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ABSTRACT

Three hypotheses could explain a positive correlation between violence viewing and social aggressiveness in adolescents: 1) Heavy exposure to television (TV) violence somehow reinforces or induces aggressive tendencies; 2) An aggressive child is more likely to be attracted to violent TV programs; 3) Some third factors exist which could cause both violence viewing and aggressiveness. Data gathered for this study as well as other research in the area suggest that the first is preferable to the other hypotheses. Also, when third factors, defined for this study in terms of the family and parent-child interaction, were controlled, the correlations between violence viewing and aggressiveness persisted. Assuming that the first hypothesis is a parsimonious explanation for this correlation, are there "control mechanisms" which could modify the causal link postulated in the first two hypotheses? Of four possible controls proposed in this study, only parental control of aggression was found both to be a reasonable alternative and to reliably reduce the violence viewing and aggression correlation. (SH)

ADOLESCENTS, PARENTS, AND TELEVISION VIOLENCE

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ADOLESCENTS, PARENTS, AND TELEVISION VIOLENCE

In the two decades during which television has become the most pervasive medium of popular culture in the United States, there has arisen increasing public concern over manifestations of physical aggressiveness and violence in our nation's life. While it is questionable whether we are becoming "a more violent nation", there is quite reasonable alarm over the recent waves of political assassinations, multi-victim murders, and bloody police-student clashes on campuses; the astonishing increases in reported crimes of violence; and the easy expansion of overseas military adventures.

The search for "causes" of social aggression has left few stones unturned. Violence has been variously blamed on poverty, and on affluence; an overly restrictive, and overly permissive, child-rearing; on white racism, and black militance; on the heritage of the frontier, and the pressures of urbanization. As this list expands, it would be surprising indeed if an institution as obvious as television were omitted from it. Of course it has not been. Whether the common charge that TV violence stimulates aggressive behavior has some empirical basis, or can be dismissed as simple scapegoating, is a matter of lively debate. It also poses some severe problems for social research.

Violence as a major theme of drama and fiction originated long before television. It was well established in magazine, novel, radio and film escapades of such staple characters as cowboys and private detectives, when TV arrived. This tradition was readily adopted by television programing executives, and their decision was just as readily "approved" by the public, as Nielsen ratings attest. Since violent programs are often among the most

popular, the television industry is not alone in resisting demands that they be curtailed because they are socially deleterious.

Specifically, this charge usually refers to children, who are thought to be easily malleable via TV, especially adolescents, who are reputed to be particularly aggressive. Counterarguments to it tend to run like this:

1. Physical aggressiveness, except in the rare extreme, is a socially desirable trait in adolescence, one that attracts approval from peers of both sexes and prepares the youngster for the "dog-eat-dog" life ahead.
2. Even if aggressive behavior is more bad than good, it has not been conclusively proved that TV violence contributes to it.
3. Even if depictions of violence do have adverse behavioral effects, TV should not be prevented from showing them because broadcast freedom is constitutionally protected and artistically essential.

The first and third points in that argument are value judgments that we will not argue here, except to suggest that neither is without merit. The second point constitutes the root issue of this paper.

Hypotheses about the relationship between TV violence and adolescent aggressiveness may be stated at any of three levels of conceptualization. First there is the level of immediate specific effects. In a long series of experiments mostly on college students, Berkowitz (1965, inter alia) and his associates have frequently demonstrated conditions under which exposure to filmed violence increases the likelihood of limited forms of aggression. Perhaps even better known than these and similar studies are the objections to them. Inferences from experiments are open to the frequent charge that they are artificial, incapable of being generalized to real-life viewing and everyday aggression. As Singer (1971: p.47) puts it in one of the more thorough critiques, "They smell of the laboratory."

A second, more global level of analysis is that of cumulative individual differences. This is perhaps a more critical issue for policy purposes, because evidence of immediate specific effects could be shrugged off if it could be determined that habitual exposure of youngsters to media violence had no lasting influences on their behavior. Here the long-prevailing view has been that field surveys show no correlation between viewing and delinquent behavior (Klapper, 1960; Schramm et al., 1961), which is also the conclusion of a more recent review by Tannenbaum and Greenberg (1968). Beyond that level lies the macroscopic issue of a total societal ethos of violence, a scientifically moot question in the absence of systematic study.

Here we will address specifically the second level, where several recent field studies funded by the National Institute of Mental Health appear to indicate some correlation between heavy viewing of television violence and tendencies to behave aggressively (McLeod et al., 1971; McIntyre and Teevan, 1971; Lefkowitz et al., 1971; Dominick and Greenberg, 1970, 1971). We will rely primarily on correlational data from our own research reports and subsequent analyses, and our interpretations of the other studies (Chaffee and McLeod, 1971; McLeod et al., 1971; Chaffee, 1971). By using survey data from a variety of samples, we gain a good deal in generalizing power. But, of course, we must concomitantly sacrifice a great deal in hypothesis-testing power, by comparison with experimental manipulation and control.

The main value of correlational data is in the falsification of hypotheses, not in corroborating or confirming them in a positive sense (Popper, 1959). So if we find that viewing TV violence and behaving aggressively are not statistically associated, we would be inclined to accept the null hypothesis and cease speculating on "causal" links between the two variables. (That is precisely the kind of reasoning used by Klapper (1960) and others, in concluding that TV

viewing does not induce aggression in youngsters). Lack of correlation is not conclusive evidence against a hypothesis, since suppressor variables or hidden interactions may be operating; or the measures or sampling could be inadequate to detect a relationship. But the more powerful import of correlational data is negative, in that one is much more inclined to reject a hypothesis if he fails to find a correlation, that to accept it if he finds one.

The null hypothesis, that violence viewing and social aggressiveness are uncorrelated in adolescence, need not occupy us long here. In a few pages, we will present evidence showing positive correlations between the two variables in eight separate samples representing different communities, age levels, and sexes. At this point, then, we should spell out some hypotheses that could account for such a correlation. (For a full listing, see Appendix A.)

There are three forms of causal hypothesis that would be compatible with these positive correlations, and we will take them up seriatim. The first, which is the main research hypothesis ($\underline{H}_1$), is that heavy exposure to TV violence induces (or reinforces) tendencies in the youngster to behave aggressively toward others. The second is the reverse hypothesis ($\underline{H}_2$), that an aggressive youngster is more likely to be attracted to violent TV programs. A third general type of hypothesis ($\underline{H}_3$) would be that some third factor independently causes both violence viewing and aggressive behavior, so that the correlation between these two variables is nothing more than a fortuitous statistical artifact. Finally, there is the possibility that any presumed causal link between exposure to television violence and aggressive behavior can be modified by the institution of some sort of control mechanism. As with the search for "third factors" that might explain away the $\underline{H}_1$-$\underline{H}_2$ correlations, the list of potential control mechanisms is limitless. We will refer to hypothesized controls generally as $\underline{H}_4$.

Sources of Data

Two surveys, one in Wisconsin and one in Maryland, were conducted via public school districts. The first involved two waves a year apart (fall 1969 and fall 1970) in a small community on the border between an urban center and a farming region. The students completed questionnaires in school the first year, when they were in the sixth and ninth grades; in 1970 they were interviewed at home. Each youngster's mother was interviewed in each wave. Complete mother-child data are available for 151 families. The sixth-grade data are supplemented by interviews with the student's teacher.

The Maryland sample consists of 473 seventh- and tenth-graders who filled out questionnaires at school in April 1970 in a suburban county adjacent to Washington, D.C. (No teacher or parent interviews were conducted for this sample.) Although the questions were mostly identical to those in the Wisconsin study, some key measures were made only for one of the two samples. Where there are similar data available, we will show results from the two samples separately, to indicate the replicability of our findings. Further details of sampling are available in our technical reports (McLeod et al., 1971).

Those reports also contain details of the many measures that were used in these studies. Here we will explain briefly those that are dealt with in this paper.

Aggression Measures

Aggressiveness, for all that has been written on the topic, remains a fuzzily defined concept. Several quite different measures are available, and have survived various validity checks. We added some items, modified others, and conducted our own item analyses, to arrive at the batteries described here. (See McLeod et al., 1971 for details.) Our measures are intended to "surround" the concept of aggressiveness as an individual difference trait in adolescence,

rather than attempt to determine precisely what aggression "really is". The items we have used should cover most common notions of aggressiveness. We will rely often on self-report measures, but will compare the results from these measures with reports from other persons where available.

Self-reported Aggressiveness. A total of 20 items, which produced a 64-level index, were used in this key measure. About half of the items described physically aggressive behavior, such as these:

"When I am mad at someone, I sometimes fight with them instead of talking about the problem."

"If somebody hits me first, I let him have it."

"When I was younger, I used to act like a bully sometimes."

The other items included reactions to hypothetical situations that might evoke physical aggression (e.g. "What if someone cut in front of you in a long line."), and some less-directly worded items (e.g. "I often do things which I regret after." and "I am very patient with people.") Among the sources drawn on for items are Zaks and Walters (1959), Buss and Durkee (1957), Short and Nye (1957-58; 1958; Nye and Short, 1957), and Greenberg and Dominick (1968).

Peer-reported Aggressiveness. In the Wisconsin interviews, each youngster was given a list of ten classmates, to be rated on the frequency with which "when loses temper, hits other people." The ratings were summed across judgments by about ten peers per child.

Teacher-reported Aggressiveness. In the Wisconsin sixth-grade sample, where each teacher had the same class throughout the day, they were asked to locate each child on this four-point continuum: Highly aggressive-hostile, troublemaker; more aggressive-hostile than average; average; very passive, gets along well, submissive.

Mother-reported Aggressiveness. In the 1969 Wisconsin interviews, the mothers were asked the frequency with which their youngsters did the following:

--Get into fights, compared with others his age.

--Do mean things when playing with other children, when he was younger.

--Show aggressive behavior toward other children, when he was younger.

--Settle an argument with best friend, by aggressive means.

Overall Other-reported Aggressiveness. The three reports intercorrelated rather weakly with one another, the strongest association (r=.23) being between peer- and teacher-reported aggressiveness. The peer report appears to be the most valid, perhaps because of greater reliability (due to more judges), or due to the fact that peers have more chances to observe adolescent aggressiveness than adults do. Neither the mother nor teacher reports correlated with self-reports, nor did they discriminate well between the sexes. However, in the spirit of "surrounding" the measure by multiple operationism, these three sets of measures were combined into a single index of other-reported aggressiveness. (For further discussion of evidence on the validity of these measures, see McLeod et al., 1971; Chaffee, 1971.)

TV Viewing Measures

In accepting the null hypothesis, Klapper (1960) and Schramm et al., (1961) relied on the absence of a correlation between aggressiveness and viewing in general. However, it is quite possible for a youngster to spend a good bit of time with television and see rather few depictions of violence; TV programing includes something for almost everyone, and adolescents are quite fond of variety and comedy shows (Chaffee et al., 1970; Lyle and Hoffman, 1971). Therefore we have focused specifically on measures of viewing of violent programs; total viewing time is used principally as a control variable, since it includes many kinds of content that are irrelevant to our hypotheses.

Violence Viewing. Each youngster was given a list of 65 prime-time programs, and rated each according to a four-level estimate of his personal

viewing frequency; these were scored as follows:

1. Never
2. Sometimes -- at least once or twice
3. Often -- at least half the time
4. Almost always -- nearly every week

Each of those scores was multiplied by an eight-level estimate of the violent content of the program, based on ratings by samples of high school students (Murray et al., 1970), TV critics and adults (Greenberg and Gordon, 1970). The sum of these 65 products provided the violence viewing measure for each youngster.

Previous Violence Viewing. In Wisconsin, the questionnaire included a list of 13 programs that had been on TV three or four years earlier, but were no longer shown in that area. Coders rated these on a three-level violent-content scale; these ratings were multiplied by the viewing-frequency recall measures, then summed for each youngster.

Preference for Violent Programs. In Maryland, the questionnaire included space for each respondent to list his four "favorite" television programs. All programs listed were scored according to the eight-level scale used for the violence viewing measure (above), and a mean score calculated for each youngster.

This measure was not included in our technical reports (McLeod et al., 1971), because it correlated weakly with other indices. Similarly weak-to-null results have been reported recently in other studies using this measure (notably McIntyre and Teevan, 1971; Lefkowitz et al., 1971). But since ours is the only study that includes both this measure and an estimate of actual viewing of violent programs, and since it is relevant to a principal alternate hypothesis (H_2), we include it here (cf. Chaffee, 1971).

Viewing Time. Each respondent was asked to estimate the number of hours he spent viewing TV "yesterday", "the day before yesterday" and "on an average day after 5 p.m." These were combined into a single index.

Viewing-Aggressiveness Correlations

The overall results, shown in Table 1, indicate that the null hypothesis should be rejected. There are positive correlations, all significant at the .05 level or beyond, between both measures of violence viewing (present and past) and each measure of aggressiveness. Viewing time, which bears a part-whole relationship to violence viewing, is also significantly correlated with each aggressiveness measure; when viewing time is partialed out, the violence viewing correlations remain significant (data not shown). Results from the two samples on the same measures are similar.

Only the measure of preference for violent programs is too weakly correlated with aggressiveness to reach statistical significance. Partialing indicates that this correlation is positive for males only, a finding that accords with another survey taken in the same locale (McIntyre and Teevan, 1971). These data are presented below (Figures 2-5), in connection with consideration of $\underline{H}_2$.

While the correlations in Table 1 are positive, they are not especially strong. The strongest relationships indicate that only about ten per cent of the variance in aggressiveness could be accounted for by violence viewing, or vice-versa. Doubtless both measures could be improved to some extent, but they involve large numbers of items and broad samples of adolescents. So while we would firmly reject the null hypothesis, we would also doubt that television violence can be identified as a major determinant of adolescent aggressiveness. The issue of whether this hypothesized causal relationship can be considered tenable at all requires that we examine it ($\underline{H}_1$) in comparison with the two types of alternative explanations ($\underline{H}_2$ and $\underline{H}_3$). Let us take up $\underline{H}_1$ vs. $\underline{H}_2$ first.

Time Order and Intervening Processes

Causal inference requires three elements: correlation, which has been demonstrated already; evidence of time order in which the "cause" precedes the "effect"; and specification of a functional relationship linking the two events.

Time order. Some data modestly relevant to the time-order issue have been shown in Table 1, where we can compare the relationship with aggressiveness of present vs. past violence viewing. On their face, the results would seem to indicate a dead heat. Previous violence viewing correlates more strongly with self-reported aggressiveness, but less strongly with the peer-reported measure. Neither difference is significant. However, the correlation with previous violence viewing is somewhat more impressive, since this index is based on only one-fifth as many programs, and a less precise response scale, in comparison with the measure of present violence viewing. The latter should, then, be more reliable and accordingly enter into stronger statistical associations with aggressiveness if the "real" correlation is equal over time (McNemar, 1963). The only other evidence on time-order is the longitudinal study by Lefkowitz et al., (1971), in which cross-lagged correlations led the authors to conclude that TV violence is a "probable cause" of adolescent aggressiveness in males. However, there are a number of problems involving non-comparability of measures in that study (see Chaffee, 1971). Single-variable trends during adolescence are inconsequential. Total viewing declines sharply in this period, and violence viewing most often declines somewhat; aggressive behavior is also reported somewhat less often for older adolescents, but of course many developmental and social factors could explain such trends (Chaffee, 1971). The issue of time order should be considered unresolved at this time, with the scant data at hand pointing more toward H_1 than H_2.

The matter of specifying a functional relationship that would "explain" H_1 (or H_2) is primarily a task for empirical theory. The variety of such relationships that could be suggested depends on the theoretical orientation and intellectual resourcefulness of the hypothesizer. Rather than address all of the many functional mechanisms that have been suggested, we will limit our consideration here to three of the most plausible rationales, two relevant to H_1 and one to H_2.

Learning as an intervening process. The first hypothesis we will call H_{1a}, or the "learning" hypothesis. The intervening process would be that the youngster who observes televised aggressive behavior "learns" this in the sense that he adds it to his repertoire of potential social acts. If he later finds himself in situations where this behavior is one possible means of coping, he will be more likely to act aggressively than he would have been had he not seen the TV portrayal (Siegel, 1969; Haines, 1955). Liebert (1971) has concluded from experimental evidence that the first portion of this hypothesis is no longer in doubt: "It is apparent that children can and do learn aggressive behaviors from watching television." Whether that learning is later translated into interpersonal aggression is a still-questionable proposition (see also Bandura et al., 1963).

To test H_{1a} we used a five-item index of perceived learning of behavior via TV. The youngster was asked to what extent he felt it was "like me" to react to television in ways such as these:

--These programs show me how to get back at people who make me angry.

--Sometimes I copy the things I see people doing on these shows.

--Some programs give me ideas on how to get away with something without getting caught.

This self-reported "learning" process can be thought of as a hypothetical "path" through which viewing violence might lead to aggressive interpersonal behavior. To accept the null hypothesis it would be sufficient to determine that this intervening learning process is uncorrelated with either violence viewing or aggressive behavior.

Identification as an intervening process. Another hypothetical process that is sometimes suggested as a functional link between TV violence and aggressive behavior is "identification" with aggressive characters, which we will label H_{1b}. In various terms, it has been hypothesized by Zajonc (1954), Albert (1957), Maccoby and Wilson (1957), Schramm et al., (1961), Bandura and Huston (1961), and Walters (1966), with most of the evidence indicating that it is at least a plausible hypothesis at this stage. The rationale is that the youngster may frequently see an admired hero who achieves his goals through force and violence, and consequently pattern his own behavior after that model, in an effort to be like the character he identifies with. This process need not involve learning of new behaviors (which were dealt with in H_{1a}). It would be sufficient for H_{1b} if violent portrayals elicited identification with the aggressive actor, which in turn stimulated tendencies toward aggressiveness that already existed in the child. Whether those aggressive tendencies might be inborn, learned from television, or due to other influences on the youngster, is irrelevant to H_{1b}. Klapper (1963) commented regarding media violence that its usual influence is to reinforce behavioral tendencies regardless of whether they are "socially wholesome or socially unwholesome." The term "reinforce" generally refers to increasing "the probability that a response will recur" in a similar situation (English and English, 1963). The reinforcement view has also been expressed by Bailyn

(1959), Himmelweit et al., (1961), and Berelson and Steiner (1964), using various bodies of data and theoretical perspectives.

The intervening process of identification, through which either elicitation or reinforcement of aggressive tendencies hypothetically occurs, can be assumed to occur in a context of positive values. In television and film drama, it is ordinarily the "good guys" who win out over the "bad guys" in climactic fistfights and shootouts. Experiments show interestingly, that minor aggressive effects are stronger after viewing a film in which a criminal is caught or punished by aggression, than if the aggression is not strongly justified (Berkowitz et al., 1963). To a considerable extent, H_{1b} involves a combination of "might and right" in a single admired character.

Our data are not complex enough to address many of these theoretical issues. But we can take a rough reading on H_{1b} by interposing a two-item index of identification between the violence viewing and aggressiveness measures. One item asked the youngster to name the one person on TV he would most like to be; the other asked him to pick his favorite from a list of six male film actors. Each of these was rated by coders, on the degree to which he typically behaved violently on the screen. In testing H_{1b} we again reasoned that identification with violent characters should correlate with both violence viewing and aggressiveness if it is an intervening process that explains some portion of the correlation between them.

The reverse causal hypothesis. Although we will limit our analysis here to H_{1a} and H_{1b}, there are many other conceivable processes that might account for H_1. By comparison, H_2 can be narrowed down much more specifically. The key process that should intervene between a generally aggressive personality disposition, and heavy viewing of TV violence, should be a preference for violent programs. We would not want to infer that aggressiveness "causes"

violence viewing. Unless evidence indicates that this viewing is intentional and selective.

To tap this intervening condition of a preference for violent programs, we asked our respondents (Maryland only) to list their four "favorite" programs; these four were assigned violence ratings as had been done with the measures of actual viewing (see above), and the four scores were summed. Although this hypothesis is the only variant of $\underline{H}_2$ we will address, we will refer to the more specific three-variable process as $\underline{H}_{2a}$ to distinguish it operationally from the two-variable $\underline{H}_2$. As in the case of $\underline{H}_{1a}$ and $\underline{H}_{1b}$, this "path" hypothesis predicts positive correlations between the hypothesized intervening preference measure, and both the antecedent aggressiveness and the consequent violence viewing.

Results. Figure 1 displays schematically the hypothesized processes, and the correlational data testing them. To check replicability, data from Maryland are shown above the lines, and from Wisconsin below. Only self-reported aggressiveness measures are represented, since other-reports are not available in the Maryland data.

The upper portion of Figure 1 shows the two-variable correlations between aggressiveness and present violence viewing (top line) and violence viewing 3 years previously (second line). These are of interest primarily for comparison with other data in Figure 1, but it is noteworthy that the present-previous correlation is not much larger than that between either of those measures and aggressiveness. Since the present-previous correlation is in effect a kind of reliability check, it appears that our viewing measures are not especially reliable. If they include a great deal of error variance, then the correlations we find between them and other variables will be seriously attenuated (McNemar, 1963). Therefore we will refrain from drawing inferences based on the relative

magnitudes of various correlations, and instead rely on tests of the significance of each correlation as a difference from zero.

Data bearing on the three process hypotheses are shown in the lower portion of Figure 1. Overall they appear to be consistent with both $\underline{H}_{1a}$ and $\underline{H}_{1b}$, but not with $\underline{H}_{2a}$. That is, those who watch more violent TV programs are more likely to say they learn useful behaviors from television, and to identify with violent characters. In turn, those who rank high on the learning and identification measures also tend to behave more aggressively. These findings are consistent with both functional relationships that would provide explanation for $\underline{H}_1$. The main difficulty with $\underline{H}_{2a}$ is that there is only a very small correlation between aggressiveness and preference for violent programs. The other correlation, between preference for and viewing of violent TV, is significant, although not nearly so strong as one would expect considering the conceptual closeness of the variables. It could well be that the four-program measure of viewing preferences is not reliable enough to yield data to support $\underline{H}_{2a}$.

Other studies using favorite-program indices indicate, however, that the limitation on $\underline{H}_{2a}$ is not one of measurement, but simply that the hypothesis holds only for males, and then with some developmental differences (Lefkowitz et al., 1971; McIntyre and Teevan, 1971). To pursue this, we have divided our sample by sex and grade level. Figures 2 through 5 show the results.

Looking across these tables, the viewing-aggressiveness correlation is stronger when the previous viewing measure is used for males (Figures 2 and 4), but when the present viewing measure is used for females (Figures 3 and 5), we should note that the two viewing measures are highly correlated for females. So evidence of time-order that would be more consistent with $\underline{H}_1$ than with alternate hypotheses seems to be limited to the boys.

The learning hypothesis, H_{1a}, appears to stand regardless of partialing. At least, all the correlations relevant to it are positive, although in some cases rather small. In all, there are eight replications with different samples in Figures 2-5, so perhaps the consistency of the correlations is more persuasive than their magnitude. So far as these data provide a test of H_{1a}, then, we would be disinclined to reject it in favor of the null hypothesis; it appears to hold up about equally well at both grade levels, for both sexes, in both locales.

The identification hypothesis, H_{1b}, and the reverse hypothesis involving an intervening preference for violent programs (H_{2a}) do not stand up so well. On simple empirical grounds, the data seem to be inconsistent with H_{1b} except for junior high males, and with H_{2a} except for senior high males. These are not conclusive tests, especially given the small number of items measuring the key intervening variables. But in a speculative vein (far beyond our capacity to test the hypothesis here) we might venture to posit a sequence of events linking these two specific findings. That is, it is possible that boys at the beginning of adolescence (when TV use is greatest) develop preferences for violent programs in accordance with their general levels of aggressiveness (whatever the "cause" of the latter). During adolescent development, repeated exposure to these programs builds identification with aggressive heros -- which in turn increases their aggressiveness in comparison with their peers. (Identification processes would be fostered by the fact that the overwhelming majority of aggressive acts on TV are performed by males; put another way, this might account for the low relationship between violence viewing and identification among females.

These inferences (H_{1a} and, for males, H_{1b} would be consistent with the conclusion of Berelson and Steiner (1964) that "media effects" are mostly due to what people do with media content, not what content does to people. The key

intervening processes of identification and learning reside in the youngster, not in the media portrayals themselves. Still and all, it is hardly comforting to conclude that violent programs are part of a cycle of reinforcement and possible stimulation of aggressive behavior by adolescents. Yet despite the attempts at falsification here, we have not been able to discard H_1.

Neither can we make a powerful case for H_2 as an alternative explanation, now that three studies have failed to support it for females. Other data render H_2 even less plausible, to the extent that it implies a high degree of purposefulness in adolescent program selection. Lyle and Hoffman (1971) found that TV is primarily associated with entertainment and relaxation (not anger or hurt feelings) among adolescents. A sample of boys in early adolescence said they often watched programs to kill time, or because they "just came on" (Friedman, 1971). And the low correlations we find here between previous and present violence viewing would suggest that that specific behavior is not often a fixed "personality trait" that remains associated with other more basic traits; Lefkowitz et al., (1971) report significant longitudinal test-retest correlations for aggressiveness but not for viewing preferences. Further, since Schramm et al., (1961) found that excessive TV use makes some children overly passive, and since viewing precludes many kinds of motor activity that would seem normal in adolescence, it does not seem to be a likely vehicle for an adolescent to seek out in order to manifest aggressive tendencies.

Partialing out Third Variables

Given that we have empirical reason to prefer H_1 to H_2, the next natural question is whether some third variable(s) might not account for the positive correlations (H_3). Logically speaking, only a partial answer is possible, since the potential list of third variables can never be exhausted. But pragmatically

speaking, it is possible to make a beginning, and to examine some of the more likely additional variables. As the title of this paper indicates, we have concentrated on the family and parent-child interaction as a general locus in which to define third variables that might account for viewing and aggression. This is not to minimize the possible importance of, say, school or peer influences.

General attributes. There are many ways in which attributes of parents can influence their youngsters. First, there are such relatively fixed factors as genetic inheritance and family socioeconomic conditions. We have found that the child's I.Q. is a major correlate of viewing, in that more intelligent adolescents watch less TV, particularly violent programs (Chaffee and McLeod, 1971). Academic performance in school (which is partly a function of I.Q.) and family socioeconomic status are both negatively related to violence viewing: the more successful students and those from higher-status homes watch violent programs less. These findings are inconsistent with some other studies, but those discrepancies matter little here, since neither school performance nor SES shows any consistent correlation with aggressiveness. When we partial out these semi-inherited factors, the viewing-aggressiveness correlations of Table 1 persist (McLeod et al., 1971).

Parental "example". A second type of possible parent-child influence could be the parent's own behavior, which might serve as a "model" for the youngster. We have found consistent mother-child similarities on various measures of violence viewing in several samples (Chaffee and McLeod, 1971; McLeod et al., 1971), although associated evidence suggests that "modeling" by the child would account for only a small portion of this correlation (see Chaffee et al., 1970, 1971). In the one study where we have measured parental aggressiveness, there are positive correlations, at least among mother-daughter pairs (McLeod et al.,

1971). These findings could presumably be explained by other factors; the possibility that correlated levels of aggressiveness and violence viewing tend to be transmitted between generations within families is an intriguing one that deserves much more thorough research. But even if detailed analyses were to show that parental "transmission" is a viable H_3, the question would remain as to how such a correlation had originated in the parent.

Parent-child interaction. A third potential source of parental influences on the youngster is the habitual pattern of parent-child interaction. Here we will examine in some detail three general kinds of interaction: direct parental intervention in the hypothetical TV-aggressiveness nexus; modes and intensities of punishment and affection toward the child; and the structure of family communication.

Our results for the first two types of parent-child interaction are summarized in Table 2, which relates three intervention indices and four affection-punishment scales to violence viewing and two reports of aggressiveness.

"Parental control of child's viewing" is a six-item index; item scores were raised slightly if the control referred specifically to violent programs. This is correlated weakly with violence viewing (part-whole correlation, in a sense), and with aggressiveness. The latter correlation suggests that parental viewing control is not an effective mechanism to moderate the possible viewing-aggressiveness link, a question to which we will return more fully (below).

A somewhat more promising parental behavior is "emphasis on non-aggression." This was a four-item index, ranging from "Do your parents punish you if you are mean to other kids?" to "How important does your mother think it is for you to learn to defend yourself?" (reverse scored items) One item referred specifically to "the bad things people do on TV". This type of parental emphasis is

associated with lower levels of adolescent aggressiveness, both in Table 2 (weakly) and in other studies of younger children (Dominick and Greenberg, 1970, 1971). Although this measure is not consistently related to violence viewing, it is retained as a control variable (see below).

A more explicit measure of "parental interpretation of TV violence", based on five items, shows the expected correlation with violence viewing in Table 2, but is unrelated to aggressiveness.

Of the four affection-punishment items in Table 2, only one shows a consistent positive relationship with both violence viewing and aggressiveness. That one is the index of restrictive punishment, which consisted of items asking the frequency of "grounding" the youngster and "taking away privileges". If there is a causal sequence here, it would seem most likely to consist of aggressive behavior by the child, which would be punished by keeping him home, which in turn would give him greater opportunity to watch violent TV. It should be noted that the correlation holds up fairly well when viewing time is controlled, which suggests that more detailed research might find evidence of selective preferences for violent programs.

Another way of looking at affection and punishment is to control them statistically and examine the partial correlation that remains between violence viewing and aggressiveness. In multiple regression analyses (McLeod et al., 1971) we have partialed out the "effects" of affection and a three-index summed punishment measure; the residual $\underline{H}_1$-$\underline{H}_2$ correlations are .32 and .27 in the Maryland and Wisconsin samples, respectively, for self-report aggressiveness; for the Wisconsin data on other-report aggressiveness it is .14. These partial correlations are not appreciably smaller than the raw correlations reported in Table 1. So we would at least tentatively conclude that affection and punishment, while they doubtless have something to do with the youngster's social behavior,

are not likely "third factors" that might provide an H_3-type explanation as an alternative to H_1.

Family communication patterns. A less direct fashion in which parents can influence their youngsters' development is by the habitual structure (as distinct from the content) of parent-to-child communication. In a series of studies we and our colleagues have examined the effects of family communication patterns on cognitive development and media use in adolescence (e.g. Chaffee et al., 1971; McLeod et al., 1968-69; Stone and Chaffee, 1970). Our technical reports that provide the basis for this paper describe in detail the measures of family communication that we have applied to the study of violence viewing and aggressiveness. Here we will sketch only a brief overview.

On the basis of similar results from many and varied samples, we have devised a fourfold typology of parent-child communication, based on two dimensions on which families differ greatly from one another. The first dimension we call "socio-oriented", because it consists of parents urging the child to keep discussions pleasant, avoid controversy, defer to his elders, and generally maintain interpersonal harmony at the expense of his own ideas and opinions. The second dimension, which tends to be uncorrelated with the first, we call "concept-oriented". There are several aspects to a positive concept-orientation, including encouraging the child to challenge parental beliefs, to reach his own conclusions and hold his personal views, plus intentional exposure of the child to contrasting views (e.g. between mother and father) on controversial issues.

Stress on socio-orientation tends to decrease during adolescence, while concept-orientation stays about equally strong (Chaffee et al., 1971). Since about equal numbers of families stress neither, either, or both orientations, and since their combinations produce unique family structures, we have found it useful to analyze data in terms of the four types as a group. We have labeled these types laissez-faire, pluralistic, protective, and consensual.

Laissez-faire families emphasize neither orientation. That is, the children are not constrained toward maintaining social harmony, nor are they exposed to the world of contending ideas. Pluralistic families stress only the concept-orientation. Thus the youngster is encouraged to explore and express new ideas in a family environment that is relatively free of social constraints. Protective families, by contrast, emphasize only the socio-orientation. The child is mainly encouraged to learn to get along with others, and is in effect "protected" from the challenge of ideas that might disrupt interpersonal harmony. In consensual homes, both orientations are stressed on the child. This may well be the most difficult set of constraints from the child's viewpoint, since he is exposed to controversy, encouraged to enter into it, yet paradoxically is held responsible for keeping social relationships smooth and pleasant.

Table 3 summarizes our findings relating family communication types to the major variables of this paper. The data are expressed in terms of standard scores, so that one line in the table can be compared with another to estimate the relative importance of family communication for different indices.

Looking first at the child's viewing behavior, it is the socio-orientation that accounts for most of the differences. Youngsters in protective homes spend the greatest amount of time watching TV, a finding we have replicated with much larger and more diverse samples (Chaffee et al., 1971). But they and the consensuals are about equally high in terms of violence viewing and the perceived learning of behaviors from TV. The pluralistic youngsters are decidedly lowest on these two measures.

On aggressiveness, the pluralistics are well below the norm, and protectives above it, whether self-reports or other-reports are used as the measure. These two contrasting types of family are not the extreme ones on the indices of parental intervention in the child's TV uses and possible reactions, however.

Parent control of the child's viewing is associated with both kinds of parental sanction in family communication, particularly the socio-orientation. Parent interpretation of TV violence is equally associated with both orientations. Only in the emphasis on non-aggression are both types of highly socio-oriented families equal.

This last finding is perhaps the most startling. A heavy stress on the child to maintain interpersonal harmony is accompanied by an understandable emphasis on behaving non-aggressively; but it is also associated with more violence viewing, and more aggressive behavior. The lowest incidence of both violence viewing and aggressiveness are found in the pluralistic family environment -- where parental attempts to control viewing and aggressiveness are well below the norm.

These data suggest that the total quality of the parent-child relationship (of which family communication structure is only a part) might well be the locus in which one would find a demonstrable H_3 that would render H_1 an unnecessary inference. Attempts in that vein here would be seriously hampered by the small sample size. In multiple regression analyses where we have simultaneously controlled the two dimensions of family communication structure, significant correlations between violence viewing and aggressiveness have persisted (McLeod et al., 1971). So to this point in our research we cannot conclude that we have discovered any parent-child relationship "third variables" that can account for the correlations that support H_1. We would strongly recommend that the search be continued, and expanded to other areas of adolescent life, beyond the home.

Possible Approaches to Control

Although H_1 has not been "proven", and in a strict logical sense cannot be, the empirical case for it has been somewhat strengthened by the comparitive

elimination of some potential alternative hypotheses. We have presented evidence that would support H_1 more strongly then H_2, in terms of functional relationships linking violence viewing and aggressiveness, and to a lesser extent in terms of time order. We have examined a variety of H_3 factors in the family environment, and failed to find a viable alternative to H_1. None of this is conclusive, but H_1 does provide a parsimonious general explanation for most of our findings and other correlational studies, plus accumulated evidence from the great majority of laboratory investigations (see Liebert, 1971, for an up-to-date summary). To deny H_1 requires a great many different alternative explanations, to account for the many different kinds of studies that tend to support it.

We propose, then, to turn our attention to possible methods of controlling the possible aggressive effects of viewing TV violence. That is, we will take H_1 as a working assumption and consider what might be done about it. Because the overwhelming thrust of scientific attention has been focused on H_1, there has been little research relevant to H_4, the hypothesis that there are control mechanisms that can minimize or eliminate any socially undesirable aggression tendencies that might result from violence viewing. H_1 continues to be a testable proposition in its own right, but for purposes of addressing H_4 let us assume that H_1 is true.

There seem to be four general loci of control, potentially. The content of television presentations could be controlled; or children's viewing could be controlled; in either case, presumably violent content would be eliminated by some form of censorship. The other two modes of control are closely linked; one could control aggressive behavior, or interpose some sort of modifying influence at the point where the youngster is viewing TV violence. We will

consider these four alternatives in the light of what little research has been done relevant to H_4.

Media censorship. The first alternative, that of censoring violence from television itself, is the fearsome spectre that has made so many of us reluctant to accept H_1 despite the varied array of evidence that is consistent with it. There are two general possibilities, each objectionable. First, there could be government regulation, a conclusion to which TV critics often jump. Or as a second alternative, media self-regulation could be instituted. Government control, either by legislative action or through the Federal Communications Commission, would seem incompatible with constitutional guarantees of freedom of speech and of the press; presumably, then, it should be considered only as the very last resort, if at all. Self-regulation by the television industry might be preferable, but at best it should be seen as an enormous challenge to TV writers and producers. The prospect of television entertainment bowdlerized by strictures against depicting violence is a dismal one, in our view. But our personal views (and those of industry critics and spokesmen) aside, point is moot scientifically. There simply has been no study addressed to this issue of whether controls on violent TV content would have socially beneficial effects -- or possible harmful side-effects. The introduction of television originally seems to have usurped the place of functionally "equivalent" media, in that there was a decline in use of materials such as comics, movies and novels (Schramm et al., 1961; Parker, 1963), which had carried light entertainment to various audiences. If television alone were to abandon the apparent "violence market", one should not expect those media to refrain from attempting to fill the resultant void.

Let us turn our attention to the kinds of controls on which there has been at least a smattering of research, and consider H_4 in terms of controls short of direct censorship of television content.

Control of viewing. Limiting the child's exposure to violent programs that are available on television does not appear to be a very promising mode of control for very many parents. As we have shown above, parental control of viewing is associated with somewhat higher levels of both violence viewing and aggressiveness (Table 2). It does appear to markedly reduce the correlation between violence viewing and aggressiveness among junior boys, but the results are unclear and conflicting for the senior boys. (Table 4) No consistent pattern is shown among the girls.

Parental control also appears to occur along with other kinds of strictures on the child, such as family communication orientations that are associated with aggressiveness, relatively poor school performance, low attention to news media, and susceptibility to media opinion influences (Table 3, and Chaffee et al., 1971). Perhaps more important is the fact that parental "dial control" simply does not occur very often; less than 10 per cent of the sample of tenth-graders reported any parental control of their viewing (Lyle and Hoffman, 1971).

A relevant experiment is the widely discussed field study by Feshbach and Singer (1971). The authors treat it as a test of H_1, and argue that it supports the hypothesis that violence viewing reduces aggressiveness via "catharsis". But it can be viewed more operationally as an H_4 experiment, since both the "experimental" and the "control" condition consisted of prescribing the programs a group of junior high boys would be allowed to watch. The condition can be described roughly as "high violence viewing" and "low violence viewing"; the authors report heavier incidence of several types of aggressive behavior among the boys in the "low violence viewing" situation.

A reasonable interpretation might be that "high violence viewing" is nearer to the normal pattern of TV use for boys in early adolescence (Friedman, 1971; Lyle and Hoffman, 1971; McIntyre and Teevan, 1971), so that the "low violence

viewing" condition constituted a more artificially instituted pattern of deprivation; the boys reacted to this constraint, rather than to what they watched on TV. This inference is supported by Feshbach and Singer's finding that considerably more boys in the "low violence viewing" condition said they disliked the programs they watched; the difference (15 per cent vs. 8 per cent) is significant, although the authors dismiss it as "small". From an H_4 perspective, the import of the Feshbach-Singer experiment would simply be that attempts to control the youngsters' viewing turned out to be quite unsuccessful as a method of reducing aggressiveness.

Interpretation of televised violence. We have found (Table 2) that parental interpretation of TV violence is associated with approximately "average" levels of aggressiveness by the adolescents. We also see that it has no clear and consistent effect on the violence viewing correlations (Table 5). Several experiments have shown that the effects of aggression-inducing stimuli interact with the kind of context or preliminary instructions in which they are presented to the youngster (e.g. Pillard et al., 1963; Kaufmann and Feshbach, 1963). In general, this appears to be a promising and under-investigated field. Whether interpretive comments to provide a context for viewing violence can be most effectively instituted by parents and teachers, or as part of television presentations themselves, is obviously worthy of serious consideration by public health and media specialists.

Control of aggression. There are many potential social controls over aggressive behavior. These include school and law enforcement mechanisms, social sanction by peers and family, and of course controls that have been internalized by the youngster himself. Obviously these are already at work, although not to the degree of effectiveness that would be wished. The question at hand is, do social controls on aggressive behavior modify any influence

violent TV programs might have on aggressiveness? We attempt to provide a partial answer in Table 6.

Our measure of parental emphasis on non-aggression, which appeared somewhat promising as a control mechanism in Table 2, has been used to bisect the samples in Table 6. The hypothesis (H_4) is that the correlation between adolescent violence viewing and aggressiveness would be lower where the child is exposed to parental sanctions against his behaving aggressively. The right-hand column of Table 6 shows a plus (+) sign for each sample and measure where this hypothesis holds, and a minus (-) sign otherwise. (These are indicators of the direction of difference only, not significance levels.) With almost perfect consistency, the hypothesis holds across samples.

To end on an optimistic note, then, we would judge controls on aggressiveness *per se* as a potential mechanism that could modify socially deleterious effects of violent programs. In this connection, we have found that adolescents tend to share their parents' opinions about aggression and violence, and that there is only an extremely weak association between violence viewing and approval of aggression (McLeod *et al.*, 1971; see also McIntyre and Teevan, 1971). This suggests that stronger peer sanctions against aggressiveness can also be developed.

Given the evidence that both interpretation of TV violence, and social sanctions against aggression, provide potentially effective mechanisms for lessening adverse behavioral consequences of TV violence, suggestions for direct controls on violent media programing would appear to be scientifically questionable and, to say the least, premature -- even if it is concluded that H_1 is an acceptable inference.

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ADOLESCENTS, PARENTS, AND TELEVISION VIOLENCE

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Appendix A, Tables and Figures

APPENDIX A

Hypotheses about Violence Viewing and Adolescent Aggressiveness

H_o: There is no relationship between habitual viewing of television violence and tendencies to behave aggressively, among adolescents.

H_1: Viewing television violence increases the likelihood of an adolescent behaving aggressively.

H_{1a}: By viewing television violence, an adolescent learns aggressive forms of behavior; this increases the probability that he will behave in this fashion in subsequent social interaction.

H_{1b}: Habitual exposure to violent characters on television tends to create an identification in the adolescent, with the aggressive character; this induces, or reinforces, a tendency to behave aggressively.

H_2: Aggressiveness causes adolescents to watch violent television programs.

H_{2a}: Aggressiveness leads to a preference for violent programs, which in turn causes the aggressive adolescent to watch them.

H_3: Aggressiveness and the viewing of television violence are independently caused by some third factor(s).

H_4: If viewing television violence increases the probability that an adolescent will behave aggressively, there are potential control mechanisms that can minimize or eliminate this influence.

TABLE 1

Correlations of Various Indices of Viewing and Aggressiveness

Aggressiveness measure (locale)	TV Viewing Measure				
	Violence viewing	Previous violence viewing	Preference for violent programs	Viewing time	N
Self-reported aggressiveness (Maryland)	+32	(no data)	+08	+17	473
Self-reported aggressiveness (Wisconsin)	+30	+33	(no data)	+23	151
Peer-reported aggressiveness (Wisconsin)	+20	+17	(no data)	+19	151
Other-reported aggressiveness (Wisconsin)	+17	+17	(no data)	+17	151

Note.--Cell entries are Pearson correlations, with decimals omitted. Data are from McLeod et al. (1971) and subsequent analyses.

TABLE 2

Correlations of Parent-Child Interaction Variables

with Violence Viewing and Aggressiveness

Parent-child interaction variable	Sample	r with violence viewing	r with self-report aggressions	r with other-report aggressions	(N)
Parent control of TV viewing by child	Md.	+05	+02	---	(473)
	Wis.	+18	+16	+04	(151)
Parent emphasis on non-aggression	Md.	-07	-09	---	(473)
	Wis.	+05	-07	-08	(151)
Parent interpretation of violence on TV	Md.	+15	+07	---	(473)
	Wis.	+16	-03	+02	(151)
Physical punishment of child	Md.	-02	+12	---	(473)
	Wis.	+18	+27	+28	(151)
Verbal punishment of child	Md.	-01	+17	---	(473)
	Wis.	+25	+17	+18	(151)
Restrictiveness to punish child	Md.	+14	+26	---	(473)
	Wis.	+28	+23	+41	(151)
Parental affection toward child	Md.	+03	-17	---	(473)
	Wis.	+12	+07	+13	(151)

Note.--Cell entries are Pearson correlations, with decimals omitted. Maryland data are based on self-report by child. Wisconsin data combine mother and child reports of parent-child interaction variables. Data are from McLeod et al. (1971).

TABLE 3

Standardized Levels on Selected Variables, by Family Communication Pattern

	Low Socio-orientation		High Socio-orientation	
	Low concept-orientation	High concept-orientation	Low concept-orientation	High concept-orientation
Variable	laissez-faire	pluralistic	protective	consensual
Child Viewing Measures				
Violence viewing	-.14	-.41	+.25	+.32
Viewing time	-.23	-.22	+.40	+.08
Learning of TV behavior	-.04	-.29	+.19	+.14
Child Aggressiveness Measures				
Self-report aggressiveness	+.12	_.35	+.30	-.01
Other-report aggressiveness	-.11	-.29	+.18	+.24
Parent Intervention in Child's TV Use				
Parent control of TV viewing by child	-.37	-.30	+.20	+.46
Parent emphasis on non-aggression	-.32	-.20	+.28	+.27
Parent interpretation of violence on TV	-.42	.00	.00	+.36
(N)	(34)	(40)	(34)	(39)

Note.--Entries are standard scores, calculated by setting the mean at zero and the standard deviation at unity, within each row. Scores greater than ±.22 are significant at approximately the .05 level, as differences from the other three groups combined. Data are from Wisconsin sample (McLeod et al., 1971).

TABLE 4

Correlation of Violence Viewing and Aggressiveness, by Parental Control over TV Viewing

Sample	Aggressiveness measure	Low parental control over TV viewing	High parental control over TV viewing	Direction of effect
Wisconsin males junior high	Self-report	+18	-02	+
	Other-report	+18	-28	+
	(N)	(20)	(17)	
Wisconsin males senior high	Self-report	+30	-21	+
	Other-report	+16	+44	-
	(N)	(36)	(6)	
Wisconsin females junior high	Self-report	+34	+44	-
	Other-report	+39	-12	+
	(N)	(13)	(16)	
Wisconsin females senior high	Self-report	+27	+01	+
	Other-report	+10	-15	+
	(N)	(29)	(10)	
WISCONSIN TOTAL SAMPLE	Self-report	+30	+27	+
	Other-report	+23	+03	+
	(N)	(98)	(49)	
Maryland jr.hi. males	Self-report	+27	+10	+
	(N)	(41)	(54)	
Maryland sr.hi. males	Self-report	+32	+26	+
	(N)	(65)	(37)	
Maryland jr.hi. females	Self-report	+32	+25	+
	(N)	(39)	(52)	
Maryland sr.hi. females	Self-report	+12	+43	-
	(N)	(96)	(39)	
MARYLAND TOTAL SAMPLE	Self-report	+33	+30	+
	(N)	(241)	(182)	

Note.--Entries are Pearson correlations between violence and the indicated aggressiveness index, with decimals omitted. The index, "direction of effect" column at the right indicates a plus (+) if high parental control over TV viewing is associated with a lower correlation between violence viewing and aggressiveness.

TABLE 5

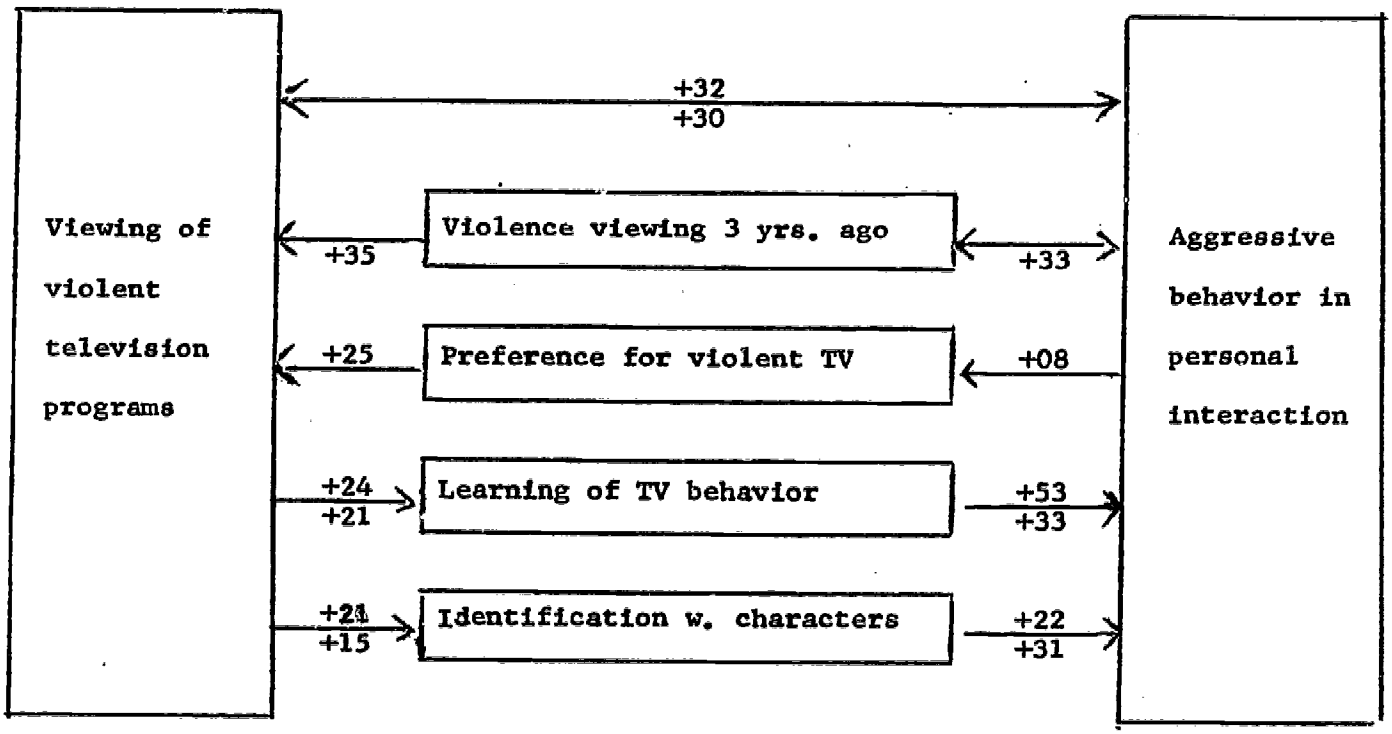
Correlation of Violence Viewing and Aggressiveness, by Parental Interpretation of TV Violence

Sample	Aggressiveness measure	Low parental interpretation of TV violence	High parental interpretation of TV violence	Direction of effect
Wisconsin males junior high	Self-report	+13	+03	+
	Other-report	-02	-09	+
	(N)	(22)	(15)	
Wisconsin males senior high	Self-report	+20	+38	-
	Other-report	+17	+33	-
	(N)	(32)	(10)	
Wisconsin females junior high	Self-report	+12	+54	-
	Other-report	-46	+28	-
	(N)	(12)	(17)	
Wisconsin females senior high	Self-report	+21	+19	+
	Other-report	+09	-06	+
	(N)	(26)	(13)	
WISCONSIN TOTAL SAMPLE	Self-report	+23	+42	-
	Other-report	+09	+25	-
	(N)	(92)	(55)	
Maryland jr.hi. males	Self-report	+27	+07	+
	(N)	(41)	(54)	
Maryland sr.hi. males	Self-report	+33	+26	+
	(N)	(65)	(37)	
Maryland jr.hi.females	Self-report	+18	+36	-
	(N)	(44)	(47)	
Maryland sr.hi.females	Self-report	+19	+22	-
	(N)	(82)	(53)	
MARYLAND TOTAL SAMPLE	Self-report	+32	+29	+
	(N)	(232)	(191)	

Note.--Entries are Pearson correlation between violence and the indicated aggressiveness index, with decimals omitted. The index, "direction of effect" column at the right indicates a plus (+) if high parental interpretation of TV violence is associated with a lower correlation between violence viewing and aggressiveness.

FIGURE 1

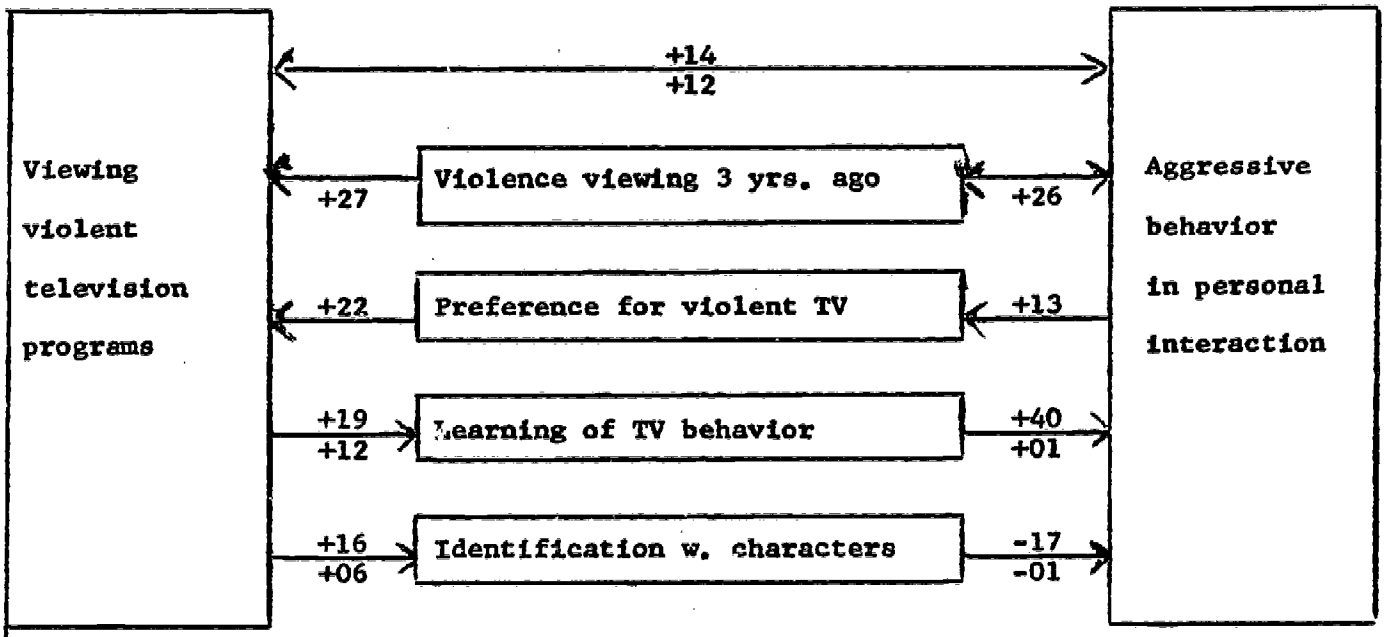
Correlations of Violence Viewing, Cognitive Reaction, and Aggressiveness



Note:--Entries indicate Pearson correlations between the two variables connected by each line. Decimals are omitted. Data from Maryland sample (N=473) are shown above line, and from Wisconsin sample (N=151) below line. Arrows indicate hypothesized time order.

FIGURE 2

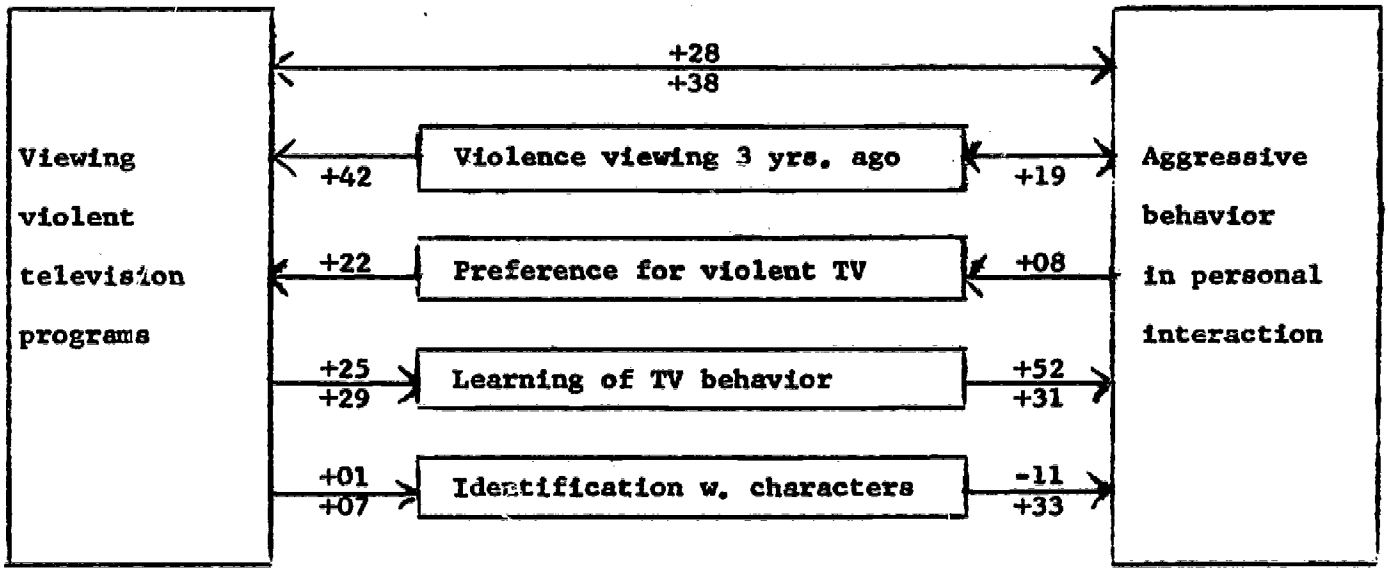
Subsample Correlations of Violence Viewing, Cognitive Reactions, and Aggressiveness, for Junior High Males



Note.--Entries are Pearson correlations, as in Fig. 1. Data from Maryland sample (N=122) are above line, from Wisconsin sample (N=38) below line. Arrows Indicate hypothesized time order.

FIGURE 3

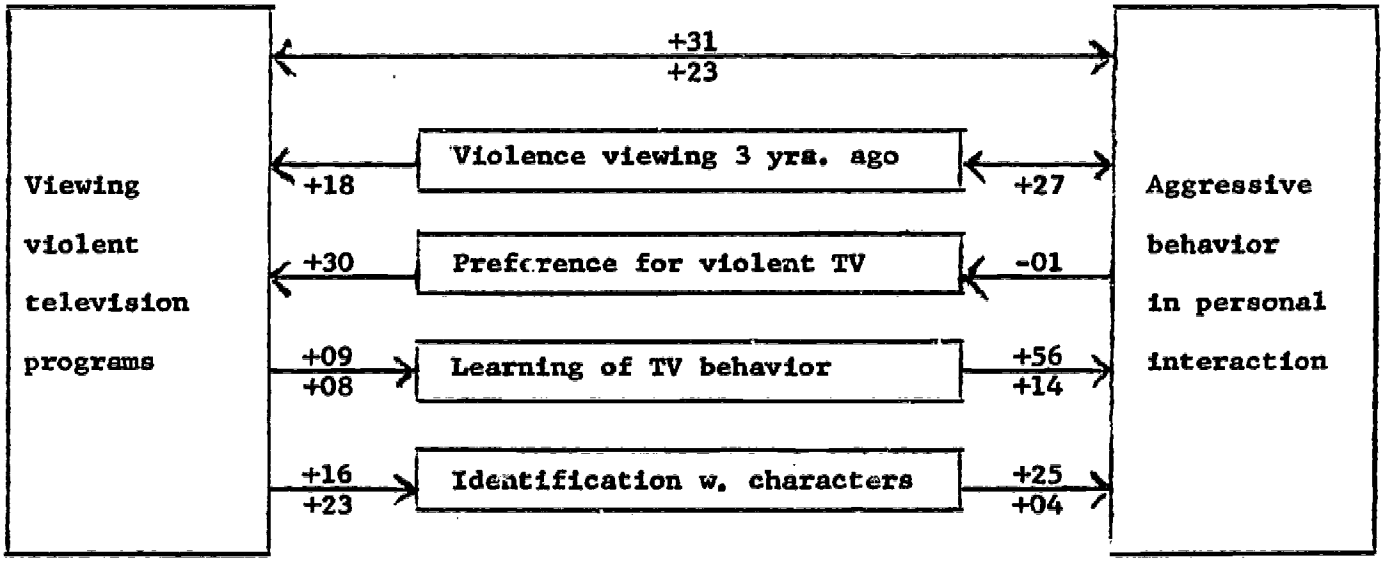
Subsample Correlations of Violence Viewing, Cognitive Reactions, and Aggressiveness, for Junior High Females



Note.--Entries are Pearson correlations, as in Fig. 1. Data from Maryland sample (N=108) are above line, from Wisconsin sample (N=30) below line. Arrows indicate hypothesized time order.

FIGURE 4

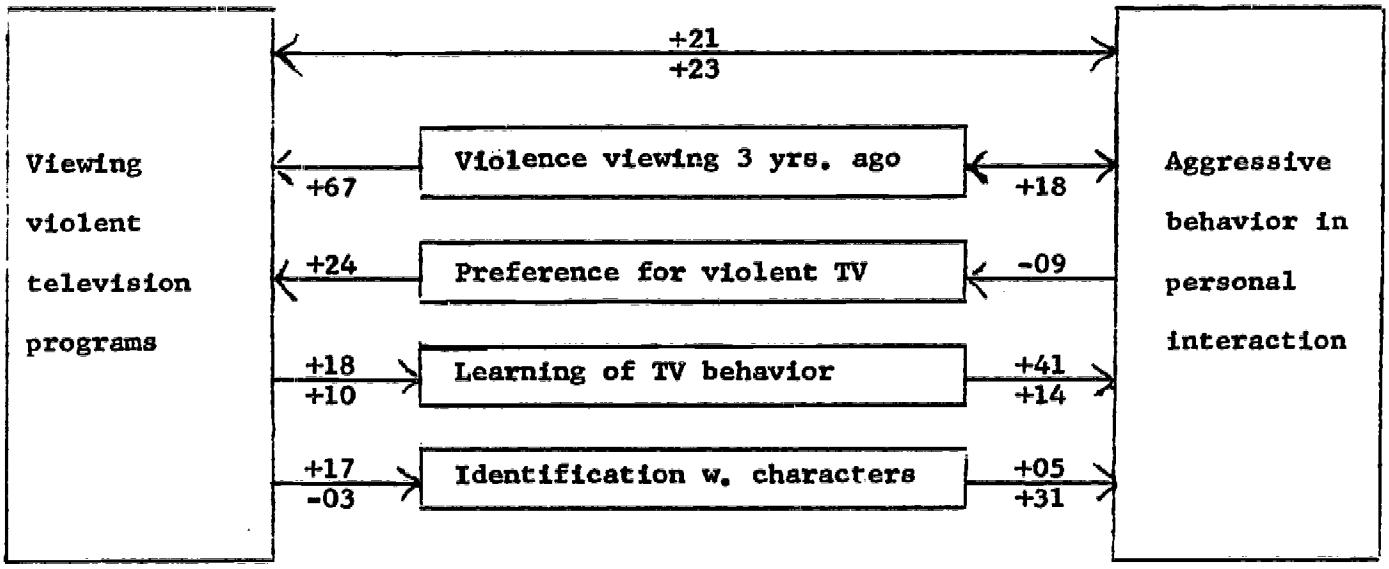
Subsample Correlations of Violence Viewing, Cognitive Reactions, and Aggressiveness, for Senior High Males



Note--Entries are Pearson correlations, as in Fig. 1. Data from Maryland sample (N=107) are above line, from Wisconsin sample (N=43) below line. Arrows indicate hypothesized time order.

FIGURE 5

Subsample Correlations of Violence Viewing, Cognitive Reactions, and Aggressiveness, for Senior High Females



Note.--Entries are Pearson correlations, as in Fig. 1. Data from Maryland sample (N=136) are above line, from Wisconsin sample (N=40) below line. Arrows indicate hypothesized time order.