe and low-crime community. As such, mean world beliefs may not have been as pervasive as when Gerbner and colleagues

conducted their research, nor as pervasive with this particular sample, so that even if participants receive messages from television that foster perceptions of the world as a mean and scary place, the reality surrounding participants is in stark contrast with these depictions.

Exposure to Prosocial TV Content

Another hypothesis that was not supported in this study concerns the negative relationship between past and recent exposure to prosocial TV content and participants' current aggressive behavior. Anderson et al. (2001) and Ostrov et al. (2006) found, in their longitudinal studies, that aggressive behavior was negatively related to past exposure to prosocial TV content. However, both studies used time spent watching educational television (e.g., *Sesame Street* and *Mister Roger's Neighborhood*) as their measure of prosocial television exposure. Those particular programs are intentionally designed to teach prosocial behaviors and values to children, whereas the sitcoms and family dramas in primetime network and cable programming used in this study to measure prosocial exposure are designed for entertainment first and focus on prosocial themes second. Also, the Anderson et al. and Ostrov et al. studies did not control for many significant third variables related to prosocial behavior that could have accounted for the reduction in aggression they observed, rather than exposure to effects of prosocial television directly (e.g., sharing behaviors and inclusion of others in play as indicators of childhood prosociality or religiosity, volunteerism, and charitable donations as indicators of adolescent prosociality).

Moderating Variables

Contrary to expectation, identification with TV characters, and perceived TV realism, did not moderate any of the relationships between past and current exposure to violent TV content and current aggressive outcomes as predicted. Huesmann et al. (1984) and Huesmann et al. (2003) found a stronger relationship between past exposure to violent TV content and current aggressive behavior for participants who identified more strongly with TV characters in childhood compared to those who did not. Although the phrasing of the identification with TV characters questions used in the current study were in close approximation to items used in those studies, Huesmann and colleagues asked about identification with specific violent characters whereas the current study asked about general identification with characters in a target year. Therefore, participants in the current study could have been reporting identification with either positive or non-violent characters.

Regarding TV realism beliefs, Huesmann et al. (2003) also found that the relationship between past violent TV exposure and current aggressive behavior was stronger for participants with higher perceived TV realism scores than for participants with lower perceived TV realism scores, but this was not found in the present study. Greater fragmentation of the current TV audience may account for this lack of findings. Fragmentation of the TV audience is higher now than in the past due to a larger selection of channels broadcasting a greater amount of programs (Dominick, 2009). Potter developed his perceptions of TV realism scale in 1980 when most persons had only the three major networks for viewing, and, thus, there was much less fragmentation of the TV audience. He was able to cite characters in his measure that were widely known to

most viewers when asking about the realism of those television characters. Although characters from current popular programs were selected for the perceived TV realism measure in the current study, it is possible that a significant portion of the sample may not have been exposed to these characters due to the aforementioned audience fragmentation and therefore judgments about which characters and situations in those programs are reflective of real life could not be made. The construct of TV realism beliefs may require considerable revision of this measure for valid assessment of current TV audiences.

Validation of Aggression Measures

Nomological validity in participants' reports of aggression was obtained in the pattern of results for the violent TV exposure-aggressive outcome relations. Results indicated that the relationship between participants' recent exposure to violent TV content (i.e., year 2010) and their current aggressive behaviors and cognitions was stronger than either of the relationships between past exposure to violent TV content (i.e., year 2000 and 2005) and current aggressive behaviors and cognitions. Observational learning and script theory are two psychological mechanisms that account for the relationship between long term exposure to televised violence and current aggressive outcomes. Priming is a third psychological mechanism that accounts for short-term effects of recent violent TV content exposure on current aggressive outcomes. Current exposure to televised violence primes aggressive thoughts which serve as the basis for expectations about current social situations (Berkowitz, 1984). Television-primed aggressive thoughts not only give individuals ideas about what to do but also provide a basis for how other individuals might interpret the situation. Recent viewing of violent

behavior primes aggressive thoughts in viewers which provide them with specific examples of aggressive behavior that can be used in similar real world situations. Thus, while multiple processes influence the TV violence-aggression relation, priming accounts for an additional influence of recent violent TV content exposure on current aggressive outcomes which may explain the stronger relationship between exposure to violent TV content in the year 2010 and participants' current aggressive outcomes observed in this study.

In all regression analyses for which a significant relationship was found between violent TV exposure and a current aggressive outcome, violent TV exposure was the second strongest predictor, behind gender but ahead of parental discipline style, parental SES, and general television exposure. The effect sizes for the relationships between gender and aggression outcomes observed in this study are consistent with values reported in a past meta-analysis of gender and aggression studies (Hyde, 1984). The effect sizes for the relationships between violent TV exposure and aggression outcomes observed in this study are consistent with those reported in past longitudinal studies of early exposure to violent content on television and subsequent aggressive behavior (Anderson et al., 2001; Huesmann et al. 2003).

Validation of Retrospective TV Viewing Reports

As was done in a previous study using retrospective recall of past TV viewing (Potts et al., 2008), several tests were conducted to demonstrate the validity of that measure. Because primetime network and cable programs assessed in the current study represent only a fraction of viewers' total television viewing, and viewers are selective in their television program choices (Rubin, 2002), participants were expected to report a

pattern of viewing consistent with a small number of television programs "watched often during the season," a larger number of programs for which "a few episodes were watched," and an even larger number of programs that were either "never heard of" or "heard of, but never watched." This ecologically valid pattern of viewing was observed in the present study and replicates the Potts et al. findings. Also, discriminant validity of the retrospective television viewing reports was indicated by very few erroneous reports given by participants for ever having viewed fictitious program titles inserted into the list of actual primetime network and cable programs.

Individual consistency in participant viewing patterns was also shown by significant correlations between average viewing levels across the three target years. These results are consistent with previous longitudinal research which demonstrates consistency in overall television viewing levels (Hancox, Milne, & Poulton, 2004; Himmelweit & Swift, 1976; Huston et al., 1990; Tangney & Feshbach, 1988) as well as the findings of Potts et al. (2008).

Recent age-related television viewing trends indicate that children between the ages of 8 and 10 spend an average of 3.41 hours per day watching television, children between the ages of 11 and 14 spend an average of 5.03 hours per day watching television, and children between the ages of 15 and 18 spend an average of 4.22 hours per day watching television (Rideout, Foehr, & Roberts, 2010). Results from the present study were consistent with these findings, in that there was a significant difference between average viewing scores across the three target years, with the higher average viewing scores in 2005, when participants were, on average, 14 years old, than in 2010,

when participants were, on average, 19 years old, which in turn were higher than average viewing scores in 2000, when participants were, on average, 9 years old.

Retrospective television viewing reports for each target year were further validated with television program content recall measures based on the prediction that more content would be recalled from frequently viewed television programs than from programs viewed less frequently. Analyses of the differences between the number of characters/actors recalled from 5-, 3-, and 1-rated programs, before accounting for the covariate terms, revealed a pattern of recall consistent with that found in Potts et al. (2008), namely that more characters/actors were recalled from 5-rated programs than 3-rated programs and more characters/actors were recalled from 3-rated programs than 1-rated programs. However, when the covariate term was included, namely the amount of time spent watching a program in reruns or in other seasons/years, and discussion of the program with family members and peers, the only significant differences in characters/actors recalled was between the 5-rated programs and the 3-rated programs. There was no longer a significant difference between characters/actors recalled from 3-rated programs and 1-rated programs. This finding is likely explained by the covariate term accounting for more variance in the number of characters/actors recalled for programs that are watched less frequently than it does for programs watched more frequently. In other words, when an individual watches a program frequently in a target year, the amount of characters/actors recalled from that program is largely a function of actual viewing of the program in that year. However, when an individual watches a program less frequently in a target year, or has only heard of the program but never watched it in that year, the amount of characters/actors recalled from that program is less

a function of actual viewing and more a function of viewing in reruns or in other seasons or discussions about that program.

The finding that more characters/actors were recalled from the year 2005 than in either 2000 or 2010 is not consistent with the findings of Potts et al. (2008) or with basic memory principles (i.e., that recall should deteriorate with time) and is difficult to explain. Participants in the current study were most likely in grade school during the year 2000, junior high during the year 2005, and college during the year 2010. Perhaps, television viewing was more memorable in junior high than in grade school or college because of differences in participants' viewing preferences at these times. In grade school, participants may have preferred to watch children's programs instead of many of the general audience programs asked about in this study. However, participants' viewing preferences may have shifted to general audience programs by junior high, when they were old enough to understand and enjoy the content in these programs. And, while these preferences probably did not change much from junior high to college, there may have been less attention given in college to television viewing and more attention given to school and social activities.

Strengths

There are several strengths associated with the present study. First, retrospective television viewing reports and television program recall measures were presented after aggressive outcome measures were obtained in the survey so that participants' memories of specific television programs would not prime aggressive thoughts while completing measures of aggression. Second, nomological validity of the retrospective television viewing reports was obtained in various ways. There was an expected "natural" pattern

to participants' television viewing frequency ratings both within and across each target year. The pattern of television exposure that participants reported was also consistent with current reports of age-related television viewing trends reported by other researchers. Also, the violent TV content exposure scores created from participants' retrospective viewing frequency ratings were predictive of several aggressive outcome measures that represent key components of the General Aggression Model, namely, overt aggressive behavior and aggressive cognitions and beliefs (Anderson & Bushman, 2002). Third, this study was the first study to use retrospective television viewing reports to replicate the longitudinal relationships between exposure to violent TV content and both current physical and verbal aggression seen in past literature (Anderson et al., 2001; Chowhan & Stewart, 2007; DuRant et al., 2006; Eron et al., 1972; Huesmann, Eron et al., 1984; Huesmann, Lagerspetz et al., 1984; Huesmann et al., 2003; Ostrov et al., 2006; and Wiegman et al., 1992). Finally, the current study extends existing longitudinal research findings concerning television exposure and aggressive outcomes beyond overt physical aggression by demonstrating significant relationships between past and current exposure to violent TV content and participants' current aggressive cognitions, beliefs, and judgments specifically related to justification of violence, endorsement of general violence-related values including the use of violence for self-defense and the use of corporal punishment to discipline children, and endorsement of gun ownership and use.

Limitations

Despite several strengths of this study, certain limitations must also be addressed. First, this study obtained all aggressive outcome measures, retrospective television viewing reports, and television program recall measures via self-report by participants.

Self-reports are subject to reporting bias and social desirability, and while great lengths were taken to assure participants of the anonymity of their data, it is still possible that participants could have biased their responses. Future studies should corroborate self-report data with other sources (e.g., peer, parent, sibling, or significant other reports). Second, the study took participants approximately one and a half hours to complete, so it is possible that the length of the study introduced measurement error in the results due to fatigue effects. Future studies could present fewer outcome measures to participants in one session, reduce the number of programs for which participants are required to provide viewing ratings, or split data collection across multiple days. Finally, although the relationships found in the current study between exposure to violent TV content and participants' aggressive behaviors and aggressive cognitions and beliefs are consistent with the General Aggression Model, the measure of hostile attribution bias, which is also a component of the General Aggression Model, was not related to either past or recent violent TV exposure. Because there are theoretical reasons based on social learning theory and script theory to expect violent television to influence this cognitive process, perhaps the CRT-A used in this study to measure hostile attribution bias was not an appropriate measure. Future studies should either explore ways to relate the CRT-A to television exposure or should seek out alternative measures of hostile attribution bias.

Future Directions

The findings of the present study have identified several avenues of future research that could be explored. First, several of the aggressive outcome measures used in this study contained single items or subgroups of items that could be evaluated separately from the entire measure. For instance, the aggressive beliefs and values scale

contained items that related to general violent beliefs, the use of violence for self-defense, and the use of corporal punishment to discipline children. Future research could identify whether or not participants' endorsement of the violence for self-defense items is related the other aggression measures (mean world view or beliefs about gun ownership and use) or specific genres of television violence (reality programs such as *World's Most Daring Robberies* or crime dramas such as *Law and Order* or *Criminal Minds*).

Similarly, specific items that address beliefs about the use of corporal punishment to discipline children may be related to parental discipline style or some interaction between parental discipline style and participants' level of agreement with the discipline style their parents employed. For instance, participants who were disciplined with a harsh physical discipline style, and also agree with their parents' style of discipline, might believe that harsh physical punishment is the only way to discipline children and therefore endorse corporal punishment items. On the other hand, participants who were disciplined with a harsh physical discipline style, yet disagree with that discipline may believe that no child should be subjected to the same harsh discipline as they were and would not endorse corporal punishment items. Then, television programs that depict the use of physical force to obtain obedience or subservience could be examined for their relationship to beliefs about the use of corporal punishment to discipline children. This would not only provide important information about the transmission of aggression from one generation to the next, but could identify the role that television violence plays in that process. Beliefs about the use of corporal punishment to discipline children may also be related to beliefs about the justification of violence in situations of social conflict because

both situations involve endorsement of behaviors designed to punish other individuals for negative behaviors.

Certain items on the measure of beliefs about gun ownership and use assessed participants' expectations about having to use a gun to protect themselves from potential threats. Gun beliefs reflect a highly controversial policy issue that has, to date, been largely unexplored as an outcome of TV violence exposure. Future research could extend the measure of beliefs about gun ownership and use to evaluate the relationship between participants' exposure to violent content on television and their beliefs about having to carry a gun on their person for protection. Participants' concealed gun carrying behaviors, which are legal in most states, could be assessed along with their thoughts and beliefs regarding their safety on campus, their general safety while traveling in urban environments or supposedly "bad areas," their beliefs about current gun legislation, etc. Then, patterns of violent television exposure could be examined to see if exposure is related to gun-carrying behavior, thoughts, and beliefs.

Measures of perceived TV realism and identification with TV characters used here should be revised so that their role as moderating variables in relationships between exposure violent TV content and aggressive outcomes can be better explored. For perceptions of TV realism, participants could be asked to identify characters from programs they commonly watch and then those characters could be inserted into the TV realism scale so that problems of unfamiliarity with characters, due to TV audience fragmentation, can be overcome. Similarly, for the measure of identification with TV characters, participants' could be asked to self-report identification with specific characters, rather than general identification. Researchers could then rate the level of

aggressiveness displayed on television by those characters, and the moderating role of identification with violent TV characters on relations between TV violence and aggressive behaviors and cognitions could be further explored.

After separating multiple related constructs within certain measures and refining other measures used in the current study, the General Aggression Model could be used as a theoretical framework for testing path models among aggressive outcomes, which may support or extend existing lines of research on television and aggression. For instance, we could test whether exposure to violent TV content leads to expectations of aggression, which, in turn, could lead to aggressive beliefs and values, which may then lead to aggressive behaviors. This would perhaps generate ideas about the causal relationships between exposure to violent TV content and certain aggressive outcomes, as well as the causal relationships among aggressive outcomes.

Just as the current study tested long-term relationships between past exposure to violent TV content and current aggressive outcomes using retrospective television viewing reports, future studies may use retrospective recall to obtain reports of past aggression as well. Participants could be asked to report the number of times they engaged in aggressive acts at different ages (e.g., "When you were 9 years old…how many fights did you get into at school," "how many fights did you get into in your neighborhood," "how many times were you sent to the principal's office for misconduct," etc.) As long as the accuracy of participants' retrospective reports of aggressive behaviors, cognitions, and beliefs could be established, those reports could be coupled with retrospective reports of exposure to television violence to help identify further the path through which early exposure to TV violence influences later aggressive outcomes.

For instance, it would be possible to test the relationship between past physical aggression and current exposure to violent TV content in addition to the relationship between past exposure to violent TV content and current physical aggression in order to evaluate possible bidirectional causality among TV viewing and behavioral dispositions.

Finally, future research could use retrospective viewing reports to test the longitudinal relationships between exposure to other types of programming and current psychological outcomes. For example, retrospective reports of prosocial television exposure could be used to determine if past viewing of this content influences current prosocial attitudes and behaviors. As mentioned previously, content studies have shown an abundance of prosocial content on television (Lee, 1988; Smith et al., 2006). Many short-term experimental studies have shown an increase in prosocial behavior following exposure to prosocial content on television (e.g., Bryan & Walbek, 1970; Liss, 1983; Sprafkin et al., 1975). However, no longitudinal studies have examined the relationship between exposure to prosocial messages on television and subsequent prosocial behavior. The same theoretical mechanisms that underlie the long-term relationship between television violence and aggression, namely observational learning from models, and script formation, have also been implicated in the learning of prosocial behavior (e.g., Friedlander, 1993; Hearold, 1986; Mares, 1996). It appears that the lack of significant long-term findings for television and prosocial behavior are due to the paucity of current research and not to differences in underlying theoretical mechanisms and, future studies should address this gap in the literature.

Additionally, retrospective reports of exposure to body-related media content could be used to determine if past viewing of this content is related to current body

image. Content analyses of television have revealed a predominance of young, tall, and extremely thin or muscular TV models (e.g., Fouts & Burggraf, 1999, 2000; Lin, 1998) which represent a body size and shape that are increasingly different from those of real men and women (Irving & Berel, 2001; Spitzer, Henderson, & Zivian, 1999). Internalization of these televised beauty ideals as a social norm creates a desire for thinness in women, and muscularity in men, that are impossible for most individuals to achieve by healthy means (Leit, Pope, & Gray, 2001; Wiseman, Gray, Mosimann, & Ahrens, 1992). In accordance with this, longitudinal body image studies have consistently shown associations between exposure to thin or muscular TV models and body dissatisfaction, increased drive to lose weight and gain muscle, and increased disordered eating that are mediated by the internalization of televised beauty ideals (Dohnt & Tiggemann, 2006; Harrison & Hefner, 2006; McCabe & Ricciardelli, 2005; McCabe et al., 2007). Future studies should attempt to replicate and extend longitudinal findings using a retrospective analysis of the television-body image relation. They could also include measures of plastic surgery attitudes and dieting experiences to assess other manifestations of body dissatisfaction.

In conclusion, the present study replicated and extended longitudinal findings concerning exposure to television violence and aggressive behaviors and cognitions (Anderson et al., 2001; Chowhan & Stewart, 2007; DuRant et al., 2006; Eron et al., 1972; Huesmann, Eron et al., 1984; Huesmann, Lagerspetz et al., 1984; Huesmann et al., 2003; Ostrov et al., 2006; and Wiegman et al., 1992), and advanced the notion that retrospective self-reports of past television viewing can produce valid tests of relationships between past exposure to TV content and current psychological outcomes. Retrospective recall

reports represent an efficient and effective approach for studying long-term effects of mass media on current psychological states, and future research should focus on refining, and expanding the capabilities of, this promising research method.

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TABLES

Table 1

Percentages of viewing frequency ratings by year

Viewing rating	Year 2000	2005	2010
0	58.84	41.86	40.21
1	24.45	35.81	37.86
2	6.96	9.73	10.80
3	4.62	5.73	5.46
4	3.01	3.89	2.98
5	2.12	2.98	2.69

Note: 0 = never heard of that program (ever), never watched any episode, 1 = heard of it, but never watched any episode during the season, 2 = watched only 1 or 2 episodes during the entire season, 3 = watched a few episodes, maybe 1x/mo during the season, 4 = watched semi-regularly, 2-3x/mo, during the season, and 5 = watched often, nearly every episode, 4x/mo during the season.

Table 2

Correlations between all covariates and character/actor recall scores by ratings level

	Recall	Rerun	Discussion
		5-rated programs	
Recall	1.00	.39**	.30**
Rerun	-	1.00	.42**
Discussion	-	-	1.00
		3-rated programs	
Recall	1.00	.36**	.37**
Rerun	-	1.00	.50**
Discussion	-	-	1.00
		1-rated programs	
Recall	1.00	.32**	.33**
Rerun	-	1.00	.22**
Discussion	-	-	1.00

Note: ** = significant at $p < .001$. Recall = number of characters/actors recalled, Rerun = viewing of program in reruns or in other seasons/years, and Discussion = discussion of program with peers or family members.

Table 3

Means and standard deviations for characters/actors recalled and covariate by program viewing level

	Program viewing level		
	5: watched often during season	3: watched a few episodes	1: heard of it, but never watched
Characters/actors recalled	6.19 (4.62)	2.35 (3.14)	.49 (1.18)
Covariate	2.91 (.98)	1.53 (1.03)	.24 (.52)

Note: Standard deviations in parentheses.

Table 4

Means and standard deviations for characters/actors recalled and covariate by year

	Recall year		
	2000	2005	2010
Characters/actors recalled	8.48 (5.60)	10.25 (7.45)	8.29 (5.53)
Covariate	3.99 (1.86)	4.87 (1.44)	5.11 (1.38)

Note: Standard deviations in parentheses.

Table 5

Descriptive statistics and reliability coefficients

Measure	*M*	*SD*	*Scale*	*α*
Buss/Perry Physical Aggression	6.13	2.78	3-15	.74
Buss/Perry Verbal Aggression	7.90	2.90	3-15	.79
Hostile Attribution Bias (CRT-A)	4.39	2.10	0-22	.28
Aggressive Beliefs and Values	35.27	7.79	13-65	.81
Justification of Violence	17.25	6.85	5-35	.85
Beliefs about Gun Ownership and Use	.62	1.48	0-10	.82
Mean World View	26.13	4.56	8-40	.58
General TV Exposure 2000	17.64	12.06	0-250	-
General TV Exposure 2005	34.48	18.75	0-340	-
General TV Exposure 2010	41.73	22.90	0-355	-
Violent TV Exposure 2000	13.49	13.91	0-140	-
Violent TV Exposure 2005	20.19	15.35	0-125	-
Violent TV Exposure 2010	29.13	19.40	0-235	-
Crime Drama Exposure 2000	4.54	5.06	0-30	-
Crime Drama Exposure 2005	13.10	12.24	0-70	-
Crime Drama Exposure 2010	13.86	12.86	0-70	-
Prosocial TV Exposure 2000	28.34	20.15	0-190	-
Prosocial TV Exposure 2005	35.46	20.32	0-205	-
Prosocial TV Exposure 2010	19.27	11.68	0-120	-

Table 6

Correlations between aggression measures

	CRT-A	B/P-P	B/P-V	ABV	JV	BGOU	MWV
CRT-A	1.00	.19**	.16*	.14*	.17*	.12*	.14*
B/P-P	-	1.00	.50**	.41**	.49**	.30**	.15*
B/P-V	-	-	1.00	.32**	.32**	.14*	.11†
ABV	-	-	-	1.00	.51**	.31**	.18*
JV	-	-	-	-	1.00	.24**	.10†
BGOU	-	-	-	-	-	1.00	.09
MWV	-	-	-	-	-	-	1.00

Note: CRT-A = Hostile Attribution Bias, B/P-P = Buss/Perry Physical Aggression, B/P-V = Buss/Perry Verbal Aggression, ABV = Aggressive Beliefs and Values, JV = Justification of Violence, BGOU = Beliefs about Gun Ownership and Use, and MWV = Mean World View. ** = significant at $p < .001$, * = significant at $p < .05$, † = significant at $p < .10$.

Table 7

Regression predicting physical aggression from violent TV content exposure in 2000

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-1.32	.31	-.22**	.05
Parental Discipline	.41	.14	.16*	.02
Parental SES	-.13	.15	-.05	.002
General TV Exposure	-.01	.02	-.04	.0004
Violent TV Exposure	.05	.02	.24*	.02

Note: R^2 = .16 for Step 4; ΔR^2 = .02 for Step 4 (p = .004). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 8

Regression predicting physical aggression from violent TV content exposure in 2005

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-1.44	.32	-.24**	.06
Parental Discipline	.44	.14	.17*	.03
Parental SES	-19	.16	-.07	.01
General TV Exposure	.01	.01	.06	.003
Violent TV Exposure	.02	.01	.09	.01

Note: R^2 = .13 for Step 4; ΔR^2 = .01 for Step 4 (p = .14). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 9

Regression predicting physical aggression from violent TV content exposure in 2010

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-1.17	.32	-.20**	.03
Parental Discipline	.39	.14	.15*	.02
Parental SES	-.22	.15	-.08	.01
General TV Exposure	-.01	.01	-.04	.001
Violent TV Exposure	.04	.01	.27**	.05

Note: R^2 = .17 for Step 4; ΔR^2 = .05 for Step 4 (p < .001). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 10

Regression predicting verbal aggression from violent TV content exposure in 2000

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-.36	.34	-.06	.003
Parental Discipline	.17	.15	.06	.004
Parental SES	.06	.17	.02	.0004
General TV Exposure	-.04	.02	-.16†	.01
Violent TV Exposure	.05	.02	.23*	.02

Note: R^2 = .03 for Step 4; ΔR^2 = .02 for Step 4 (p = .01). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 11

Regression predicting verbal aggression from violent TV content exposure in 2005

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-.34	.35	-.06	.003
Parental Discipline	.14	.15	.05	.003
Parental SES	.04	.17	.01	.0001
General TV Exposure	-.01	.01	-.07	.004
Violent TV Exposure	.03	.01	.17*	.02

Note: R^2 = .03 for Step 4; ΔR^2 = .02 for Step 4 (p = .009). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 12

Regression predicting verbal aggression from violent TV content exposure in 2010

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-.12	.36	-.02	.0003
Parental Discipline	.16	.15	.06	.003
Parental SES	-.01	.17	-.01	.00003
General TV Exposure	-.02	.01	-.12*	.01
Violent TV Exposure	.03	.01	.19*	.03

Note: R^2 = .04 for Step 4; ΔR^2 = .03 for Step 4 (p = .003). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 13

Regression predicting hostile attribution bias from violent TV content exposure in 2000

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-.56	.26	-.12*	.02
Parental Discipline	.19	.12	.10†	.01
Parental SES	.10	.135	.05	.002
General TV Exposure	-.02	.02	-.11	.004
Violent TV Exposure	.02	.01	.11	.01

Note: R^2 = .03 for Step 4; ΔR^2 = .01 for Step 4 (p = .22). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 14

Regression predicting hostile attribution bias from violent TV content exposure in 2005

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-.55	.26	-.12*	.01
Parental Discipline	.17	.11	.09	.01
Parental SES	.10	.13	.05	.002
General TV Exposure	-.003	.01	-.02	.0004
Violent TV Exposure	.01	.01	.07	.004

Note: R^2 = .03 for Step 4; ΔR^2 = .004 for Step 4 (p = .27). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 15

Regression predicting hostile attribution bias from violent TV content exposure in 2010

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-.62	.26	-.14*	.02
Parental Discipline	.18	.11	.09	.01
Parental SES	.09	.13	.04	.002
General TV Exposure	.01	.01	.06	.003
Violent TV Exposure	.001	.01	.01	.00004

Note: R^2 = .03 for Step 4; ΔR^2 < .001 for Step 4 (p = .92). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 16

Regression predicting aggressive beliefs and values from violent TV content exposure in 2000

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-5.70	.85	-.34**	.11
Parental Discipline	1.32	.38	.18**	.03
Parental SES	.23	.42	.03	.001
General TV Exposure	-.03	.05	-.05	.001
Violent TV Exposure	.09	.05	.15†	.01

Note: R^2 = .19 for Step 4; ΔR^2 = .01 for Step 4 (p = 06). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 17

Regression predicting aggressive beliefs and values from violent TV content exposure in 2005

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-5.93	.86	-.36**	.12
Parental Discipline	1.37	.38	.19**	.03
Parental SES	.08	.42	.01	.0001
General TV Exposure	.01	.02	.03	.001
Violent TV Exposure	.03	.03	.06	.002

Note: R^2 = .18 for Step 4; ΔR^2 = .002 for Step 4 (p = .35). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 18

Regression predicting aggressive beliefs and values from violent TV content exposure in 2010

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-5.45	.86	-.33**	.10
Parental Discipline	1.19	.37	.16**	.03
Parental SES	.12	.40	.02	.0002
General TV Exposure	-.002	.02	-.01	.00002
Violent TV Exposure	.09	.02	.22**	.04

Note: R^2 = .22 for Step 4; ΔR^2 = .04 for Step 4 (p < .001). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 19

Regression predicting justification of violence from violent TV content exposure in 2000

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-6.32	.72	-.43**	.18
Parental Discipline	.95	.32	.15*	.02
Parental SES	-.02	.36	-.003	.00001
General TV Exposure	-.03	.04	-.04	.001
Violent TV Exposure	.06	.04	.13†	.01

Note: R^2 = .24 for Step 4; ΔR^2 = .01 for Step 4 (p = .10). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 20

Regression predicting justification of violence from violent TV content exposure in 2005

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-6.38	.73	-.44**	.18
Parental Discipline	.94	.32	.15*	.02
Parental SES	-.12	.36	-.02	.0003
General TV Exposure	-.01	.02	-.02	.0002
Violent TV Exposure	.04	.03	.10†	.01

Note: R^2 = .24 for Step 4; ΔR^2 = .01 for Step 4 (p = .09). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 21

Regression predicting justification of violence from violent TV content exposure in 2010

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-6.15	.74	-.42**	.16
Parental Discipline	.86	.32	.13*	.02
Parental SES	-.09	.34	-.01	.0001
General TV Exposure	.01	.02	.04	.001
Violent TV Exposure	.06	.02	.18*	.02

Note: R^2 = .26 for Step 4; ΔR^2 = .02 for Step 4 (p = .002). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 22

Regression predicting beliefs about gun ownership and use from violent TV content exposure in 2000

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-1.61	.43	-.20**	.04
Parental Discipline	.46	.19	.13*	.02
Parental SES	.31	.22	.08	.01
General TV Exposure	.01	.03	.04	.001
Violent TV Exposure	.05	.02	.18*	.01

Note: R^2 = .12 for Step 4; ΔR^2 = .01 for Step 4 (p = .03). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 23

Regression predicting beliefs about gun ownership and use from violent TV content exposure in 2005

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-1.67	.44	-.20**	.04
Parental Discipline	.46	.19	.13*	.02
Parental SES	.27	.21	.07	.004
General TV Exposure	-.01	.01	-.04	.001
Violent TV Exposure	.06	.02	.24**	.04

Note: R^2 = .12 for Step 4; ΔR^2 = .04 for Step 4 (p < .001). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 24

Regression predicting beliefs about gun ownership and use from violent TV content exposure in 2010

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	-1.52	.45	-.19**	.03
Parental Discipline	.44	.19	.12*	.01
Parental SES	.20	.21	.05	.002
General TV Exposure	-.004	.01	-.02	.0004
Violent TV Exposure	.05	.01	.24**	.04

Note: R^2 = .12 for Step 4; ΔR^2 = .04 for Step 4 (p < .001). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 25

Regression predicting mean world view from violent TV content exposure in 2000

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	3.83	.44	.44**	.19
Parental Discipline	.32	.20	.09†	.01
Parental SES	.11	.22	.03	.001
General TV Exposure	-.001	.03	-.003	.000004
Violent TV Exposure	.02	.02	.07	.002

Note: R^2 = .20 for Step 4; ΔR^2 = .002 for Step 4 (p = .36). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 26

Regression predicting mean world view from violent TV content exposure in 2005

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	3.59	.44	.41**	.16
Parental Discipline	.40	.19	.11*	.01
Parental SES	.08	.22	.02	.0003
General TV Exposure	.02	.01	.09	.01
Violent TV Exposure	-.01	.02	-.04	.001

Note: R^2 = .19 for Step 4; ΔR^2 = .001 for Step 4 (p = .47). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

Table 27

Regression predicting mean world view from violent TV content exposure in 2010

Variable	*B*	*SE B*	*β*	*Part*^{2}
Gender	3.47	.45	.40**	.15
Parental Discipline	.35	.19	.09†	.01
Parental SES	.10	.21	.02	.001
General TV Exposure	.02	.01	.12*	.001
Violent TV Exposure	-.003	.01	-.01	.0001

Note: R^2 = .20 for Step 4; ΔR^2 < .001 for Step 4 (p = .82). ** = significant at p < .001, * = significant at p < .05, † = significant at p < .10.

APPPENDICES

APPENDIX A

DEMOGRAPHIC INFORMATION

1. Are you? Male Female (circle one)

2. What is your age? _____

3. What is your height? _____ feet _____ inches

4. What is your weight? _____ pounds

5. Which option best describes your ethnic background?

    a. African American
    b. Asian American
    c. Asian Indian American
    d. Hispanic American
    e. Native American
    f. Pacific Island American
    g. White (non-Hispanic)
    h. Other

6. What is the highest level of education completed by your father or male guardian?

    a. Some high school or less
    b. High school diploma or GED
    c. Associate degree
    d. Bachelor's degree
    e. Graduate or Professional degree

7. What is the highest level of education completed by your mother or female guardian?

    a. Some high school or less
    b. High school diploma or GED
    c. Associate degree
    d. Bachelor's degree
    e. Graduate or Professional degree

APPENDIX B

AGGRESSIVE BEHAVIOR

Buss/Perry Aggression Questionnaire – Short Form (Diamond & Magaletta, 2006)

Please indicate your agreement with the following statements:

1	2	3	4	5
Very Unlike Me		Neither Like Me Or Unlike Me		Very Like Me

PHYSICAL AGGRESSION SUBSCALE:

1._____Given enough provocation, I may hit another person.

2._____There are people who have pushed me so far that we have come to blows.

3._____I have threatened people I know.

VERBAL AGGRESSION SUBSCALE:

1._____I often find myself disagreeing with people.

2._____I can't help getting into arguments when people disagree with me.

3._____My friends say that I'm somewhat argumentative.

APPENDIX C

HOSTILE ATTRIBUTION BIAS

Conditional Reasoning Test for Aggression (James & McIntyre, 2000)

IAT Reasoning Test

Form R

Instructions: For each question, identify the one answer that is the most logical based on the information presented. Sometimes this will require you to cut through answers that look logical in order to get to the most genuine or "real" answer. Circle your answers on this test.

Example

Feeling like he had finally recovered from the flu, Tom talked his wife into going out for dinner. They both ordered the flounder and fully enjoyed their meals. Later that evening, Tom developed an upset stomach.

Which of the following is the most logical explanation for Tom's upset stomach?

a. The flounder was spoiled.

b. Tom had not fully recovered from the flu.

c. They sat in the no-smoking section of the restaurant.

d. His wife had cheesecake for dessert.

Explanation

Answer b is the most logical. Answers a, c, and d involve other people, but Tom was the only one who got sick.

You have 25 minutes to answer all 25 questions.

1. Many poor hospitals in this country are experiencing a shortage of nurses. Yet enrollment in nursing schools is at an all-time high.

Which of the following is the most logical conclusion based on the above?

a. The prospect of a low-paying job attracts many people to nursing school.

b. Enrollment in dental schools is at an all-time high.

c. Most people who start nursing school never graduate.

d. Nurses tend to seek out jobs that pay well.

2. Customers like to shop at stores where they can get a good deal. So stores typically put a few items "on sale" and sell them at cost or at a loss.

Which of the following is the most logical conclusion based on the above?

a. Stores would make more money if they never put anything on sale.

b. Customers often buy other items in addition to sale items.

c. Customers generally prefer to pay full price for their purchases.

d. Most stores accept charge cards and personal checks.

3. Joe is usually on time for work and for meetings with his boss and clients. He is also on time for appointments with his doctor, dentist, and priest. However, Joe is always five or more minutes late for meetings with Bill.

Which of the following is the most logical explanation for Joe being late for meetings with Bill?

a. Bill gets up later than Joe.

b. Joe is usually on time for people he respects, so he must not respect Bill.

c. Joe and Bill are both self-employed.

d. Joe and Bill are friends, so they don't care about being on time for each other.

4. People who are pushy about getting what they want are often disliked by others. However, aggressively going after customers is often needed to be successful in sales. People who are successful in sales are usually respected by others.

Which of the following is the most logical conclusion based on the above?

a. Doctors are not respected by most people.

b. Sales is the only job that requires pushiness.

c. Pushy salespeople may be successful but will often be disliked.

d. Salespeople who are not pushy will <u>not</u> be successful or respected.

5. History shows that many generals who were good leaders in war were not as good during peacetime. Also, many generals who were promoted during peacetime were not good at leading soldiers in war.

Which of the following is the most logical conclusion based on the above?

a. Weak people with friends in high places are often chosen to be generals during peacetime.

b. It is hard to know how officers will do in battle until they are actually in a war.

c. Generals and privates usually sit together at meals.

d. Modern wars are more often fought at sea than in the air.

6. A common side effect of allergy medication is drowsiness. Joan has never taken allergy medication. Occasionally, however, Joan gets drowsy.

Which of the following is the most logical conclusion based on the above?

a. Joan has a physical examination once a year.

b. There are other causes of drowsiness besides allergy medication.

c. Allergy medication gives some people high blood pressure.

d. Joan is allergic to dust, pollen, and ragweed.

7. The old saying, "an eye for an eye," means that if someone hurts you, then you should hurt that person back. If you are hit, then you should hit back. If someone burns your house, then you should burn that person's house.

Which of the following is the biggest problem with the "eye for an eye" plan?

a. It tells people to "turn the other cheek."

b. It offers no way to settle a conflict in a friendly manner.

c. It can only be used at certain times of the year.

d. People have to wait until they are attacked before they can strike.

8. Most bosses do not like to criticize employees. It makes both the boss and the employee uneasy.

Which of the following is the most logical explanation for the above?

a. Bosses and employees like a friendly place to work.

b. Annual performance reviews happen only once a year.

c. Many companies now have no-smoking policies.

d. Bosses are afraid to criticize problem workers.

9. New technology has changed the American workplace. A job that is here today could be gone tomorrow. People can no longer expect to work on the same job for very long. On the other hand, many new jobs are being created.

Which of the following is the most logical conclusion based on the above?

a. People will spend more time in school learning new skills.

b. More people will buy their homes rather than rent.

c. Trying to be steady and dependable will not be as important in future jobs.

d. The American workplace never changes.

10. Girl Scouts and Boy Scouts teach young people a sense of discipline. They also teach respect for authority, neatness, dependability, and loyalty.

Which of the following is the most logical prediction of what Scouts will be like when they grow up?

a. They will be easily controlled by leaders.

b. They will be reluctant to attend foreign films.

c. They will be self-conscious about their height.

d. They will be ready to take on responsibility.

11. People in a rich neighborhood in New York were pushed around for years by a homeless man. This man slept in alleys, stayed drunk or high on drugs, and cursed and threatened to hurt many of the residents. The police were called many times. But the homeless man always got a lawyer and returned to the neighborhood and caused trouble.

Which of the following is the most logical conclusion regarding the people who lived in this neighborhood?

a. They were used to dealing with the cold weather.

b. They were afraid of the man, and would not fight back.

c. They worked in New Jersey.

d. They did all that they could do within the law.

12. Businesses say they want to give customers a good product at a low price. To keep costs down, companies have cut back to the smallest workforce possible. And the pay for most workers does not buy as much as it used to.

Which of the following is the most logical conclusion based on the above?

a. Getting customers depends on keeping costs low.

b. Many companies pay employees monthly.

c. As long as their prices are low, companies don't care about the quality of life of their employees.

d. Companies usually raise prices to attract customers.

13. 100 years ago, male college students often fought duels with swords. One or both fighters were cut. Some people argued that duels should be outlawed. Other people stood up for dueling. They said that duels were a good way to pick out leaders who were brave and strong. In those days, leaders in the military and business often had dueling scars. Ultimately, however, duels were outlawed.

Which of the following is the most logical conclusion based on the above?

a. Guns made duels less dangerous.

b. Colleges wanted to be known as places of learning rather than fighting.

c. Without duels, it became harder to identify good leaders.

d. People interested in business stopped attending college.

14. Doreen has noticed that a new girl at her high school has been looking at her from across the cafeteria. The new girl is like Doreen in many ways. She is pretty, wears nice clothes, cuts her hair short, and seems to get along with both girls and boys. Doreen notices that the new girl is checking out who Doreen's friends are and how Doreen acts around boys.

Which of the following is the most logical conclusion based on the above?

a. The new girl is planning on joining the soccer team.

b. The new girl is checking Doreen out as a likely rival.

c. Doreen has algebra during second period.

d. The new girl may become friends with Doreen.

15. More people are getting permits to carry guns. Most of these people say that they want to carry a gun to protect themselves.

Which of the following is the most logical conclusion based on the above?

a. These people would not mind shooting someone if threatened or attacked.

b. These people would gladly buy a new car.

c. These people think they are less likely to be hurt if they have a gun.

d. Bullets for guns are expensive and difficult to get.

16. American cars have gotten better in the last 15 years. American car makers started to build better cars when they began to lose business to the Japanese. Many American buyers thought that foreign cars were better made.

Which of the following is the most logical conclusion based on the above?

a. America was the world's largest producer of airplanes 15 years ago.

b. Swedish car makers lost business in America 15 years ago.

c. The Japanese knew more than Americans about building good cars 15 years ago.

d. American car makers built cars to wear out 15 years ago, so they could make a lot of money selling parts.

17. Store employees are told to watch out for people who look like shoplifters. If a customer looks like a shoplifter, then employees are supposed to watch the customer closely.

Which of the following is the biggest problem with this practice?

a. Most retail stores don't open until 10:00 in the morning.

b. Many customers who look like shoplifters are honest and do not steal.

c. Parking is getting harder to find in shopping malls.

d. Abuse by store employees who use it as an excuse to bother people they don't like.

18. Many companies use bonuses to reward their employees. For example, salespeople are supposed to make a certain number of sales. If they sell more than they are supposed to, then they receive a bonus. Bonuses include extra pay and time off from work.

Which of the following is the most logical explanation for why companies use bonuses?

a. Bonuses give new employees a way to learn more about the business.

b. Bonuses give customers a reward for being loyal.

c. Bonuses give managers a way to have more control over their employees.

d. Bonuses give hard-working employees a way to earn extra money or time off.

19. People who work for restaurants often have their purses or bags searched. Managers search employees as they leave work. The reason given for the searches is that they reduce theft of food and equipment.

Which of the following is the biggest problem with this reasoning?

a. Most restaurant employees are honest and feel embarrassed by the searches.

b. Many restaurant employees receive tips from customers.

c. Employees who steal are too smart to be caught by this type of search.

d. More restaurants are opening up for lunch.

20. Gangs have formed in many large cities. Gangs often fight over territory, selling drugs, and insults. Gang members are often killed in these fights. Few murders of gang members are solved.

Which of the following is the most logical conclusion based on the above?

a. The police don't really care about the deaths of a few gang members.

b. Gangs never use weapons in fights.

c. Most police are trained in hand-to-hand combat.

d. Too many people are in gang fights to know who committed the murders.

21. Wild animals often fight to see who will breed. This ensures that only the strongest animals reproduce. When strong animals reproduce, their young tend to grow into strong and powerful animals. Unlike animals, people who are not strong often reproduce.

Which of the following is the most logical conclusion based on the above?

a. People who are not strong can be successful.

b. Animals breed most often in the Fall.

c. The study of biology is getting less popular.

d. Humans are becoming physically weaker.

22. Many hold-ups take place on city streets. Hold-up victims are usually not hurt if they do everything a robber wants.

Which of the following is the most logical conclusion regarding hold-up victims who do get hurt?

a. They resisted, refused to turn over money, or started a fight.

b. They met a robber with a taste for violence.

c. They were held up during the day rather than at night.

d. They were able to outrun their attacker.

23. Half of all marriages end in divorce. One reason for the large number of divorces is that getting a divorce is quick and easy. If a couple can agree on how to split their property fairly, then they can get a divorce simply by filling out forms and taking them to court. They do not need lawyers.

Which of the following is the most logical conclusion based on the above?

a. People are older when they get married.

b. If one's husband or wife hires a lawyer, then he or she is not planning to play fair.

c. Couples might get back together if getting a divorce took longer.

d. More men than women get divorced.

24. Some companies treat employees badly. For example, some companies lay people off and then expect one person to do the work of two people. Managers get big raises in some companies, but employees get only small increases. To get even, some employees have damaged company equipment, slacked off on the job, or faked being sick. However, most employees do not act in these ways.

Which of the following is the most logical conclusion based on the above?

a. Most employees are afraid of being caught.

b. Most employees never get sick.

c. Most employees drive to work rather than walk.

d. Most employees value good behavior at work.

25. Germany took over many small countries before World War II. Other countries thought that they could stop Germany. They had Germany sign agreements promising not to attack again. Germany broke these promises many times.

Which of the following is the most logical conclusion based on the above?

a. Only weak countries follow agreements.

b. Signing agreements works best when all countries can be trusted.

c. England should not have invaded France.

d. Small countries are always more powerful than large countries.

The End

Please make sure that you answered all 25 questions.

APPENDIX D

AGGRESSIVE BELIEFS AND VALUES
(Blumenthal et al., 1972; Cohen & Nisbett, 1994)

General Violence, Violence for Self-Defense, Use of Corporal Punishment for Children

Please use the following scale for the statements below:

1	2	3	4	5
Completely Disagree		Neither Agree Nor Disagree		Completely Agree

1._____"An eye for an eye and a tooth for a tooth" is a good rule for living.

2._____When someone does wrong, that person should be paid back for it.

3._____Many people only learn through violence.

4._____Violence deserves violence.

5._____It is often necessary to use violence to prevent violence.

6._____When a person harms you; you should turn the other cheek and forgive the person.

7._____A person has a right to kill another person in a case of self-defense.

8._____A person has a right to kill another person to defend his or her family.

9._____A person has a right to kill another person to defend his or her home.

10._____A person has a right to use physical force to respond to someone who has insulted them deeply.

11._____It is sometimes necessary to discipline a child with a good hard spanking.

12._____There are certain situations in which I would approve of a man punching an adult male stranger.

13._____There are certain situations in which I would approve of a police officer striking an adult male citizen.

APPENDIX E

JUSTIFICATION OF VIOLENCE

Please use the following scale to rate how justified physical violence is in response to the following situations:

1	2	3	4	5	6	7
Not at all Justified						Completely Justified

1. You find out that someone you slightly know is spreading vicious rumors about you that are completely untrue.

2. At a party, a complete stranger has their hands all over your date.

3. At a social gathering, you see another person physically assaulting your close friend.

4. At a party, you catch someone going through your purse/coat.

5. You accidentally bump into another person while walking down the street and they curse at you and then insult your appearance.

APPENDIX F

BELIEFS ABOUT GUN OWNERSHIP AND USE

1. Do you keep any sort of firearm (pistol, rifle, shotgun) in your current residence?
a. no
b. yes, one firearm.
c. yes, more than one firearm.

2. For what purpose(s) do you own a firearm?
a. don't own a firearm.
b. mainly protection, some sport use (targets, hunting)
c. mainly sport use, some protection.
d. for sport use only.
e. for protection only.

3. Have you ever retrieved and held your firearm while investigating a noise or disturbance in or around your residence?
a. don't own a firearm.
b. haven't retrieved my firearm for this purpose.
c. yes, once or twice.
d. yes, more than twice.

4. In your estimate, what are the chances (%) in your lifetime that you will ever have to point a firearm at someone who you perceive to be a threat to you or a friend/family member?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

5. In your estimate, what are the chances (%) in your lifetime that you will ever have to shoot a firearm at someone who you perceive to be a threat to you or a friend/family member?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

APPENDIX G

MEAN WORLD VIEW (Gerbner et al., 1980)

1. Think about the number of people in the U.S. who are involved in some kind of violence each year. Do you think that the number of people who are involved in some kind of violence in a given year is closer to 3%, 10%, or somewhere in between?

   3% 4% 5% 6% 7% 8% 9% 10%

2. About what percentage of all people in the U.S. commit serious crimes - is it closer to 3% or 12%, or somewhere in between?

   3% 4% 5% 6% 7% 8% 9% 10% 11% 12%

3. Would you be afraid to walk alone in a city at night?

   Not at all afraid 1 2 3 4 5 Very afraid

4. Are you afraid to walk alone in your own neighborhood at night?

   Not at all afraid 1 2 3 4 5 Very afraid

5. How many times does a policeman in a large U.S. city usually pull out his gun?

1	2	3	4	5	6	7
Once Every 5 Years	Once a Year	Once Every 6 Months	Once a Month	Once a Week	About Once a Day	More Than Once a Day

6. When police arrive at a scene of violence, how much of the time do they have to use force and violence – some of the time, or most of the time?

   Some of the time 1 2 3 4 5 Most of the time

7. Can most people be trusted, or do you think that you can't be too careful in dealing with people?

   Can be trusted 1 2 3 4 5 Can't be too careful

8. Would you say that most of the time people try to be helpful, or are they mostly just looking out for themselves?

   Try to be helpful 1 2 3 4 5 Just looking out for themselves

APPENDIX H

PARENT DISCIPLINE STYLE (Lynch et al., 2006)

1. What was the usual way in which your mother/father/guardian punished or disciplined you?
    a. Did not punish or discipline
    b. Nonphysical mild (scold, isolate, fine, remove privileges)
    c. Nonphysical harsh (lock in closet, deprive of food)
    d. Physical mild (slap or spank)
    e. Physical harsh (use object, punch, kick)

APPENDIX I

RELIGIOSITY

Brief Multidimensional Measure of Religiousness/Spirituality
Organizational Religiousness Subscale
(Fetzer Institute & National Institute on Aging Working Group, 1999)

Please use the following scale for the questions below.

1	2	3	4	5	6
Not at all during the past year	Once in the past year	2-3 times in the past year	Once a month	Once a week	More than once a week

1._____In a typical year, how often do you go to religious service?

2._____Besides religious services, how often in a typical year do you take part in other activities at a place of worship?

APPENDIX J

RETROSPECTIVE TV VIEWING REPORTS

Please use the following scale to indicate how much you watched each television program title presented below. If you have never heard of the program, you can leave the rating of that program blank or skip to the next program.

0	1	2	3	4	5
never heard of that program, never watched any episode	heard of it, but never watched any episode	watched only 1 or 2 episodes during the entire season	watched a few episodes, maybe 1 time a month during the season	watched semi-often, regularly, 2-3 times a month during the season	watched nearly every episode, 4 times a month during the season

FALL 2000

Sunday		Touched by an Angel		aired on CBS from 7:00-8:00 PM		
	0	1	2	3	4	5
		X-Files		aired on FOX from 8:00-9:00 PM		
	0	1	2	3	4	5
		La Femme Nikita		aired on USA from 8:05-9:00 PM		
	0	1	2	3	4	5
Monday		7th Heaven		aired on WB from 7:00-8:00 PM		
	0	1	2	3	4	5
		Walker, Texas Ranger		aired on USA from 7:00-8:00 PM		
	0	1	2	3	4	5
		WCW Wrestling		aired on TNT from 8:00-9:00 PM		
	0	1	2	3	4	5

APPENDIX K

CONTEXTUAL CUES

1. In what city did you live in the fall of 2000? _____

2. What school grade were you in during the fall 2000 semester? (circle one)

   K 1 2 3 4 5 6 7 8 9 10 11 12 FR SO JR SR Out of School
   College

3. List up to 3 teachers you had in fall 2000?

   _____ _____ _____

4. How old were you in the fall of 2000? _____

APPENDIX L

IDENTIFICATION WITH TV CHARACTERS
(Huesmann et al., 1984; Huesmann et al., 2003)

Please use the following scale for the question below:

1	2	3	4	5
Never				Very Often

Years 2000 and 2005:

1._____In general, how much did you identify with television characters in the year 2000 (2005)? By 'identification' we mean the extent to which you fantasized about being like them, incorporated their behaviors into your play when you were young and/or used their behaviors as a guide for your behavior, or in any other way emulated their behavior.

Year 2010:

1._____In general, how much do you identify with television characters in the year 2010? By 'identification' we mean the extent to which you fantasize about being like them, incorporate their behaviors into your actions and/or use their behaviors as a guide for your behavior, or in any other way emulate their behavior.

APPENDIX M

TELEVISION PROGRAM CONTENT RECALL

FALL 2000

Please inform the experimenter that you have reached this point in order to receive instructions for the following sections.

Program A

PROGRAM TITLE: _____

List as many characters or actors as you can remember from the program title listed above. Please separate entries by commas (for example, For the program "Family Matters," you could enter: Steve Urkel, Carl Winslow, Laura Winslow, ...). Once you cannot remember any more characters or actors from this program, move on to the questions below.

How often have you watched this program in years other than the year indicated above (in other seasons/years or in reruns)?

Never Occasionally Frequently

Is this a program that you have discussed with others (peers, family members, etc.)?

No Occasionally Frequently

Program B

PROGRAM TITLE: _____

List as many characters or actors as you can remember from the program title listed above. Please separate entries by commas (for example, For the program "Family Matters," you could enter: Steve Urkel, Carl Winslow, Laura Winslow, ...). Once you cannot remember any more characters or actors from this program, move on to the questions below.

How often have you watched this program in years other than the year indicated above (in other seasons/years or in reruns)?

Never Occasionally Frequently

Is this a program that you have discussed with others (peers, family members, etc.)?

No Occasionally Frequently

Program C

PROGRAM TITLE: _____

List as many characters or actors as you can remember from the program title listed above. Please separate entries by commas (for example, For the program "Family Matters," you could enter: Steve Urkel, Carl Winslow, Laura Winslow, ...). Once you cannot remember any more characters or actors from this program, move on to the questions below.

How often have you watched this program in years other than the year indicated above (in other seasons/years or in reruns)?

Never Occasionally Frequently

Is this a program that you have discussed with others (peers, family members, etc.)?

No Occasionally Frequently

APPENDIX N

PERCEIVED TV REALISM (Potter, 1988)

How realistic are television programs in general?

1	2	3	4	5
Completely Unrealistic				Completely Realistic

Please use the following scale for the questions below:

1	2	3	4	5
Definitely Disagree				Definitely Agree

1._____The people I see playing parts on TV are just like their characters when they are off camera in real life.
2._____The people who act in TV shows about families probably behave the same way in their real lives.
3._____The people who are funny as characters on comedy shows are probably very funny in their real lives.
4._____Jason Alexander, who plays George Costanza in the TV show "Seinfeld," probably acts in real life the way George does on the TV show.
5._____The things that happen to Julia Louis-Dreyfus in real life are probably the same as the things that happen to her "Seinfeld" character (Elaine Benes) on TV.
6._____The things that happen to Matthew Perry in real life are probably the same as things that happen to his character, Chandler Bing, on "Friends."
7._____Courtney Cox Arquette, who plays Monica Geller on "Friends," probably acts in real life the same as Monica does on the TV show.
8._____I feel I can learn a lot about people from watching TV.
9._____I get useful ideas about how I should act around my friends and family by watching characters on situation comedies.
10._____By watching TV I feel I can learn about life's problems and situations.
11._____The characters I see on situation comedies help give me ideas about how to solve my own problems.
12._____People on reality programs, such as the Kardashians, who are filmed in their daily lives, probably behave the same way off camera as they do on camera.
13._____I feel I can learn a lot about people by watching William Petersen (Gil Grissom) on the program "CSI: Crime Scene Investigation."
14._____I feel I can learn a lot about how to solve my own problems by watching Patrick Dempsey's character Dr. Derek Shepherd on "Grey's Anatomy."
15._____I can learn a lot about people by watching Jason Alexander (George) on the TV show "Seinfeld."
16._____There are certain characters on TV shows that I admire.
17._____There are a few characters in TV shows that I would like to be more like.

18._____“Real World” cast members probably behave the same way off camera as they do on camera.
19._____I know someone in real life like Dr. Derek Shepherd (Patrick Dempsey) on "Grey's Anatomy."
20._____I know someone in real life like William Petersen's character Gil Grissom on "CSI: Crime Scene Investigation."
21._____On "Seinfeld," Elaine Benes (Julia Louis-Dreyfus) is like someone I know in real life.
22._____On the TV show "Friends," Chandler acts like someone I know in my life.

APPENDIX O

IRB REVIEW FORM

Oklahoma State University Institutional Review Board

Date:	Friday, August 27, 2010
IRB Application No	AS1076
Proposal Title:	Retrospective Recall of Early Television Viewing: Relations with Aggressive Behavior, Prosocial Behavior, and Body Image
Reviewed and Processed as:	Expedited

Status Recommended by Reviewer(s): Approved Protocol Expires: 8/26/2011

Principal Investigator(s):

Jeff Seger
116 N. Murray
Stillwater, OK 74078

Richard Potts
116 N. Murray
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 219 Cordell North (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,

Shelia H. Kennison

Shelia Kennison, Chair
Institutional Review Board

VITA

Jeffrey Lane Seger

Candidate for the Degree of

Doctor of Philosophy

Dissertation: RETROSPECTIVE RECALL OF EARLY TELEVISION VIEWING: RELATIONS WITH ADULT AGGRESSIVE BEHAVIOR

Major Field: Lifespan Developmental Psychology

Biographical:

Personal Data:

Born in Bartlesville, Oklahoma, on March 27, 1981, the son of Steven and Retta Seger

Education:

Completed the requirements for the Doctor of Philosophy in Lifespan Developmental Psychology at Oklahoma State University, Stillwater, Oklahoma in May, 2011.

Completed the requirements for the Master of Science in Lifespan Developmental Psychology at Oklahoma State University, Stillwater, Oklahoma in 2007.

Completed the requirements for the Bachelor of Science in Psychology at Oklahoma State University, Stillwater, Oklahoma in 2003.

Experience:

Professional Memberships:

Association for Psychological Science, Graduate Student Member
Phi Kappa Phi, Multidisciplinary Honor Society
Psi Chi, National Honor Society in Psychology
Golden Key International Honor Society
Phi Eta Sigma Honor Society
National Society of Collegiate Scholars

Name: Jeffrey Lane Seger Date of Degree: May, 2011

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: RETROSPECTIVE RECALL OF EARLY TELEVISION VIEWING: RELATIONS WITH ADULT AGGRESSIVE BEHAVIOR

Pages in Study: 125 Candidate for the Degree of Doctor of Philosophy

Major Field: Lifespan Developmental Psychology

Scope and Method of Study: The purpose of the current study was to assess the relation between past television viewing and current aggressive outcomes in young adults using a retrospective recall methodology. Participants first completed electronic questionnaires of demographic information (e.g., age, gender, ethnicity, and socioeconomic status), current aggression (e.g., physical and verbal aggressive behavior, hostile attribution bias, aggressive beliefs and values, justification of violence, and gun beliefs), and socialization variables (e.g., parental discipline style and religiosity). Then, primetime network and cable TV program schedules from the years 2000, 2005, and 2010 were presented to participants who indicated how often they watched each program. After these retrospective television viewing reports were collected, programs that contained moderate to high amounts of violent content were identified and participants' ratings of those programs were summed to create TV violence exposure scores.

Findings and Conclusions: The main hypothesis, that there would be a significant positive relationship between violent content exposure scores in each target year (2000, 2005, and 2010) and participants' current aggressive behaviors and cognitions, was generally supported and extended existing longitudinal research findings concerning television and aggression. Specifically, after accounting for certain social and demographic variables known to be related to aggression and television viewing (i.e., gender, parental discipline style, and parental SES) and after accounting for general television exposure, a significant positive relationship was found between both recent and past exposure to violent television content and a variety of current self-reported aggression outcomes, including physical and verbal aggressive behavior; aggressive beliefs and values regarding violence in general, violence for self-defense, and the use of corporal punishment to discipline children; justification of violence in response to social conflict; and beliefs about gun ownership and use.

ADVISER'S APPROVAL: Richard Potts, Ph.D.