

aggressive behavior in response to televised violence. Second, ascertain at what ages different reactions occur. Third, check on the moderating influence of labeling, contextual cues, and other factors under the control of television producers which may reduce the likelihood that predisposed children will react adversely to televised violence. Fourth, further investigate the possibility that content other than violent content may increase the likelihood of subsequent aggressiveness, that violent content may instigate other behavior besides aggressiveness, and the applicability of such findings to preschool children, elementary school children, and adolescents. Finally, we must call attention once again to the gap in longitudinal research on the effects of television programs on children. This gap needs to be filled before we can learn something dependable about the long-term effects of repeated exposure to standard television fare on the personality development of the child.

## Chapter 7

# Television and Adolescent Aggressiveness

The origins of human behavior are generally traceable to early childhood influences. It is during adolescence, however, that drives and desires are first expressed in a manner and context that approximate adulthood. In the earlier years, personality and character are shaped. In adolescence, the results begin to be displayed in a relatively grownup manner, and tendencies become modulated or confirmed.

Adolescence would seem to be both a potentially informative and a socially important laboratory for studying aggressiveness. When aggressive behavior occurs in adolescence, it is quite likely to have real social consequences in both the short and the long run. Unfortunately, a number of factors make such study difficult.

In some respects adolescents are easier to study than other age groups. They are somewhat easier to reach than adults because they can be found in groups in schools rather than one by one in homes. Unlike young children, they can understand and answer questions. When it comes to studying aggressive behavior, however, there are at least three very serious difficulties:

(1) *Aggressiveness in real life cannot easily be studied directly.* The reasons are partly ethical and partly practical. Real aggression against real people could hardly be encouraged on behalf of measurement and analysis, however highly an increase in the understanding of human behavior may be valued; science is not exempt from the cultural taboo against inflicting discomfort, pain, or injury. Aggressiveness that occurs naturally is not a convenient substitute. On the one hand, its observation within a large and varied population would be prohibitively expensive and time-consuming; on the other, it would often be impossible for an

observer, despite an allegiance to science, to remain a bystander, and intervention would destroy the validity of measurement.

(2) *The array of possible influences and concomitants is vast.* A few examples will suggest how long and varied is the list: family, friends, physical prowess, intellectual ability, socioeconomic status, intelligence, academic achievement, ethnicity, occupational aspirations and expectations, individual values and attitudes toward aggressiveness, and the various media. Television, the specific focus of our inquiry, is only one. The situation is made more complicated by the fact that the factors on such a list will have varying kinds of relationships, both with one another and with one or both of the variables with which we are primarily concerned—television violence and aggression. Thus “academic achievement” might plausibly be found, on inquiry, to be related to viewing habits and attitudes toward aggression, and so might “socioeconomic status.” But “academic achievement” and “socioeconomic status” might equally as plausibly be related to each other, and related in such ways that differing combinations of the two might be differently related to viewing television violence and to aggression. The potential complexities become progressively greater in reference to such generic and complex factors as “family,” “friends,” and “individual values and attitudes toward aggressiveness.”

(3) *The role of earlier influences, which may be crucial, is difficult to assess.* Such earlier influences not only lengthen the list of pertinent factors, but increase the problems of taking them into account. Records may not exist or may be inaccessible; memory is faulty; what once may have been influential may no longer be observable or may no longer have the same effects.

The research on which we will draw has attempted to deal with many of these problems. It has attempted to deal with aggression in real life and to examine the influence of some of the pertinent factors, both current and past, which have been cited. But the research has addressed these problems on a very limited basis and to only a limited extent. Given the complexity of the research task and the brief duration of the present program, such limitations are not only understandable but inevitable. For these reasons, the conclusions which can be drawn from the research are necessarily tentative, and less definitive than might be hoped. Here again, as in many similar situations, continued research is clearly desirable, and its directions and focuses are to a considerable extent suggested by what has been accomplished to date.

## THE RESEARCH SOURCES

The research findings discussed in this chapter are drawn in the main from a set of reports bearing on studies involving, among them, more than 7,500 young people. The vast majority of these young people,

about 6,900, were adolescents, ranging in age from 12 to 19 or ranging in school placement from the first year of junior high school to the year following graduation from senior high school. The remainder were nine to 11 years old and in the fourth, fifth, and sixth grades. The number of children involved in individual studies ranged from 80 to 2,260.

The several studies dealt with in this chapter all report answers by adolescents to questions put to them in *surveys*. In that respect this chapter differs from the preceding one. That chapter, which dealt largely with the behavior of preadolescent children, was based almost entirely on *experimental* results. Not surprisingly, young children who do not answer questions fluently, but who perform tasks that adults assign them, have been studied in the laboratory, while adolescents in school have been preferred subjects for researchers with questionnaires. This incidental consideration of convenience has unfortunately meant that in some respects it is difficult to compare findings about adolescents with findings about younger children. That, however, is the present state of affairs.

The several surveys that we are about to review differ considerably in the nature and size of the samples, the methods employed, and the specific objectives pursued. Complete descriptions of these aspects of each study are perhaps rendered unnecessary by the publication, concurrent with this report, of the papers themselves. Summary descriptions of the various studies are in Appendix B to this report. Such additional details as are necessary to the discussion of findings will be presented at appropriate points throughout the text. The reports here reviewed are: Chaffee and McLeod (1971a, 1971b); Dominick and Greenberg (1971); Friedman and Johnson (1971); Lefkowitz et al. (1971); McIntyre and Teevan (1971); McLeod et al. (1971a, 1971b); and Robinson and Bachman (1971).

## THE MEASURES OF TELEVISION BEHAVIOR AND OF AGGRESSION

One or more measures of television behavior and one or more measures of aggression were used in every study. The measures varied considerably.

### Measures of television behavior

Behavior in regard to television was variously measured by *time spent viewing*, by *preference for violent programs*, and by *amount of viewing of violent programs*. The measures in each of these three categories were almost all self-reports, but the particular questions asked differed from study to study.

Time\* spent viewing was ascertained by self-reported estimates of hours viewed on an "average day" (Robinson and Bachman, 1971; McIntyre and Teevan, 1971); from variously combining self-reports, or self-reports and mother's reports, of hours viewed on an average day, on the preceding day, and on the day before that (McLeod et al., 1971a and 1971b; and Friedman and Johnson, 1971); and by combining self-reports of hours viewed yesterday and hours viewed the previous evening (Chaffee and McLeod, 1971). Lefkowitz et al. (1971) summed self-reports by their Grade 8 and Grade 13 respondents of hours viewed "Saturday and Sunday" and "the rest of the week," and they obtained information from mothers in regard to their Grade 3 respondents.

Preference for violent programs was, except in one instance, ascertained by asking respondents to name either three or four favorite programs and by assigning a violence score to these programs on the basis of ratings by various types of judges. The judgments of a "sample of newspaper and magazine critics" as to whether the program contained "violent content" (reported by Greenberg and Gordon, 1971b) were used for this purpose by McIntyre and Teevan, by Robinson and Bachman, by Friedman and Johnson, and by Chaffee and McLeod (1971b), who also employed ratings by a sample of Minneapolis high school students. Lefkowitz et al. classified the favorite programs of their Grade 8 respondents on the basis of ratings made four years later by industry censors, and they classified the favorites of their Grade 13 respondents on the basis of ratings by two undergraduate students, which ratings correlated at .94 with those of the Greenberg and Gordon scale.

Considerable variety existed in reference to the possible range of numerical scores in scales employed by the several investigators, and in reference to classification of programs not included in the Greenberg and Gordon listing. Football, for example, was omitted by Greenberg and Gordon, classified as highly violent by Robinson and Bachman, and classified as nonviolent by Lefkowitz et al. Another source of variation apparently exists but cannot be fully described: Robinson and Bachman report that 44 percent of their all-male sample could not name three favorite programs, and they present this group separately in their tables and analyses; the other investigators do not always report the proportion who could not name three (or four) favorites and do not differentiate such respondents from the others in their tables and analyses.

The Lefkowitz Grade 3 program preference measure differed from all others in that it was not obtained from the children (aged eight) but from their mothers and fathers, who were asked to name the three favorite television and radio programs of their children. Programs cited by mothers were classified as violent or nonviolent by two coders on the project staff who worked independently and agreed in 94 percent of the cases. The fathers' reports were apparently not used, but the reason for this is not stated.

The amount of viewing of television violence was variously ascertained by self-reports of "kinds of TV programs" (i.e., program types) viewed at least "pretty often," with "westerns" and "spy-adventure shows" considered to be violent (Chaffee and McLeod, 1971a); by self-reported viewing of 20 specific programs classified as violent in the Greenberg and Gordon list, which were embedded in a list of 28 programs (Dominick and Greenberg); by the number of programs Greenberg and Gordon classified as violent which were among those which respondents selected from a list of evening programs and said they had watched five times in the preceding five weeks (Friedman and Johnson); and by a more complex procedure embracing self-reported frequency of viewing each of 65 listed prime time programs, each of which was assigned a violence score based on the Greenberg and Gordon classification, combined with ratings by a sample of Minneapolis high school students (McLeod et al., 1971a and 1971b).

The three types of measures of television behavior (time spent viewing, preference for violent programs, and amount of violence viewing) would seem to have some *prima facie* relationship one to another. Adolescents who view television more heavily would seem likely, overall, to view more violent programs than those who view television less often. Similarly, those who are high in preference for violent programs would

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\*Throughout this chapter, some material appears in this indented and reduced-size format. Such material documents and explains statements in normal type.

seem likely to view more of them than those whose preference for such material is low.

Such limited data as are available, however, suggest that the three measures are not in fact closely related. In the one study in which pertinent and precise data were supplied on the same sample (Chaffee and McLeod, 1971b), preference for violent programs and violence viewing were found to be correlated to only a modest degree ( $r = .25$ ), as were also violence viewing and total viewing ( $r = .29$ ). Further, as will be shown below, when inquiry is made into the relationship (if any) between each of these three measures and aggressive tendencies, the results for each of the three measures differ quite markedly from the results for each of the others.

These findings suggest that the three measures do not in fact bear to any great degree upon the same behavior and are not equivalent measures for characterizing exposure to television violence. Although definitive tests are not available in the data, it would seem under the circumstances reasonable to suppose that, of the three measures, "amount of violence viewing" is the best measure of actual exposure to television violence. Future researchers would be able to clarify these questions and suppositions by using all three measures on the same samples and exploring the interrelationships among them.

## Measures of aggression

The measures of aggression used in the several studies (and indeed in several of the individual studies) are numerous and extremely varied. Both the number and the variety are to be expected, since there is no simple or uniform definition of "aggression," and the various researchers understandably sought to tap several of its different aspects. In accord with scientific tradition, each study defined the word, explicitly or implicitly, in terms of the specific measures used in the particular study. But responsible interpretation of the pool of findings from the group of studies requires attention to the considerable variety of phenomena to which the same label has been applied.

In each of the studies, some form of aggression score (or scores) was determined for each respondent on the basis of self-reports and/or others' reports of whether or to what degree the subject engaged in specified behaviors or asserted specific attitudes or beliefs. A full description of the numerous measures and indices will be found in the texts and appendices of the papers themselves. It will perhaps suffice here to indicate, with appropriate examples, some of the various *dimensions* along which the measures differ, and the kind of *range* involved in each of these dimensions. Two notes of caution and explanation about the list which follows are in order. First, the cited examples have been selected to illustrate the variety and do not purport to indicate the relative weight

given to different measures in the pool of studies or in any single study. Second, since the cited dimensions are conceptually independent of one another, any item can be characterized in terms of its position on *each* of the dimensions; for this reason, any of the examples could appear under more than one dimension.

1. *Dimension: Degree of reprehensibility.* The behaviors and beliefs spread along a range including:
  - a) some which are consensually regarded as socially reprehensible, or even heinous ("Set fire to someone else's property on purpose");
  - b) some which by comparison seem trivial ("...gives dirty looks or makes unfriendly gestures to other children");
  - c) some which manifest widely held values and seem likely to be applauded by a considerable portion of society (Approves of "a man punching an adult male stranger who was beating up a woman").
2. *Dimension: Actuality of behavior.* The items spread along a range including:
  - a) behavior which has actually been performed ("Hurt someone on purpose to get back for something they have done to you");
  - b) projected behavior in hypothetical situations ("What would you do. . .if somebody picks a fight with you on the way back from school? Fight? Back out of it? Try to discuss the problem?");
  - c) subscription to statements expressing aggressive attitudes (Disagrees with statement "I can't think of any good reason for hitting anyone");
  - d) subscription to statements which do not in themselves express any aggression at all, but are presumably correlates of aggression (Does not agree that "dealings with policemen and government officials are usually pleasant").
3. *Dimension: Source of report.* The measures include:
  - a) self-reports (Disagrees with statement "I would rather give in than argue about something");
  - b) peer reports ("Who makes up stories and lies to get other students in trouble?");
  - c) reports by others who are not peers ("When [your child] was younger, how often did he show aggressive behavior toward other children?").
4. *Dimension: Temporal reference.* The items variously refer to:
  - a) behavior at an earlier age ("When I was younger I often hung around with the wrong kinds of kids");
  - b) behavior in the recent past (Has within the last year "damaged school property on purpose");

- c) current or characteristic behavior ("If somebody hits me first, I let him have it").

Such a variety of measures of aggression can hardly be expected to interrelate at any consistently high level. The fact that almost all such correlation coefficients reported are positive suggests the existence of some general factor running through the indices; the fact that many of the correlation coefficients are not high suggests that differences among the findings of the several studies may well in part be a product of their using different measures. It therefore becomes the more pertinent to inquire into what measures were involved in relationships found to be weak and, more important, what measures were involved in the observably stronger relationships.

## FINDINGS

We turn now to a consideration of the findings reported in the papers with which we are here primarily concerned. The basic question, and first to be considered, is what the papers report concerning the relationship between exposure to television violence and aggressive tendencies. The appropriate findings are here organized in terms of the several broad measures of exposure: time spent viewing, preference for violent programs, and amount of violence viewing.

### Relationship between time spent viewing and aggression

Two surveys performed more than a decade ago found no relationship between television viewing as a whole and tendencies to aggression. In one of these (Himmelweit, Openheim, and Vince, 1958), performed when television was not yet in all British homes, no differences in aggression were noted between children who viewed television and matched controls who did not. Essentially if not precisely similar conclusions were reported by Schramm, Lyle, and Parker (1961) in a study of American and Canadian children.

Two of the current studies inquired into the relationship between time spent viewing and aggression. Lefkowitz et al. report, without citing supporting data, that among their Grade 13 respondents, total viewing time was not related to peer reports of aggression. McLeod et al. (1971a), on the other hand, found modest but significant correlations, ranging from .17 to .23, between total viewing time and both self- and others' reports of aggression in both their Maryland and Wisconsin samples.

The data on this topic are limited and permit no very meaningful conclusion. As far as they go, they may be said to suggest that time spent viewing is at most tenuously related to aggressive tendencies.

### Relationship between preference for violent programs and aggression

The relationship between preference for violent programs and aggression was a topic of inquiry in several studies. McIntyre and Teevan found trivial correlations, ranging from .02 to .06 (of which only the highest was statistically significant), between the violence level of their respondents' favorite programs and five different types of "deviance." Subsequent measurements involving the average violence level of the respondents' four favorite

programs produced statistically significant but still small correlations, ranging from .07 to .16 and in relation to all five measures of deviance. The two highest of these coefficients, .11 and .16, occurred in relation to self-reported "aggressive deviance" and "serious deviance," which respectively focused on antisocial physical aggression (fighting with peers) and on getting into trouble with the police. (The three other scales bore on "petty delinquency," "fighting with parents," and "political deviance.")

Chaffee and McLeod (1971b) observed a trivial correlation ( $r = .08$ ) between violence level of favorite programs and aggressive tendencies with a sample of 473 junior and senior high school students in Maryland.

Robinson and Bachman, working with data bearing on over 1,500 19-year-old boys, report a monotonic but weak relationship between preference for violent programs (three or four favorites) and self-reports of aggressive interpersonal behavior. The relationship reaches statistical significance, however, only when those boys whose favorite programs include "some," "much," and a "great deal" of violence are combined and compared with those boys whose favorite programs include "almost none." A slight relationship was also observed between violence level of three or four favorite programs and self-reports of specific delinquent acts. Boys who most favored such programs were more likely than boys who did not to get in trouble with the police or to engage in car theft. They were not more likely to engage in arson, minor theft, or various sorts of petty delinquency.

Friedman and Johnson found that a group of 39 junior high school students judged to be high in aggressiveness indicated a somewhat greater preference for violent programs than did 41 of their peers who had been judged to be low in aggression.

Lefkowitz et al. inquired into the relationship between preference for violent programs and aggression at three different points across a ten-year age span in the lives of their respondents. The favorite program measure at Grade 3 was obtained from mothers rather than from the children and correlated, for boys, at a level of .21 with peer reports of aggressive tendency. No relationship was observed for girls. The relationships for the boys at Grades 8 and 13 were essentially null (or trivially negative, viz.,  $-.10$  and  $-.05$ ), as were those for girls. A positive correlation of .31 was, however, observed between boys' preference for violent programs at Grade 3 (as reported by mothers) and peer-rated aggression at Grade 13.

Several studies investigated the relationship between adolescent preference for violent programs and aggressive tendencies. The relationships observed were essentially null, or positive but weak. An exception was the correlation coefficient of .31 observed by Lefkowitz et al. between mothers' reports of boys' favorite programs at Grade 3 and peer-rated aggression ten years later. Aside from that result, which will be further discussed below, the findings suggest a weak and perhaps tenuous relationship between some kinds of aggressiveness and preference for violent programs.

One finding from McIntyre and Teevan—that a measure based on four favorite programs consistently produced slightly higher relationships than a measure based on one favorite program—suggests that the *amount* of exposure to violent programs might prove a more predictive variable. The findings of the studies to be discussed immediately below are in fact based on such a measure.

## Relationship between viewing of violence and aggression

The relationship between viewing of violence and aggressive tendencies was investigated in two of the current studies.

Dominick and Greenberg found that boys who were more highly exposed to violence were more likely than those not highly exposed to hold some attitudes favorable to aggression, and no more likely to hold other presumably related attitudes. Specifically, the mean scores of the highly exposed boys were slightly but significantly higher than those of the lower exposed boys on scales entitled "Willingness to Use Violence" and "Perceived Effectiveness of Violence"; no significant differences in means occurred on scales entitled "Approval of Aggression" and "Use of Violence in Conflict Situations." This is to say that the highly exposed boys were somewhat more likely to agree with such statements as, "Anybody who says bad things about me is looking for a fight" (willingness to use violence) or "Sometimes a fight is the easiest way to get what you want" (perceived effectiveness of violence). They were not more likely than others to agree with such statements as "I see nothing wrong in a fight between two teenage boys" (approval of violence) nor to suggest the use of violence in reply to open-end questions such as, "Pretend somebody you knew took something from you and broke it on purpose. What would you do?" (use of violence in conflict situations). No overall score of expressed attitude was calculated, but the mix of positive and random results would produce some positive relationship between violence viewing and such an overall score. Among girls studied by Dominick and Greenberg, the mean scores of those who were more highly exposed to television violence were slightly but significantly higher than the mean scores of the less exposed on all of the scales except "Approval of Aggression."

McLeod et al. (1971a) inquired into the relationship between viewing of violence and various scales of aggressive behavior, including "overall" scores which combined several selected scales. They report statistically significant correlations of .30 and .32 between violence viewing and overall self-report aggression scores for mixed-sex samples of Maryland and Wisconsin high school students. When these samples are broken down by sex and grade level (junior vs. senior high), the relationships remain positive, although half lose significance as the sample sizes drop. The relationship was again found to be at least as strong, if not perhaps stronger, for girls than for boys, and is at its lowest among junior high school boys.

In their study of the Wisconsin sample, McLeod et al. (1971b) employed additional measures of both aggression and violence viewing. Aggression ratings were obtained from peers and nonpeer others, and a statistically significant but modest correlation coefficient of .17 was observed in reference to an overall sum of "other" reports of aggression. The investigators also inquired into their Wisconsin respondents' viewing of television programs that had been on the air "three or four years ago." This measure of "past violence viewing" correlated as well as did current violence viewing with both current overall self-report aggression scores and current overall other-report aggression scores.

In sum, the two studies which inquired into the relationship between violence viewing and aggression reported several weak relationships, plus one relationship which stood at or about the .30 level in reference to two samples and regardless of whether past or current violence viewing was employed as the exposure measure.

## Summary

All but one of the studies with which we are here primarily concerned inquired into the relationship between exposure to television violence and aggressive tendencies. Some studies employed total viewing time as an index of exposure: some employed preference for violent programs; and some employed amount of violence viewing. Most of the relationships observed were positive, but most were also of low magnitude, attaining levels ranging from null relationships to .21. A few of the observed relationships, however, reached levels at or just above .30. These were the relationships between violence viewing and overall self-report aggression scores reported by McLeod et al. (.30 and .32), and the correlation of .31 reported by Lefkowitz et al. between mothers' statements of boys' favorite programs at Grade 3 and peer-rated aggression of the boys ten years later.

On the basis of these findings, and taking into account their variety and their inconsistencies, we can tentatively conclude that there is a modest relationship between exposure to television violence and aggressive behavior or tendencies, as the latter are defined in the studies at hand. We turn, therefore, to consideration of what this relationship signifies. What is meant by correlation at the .30 level? And finally, since correlation is not in itself a demonstration of *causal* relationship, what can be deduced from these data regarding causation?

## THE INTERPRETATION OF CORRELATION COEFFICIENTS

Since a large part of the data presented in the studies reviewed here consists of correlation coefficients, it seems appropriate to discuss the nature, the meaning, and the limitations of these measures. Such a discussion, which must of necessity be relatively technical, appears in Appendix E. A summary of that discussion follows.

The correlation coefficient is basically an indicator of the strength of the tendency of two variables to vary concomitantly. However, it is a summary statistic and as such may be the outcome of a number of different patterns of relationships among the two variables concerned. For example, a correlation coefficient in the middle range, like the .30 relationships that appear in two of the studies, might occur if quite a

small number of individuals were high in both violence viewing and aggression and another small number were low in both violence viewing and aggression, even though there was no relationship between the two variables for the great majority of individuals.

Whatever may be the data configurations that led to the reported correlation coefficients between exposure to television violence and aggressive tendencies, there are other problems in the interpretation of their significance. First, there is the possibility that with so many correlation coefficients reported, a few might have turned out to be significant by chance alone. However, the fact that most of the other values observed, though often trivially small, were generally in the positive direction lends some support to the few significant correlations that were found. Only replication, however, will indicate whether the higher coefficients are a result of special characteristics of the measures in the studies involved or are simply chance findings. Second, the observed relationships may be either overestimates or underestimates of the "true" relationship; these possibilities derive from technical considerations bearing on what may be called "the inherent statistical unreliability" of the measures involved.

*"Variance accountability."* A correlation coefficient is often said to "account for" a certain percentage of the "variance." The percentage is the square of the correlation coefficient. Thus, correlation coefficients of .30 account for about ten percent of the variance. This technical statement defies brief explanation. Two considerations, however, must be kept in mind. First, the statement indicates that the relationship between violence viewing and aggression, as so far observed, is relatively modest. Second, the statement does *not* mean that violence viewing causes ten percent of the aggression, nor even that the relationship bears on ten percent of the aggression.

## Correlation and Causation

It is an axiom of science that correlation does not demonstrate causation. Covariation of two variables may occur for a great variety of causal and noncausal reasons, or for no discernible reason at all. Correlation is a necessary but not sufficient condition for causal inference. In this sense correlation techniques have great strength as a screening device: if the relationship between variables is demonstrably trivial, then there is little justification for further pursuit of causal explanations.

## CAUSE-EFFECT INFERENCES

The data provided by the studies under review in this chapter are exclusively correlational, and correlational data are inadequate in themselves for causal inference. Even correlations between two variables,

one of which occurs before the other, are not necessarily conclusive evidence of causation.

Philosophically, the concept of causation implies that change in the value of a precedent variable will systematically result in change in the value of a consequent variable. Although such causation can never be demonstrated beyond the shadow of a doubt, scientists tend to recognize three requirements as necessary conditions for causal inference:

- a. Association (the variables must be shown to covary);
- b. Time order (change in the specified cause must occur prior to change in the specified effect);
- c. Reasonable explanation or functional relationship in a nonmathematical sense.

Correlation coefficients can satisfy the first of these requirements. Correlation coefficients between changes from earlier to later measurements also meet the second test. In regard to the third requirement, the judgment of the reasonableness of a theoretical explanation of an observed relationship can never be definitive. Where experimental controls cannot be applied, conformity with existing theory and a recourse to "common sense" are frequently the best tests available for judgment of the reasonableness of an assertion of causation.

If correlation analysis fails to support association, however, or if it provides negative evidence on the issue of time order, the proposition may be abandoned. Otherwise, the possibility of causality remains viable, and its nature remains a question to be explored.

## Correlational designs and experimental designs

The plausibility of causal hypotheses can best be investigated by experiments because the controlled conditions make unambiguous conclusions possible about association and time order, and the dynamics of the hypothesized relationship are made explicit in advance.

Some comment on the distinction between controlled experiments and correlational studies is necessary. As modes of scientific investigation, the two differ in an important way.

In experimental studies, like those described in the preceding chapter, the effect of a single stimulus can be isolated. Subjects can be randomly assigned to a control condition where the stimulus is absent and to one or more experimental conditions in which a stimulus of interest is present. Thus, the impact of other stimuli, preconditions, and associated variables is equated among conditions, and a manipulated stimulus can be isolated as to effects in which other things may be taken as equal.

In a correlational study, exposure to the stimulus of interest is the result of a self-selection process. Other things cannot be assumed equal, and the attribution of effects is difficult and sometimes impossible. In short, the stimulus of interest is confounded with a large number of other stimuli, with preexisting conditions, and with associated variables. As

a result, there is a risk that the stimulus of interest may be credited with the entire impact that should partly or wholly be credited to other components of the constellation of which it is a part.

Despite the advantages of laboratory experiments in achieving control, they have some limitations. The circumstances in which they are conducted and control obtained, the ways in which exposure to some special experience is manipulated, and the ways and constrained time periods in which behavior is measured open them to criticism in regard to generalizability. Such criticism is less applicable to experiments performed in the field rather than in the laboratory, but under field circumstances the degree of control and precision is almost certain to be decreased. Nonexperimental studies such as those we are reviewing in this chapter, despite their inconclusiveness, are crucial to an understanding of relationships as they occur in real life. In this sense, they provide further real-life tests of experimental findings.

Nonexperimental studies have definite strengths. They do measure things as they actually occur—in all their variety, profusion, and complexity. They can falsify the applicability of hypotheses to real life; for example, if violence viewing and aggressiveness proved not to be associated, concern over causal links in either direction could be abandoned. They can supply suggestive hypotheses for experimental test. They also provide, when the population involved is diverse, considerable power for generalization.

## The challenge

The committee is left with a challenge. It would be easy and scientifically justifiable to abandon the search for real-world causal relationships with the declaration, "Not demonstrable." The more difficult and venturesome alternative course is to search for patterns in the data and to attempt to evaluate—to the extent that it is possible—the merits of causal interpretations. In this spirit of speculation, the following alternative interpretations are offered. No pretense is made, of course, that these interpretations are in any way exhaustive of the possibilities.

*Interpretation One:* For some children, aggressive tendencies, whatever their origin, cause changes in television viewing behavior, so that those who show high aggressive tendencies will, as a result, subsequently watch or prefer more violent television programs, and those who show low aggressive tendencies will, as a result, subsequently watch or prefer fewer violent television programs.

*Interpretation Two:* For some children, the amount of violence viewing in television entertainment, however motivated, will lead to changes in aggressive tendencies, so that those with relatively high levels of violence viewing will, as a result, subsequently show an increase in aggressive tendencies.

*Interpretation Three:* For some children, a third variable or set of variables can account for or elucidate the observed correlational relationship. In other words, the level of violence viewing and the level of aggressive tendencies and the relationship between the two may be affected by one or more explanatory variables. The various mechanisms by which this interpretation might operate will be discussed below.

First, however, it must be emphasized that these interpretations are not necessarily competitive. The size of the correlation coefficients and the nature of the available bivariate distributions would indicate that the relationship might be attributable to the behavior of a relatively small group of persons, and no one of the interpretations need account for the behavior of all members of this small group. It is quite conceivable that each interpretation is true for some persons; we need not advance a universally applicable theory. By the same token, it is quite conceivable that one of the interpretations would explain the behavior of some person or group of persons at one time and that another of the interpretations would explain the behavior of the same person or group at some other time.

The statements of the first and second interpretations are deceptively simple. The incomplete character of these statements is attributable to the phrases "whatever their origin" (referring to aggressive tendencies) and "however motivated" (referring to the level of violence viewing). These phrases seem to imply that one enters the explanatory arena at a fixed instant in time, ignoring the preceding dynamics and measuring and interpreting from that time on. But suppose, in the case of Interpretation One, that the aggressive tendencies observed were attributable to some previous exposure to mass media portrayal of violence; then a shift in time perspective would turn Interpretation One into Interpretation Two. Or suppose that the aggressive tendencies were (as is quite likely) not innate but somehow produced by a combination of consituational-environmental-social factors; then Interpretation One would devolve into Interpretation Three. The danger, of course, is that the search for reasonable causal interpretation will devolve into a search for first causes and that the problem will become that of the chicken and the egg.

### Types of "third variables"

The introduction of a third variable requires some elaboration of the forms it may take and the mechanisms by which it can operate. Simply stated, the introduction of a third variable into the analysis of the relationship between two variables may explain the relationship between the two variables, or it may explain the level of the two variables, or it may explain both.

Such elucidation of the observed relationship may occur in one of several ways. Figure 1 indicates, in a stylized way, how a third variable can break the data into two groups in each of three ways.

1. The third variable (Figure 1, Case I) may pinpoint subgroups in which the relationship is particularly applicable and those in which it is inapplicable or less applicable; i.e., it explains the observed relationship, but may or may not be related to the observed levels of the original variables.

2. It may elucidate the relationship through the discovery of a common origin (Case II); i.e., it explains the level or range of the two original variables, but may or may not be related to the observed relationship between them.

3. In a very special case (Case III), the third variable may account for both the level of the two original variables and the relationship between them, in such a way as to demonstrate that the original observed relationship was spurious or potentially misleading.

Some hypothetical examples may help to explain. Consider first the simple interactive case: a positive correlation has been observed between violence viewing and aggressive tendencies. It is not reasonable to expect that this relationship is equally strong in all elements of the population. Certainly, such factors as sex, age, and socioeconomic status are likely to affect the relationship (if not also the level) of the two phenomena. The third variable, then, serves to split the population into two (or more) groups, and the finding is that the observed relationship is strong in one of the groups and weak, nonexistent, or even negative in the other group. An example of this phenomenon is found in Lefkowitz et al. (1971), in which the relationship was found only for boys. Much of this investigation of interactive third variables has been done by the authors of the studies we have reviewed. In the search for such interactive variables, one may find such variables correlated or uncorrelated with either or both of the original variables; in other words, it is quite possible that the two groups defined by the third variable may have the same range of levels and variability.

Consider next the kind of third variable that explains an observed relationship in terms of a common origin. This implies either that the third variable is precedent to the other two

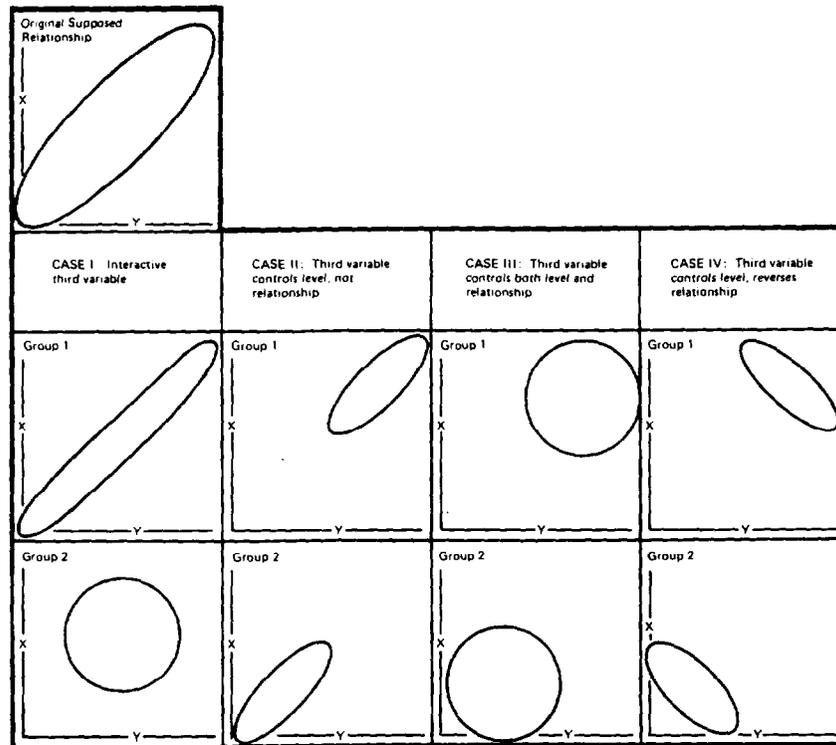


Figure 1: How 'third variables' operate

in time or that it provides an explanatory concept at a higher order of generality. This is the kind of explanation that suggests itself when the two original variables are symptoms of the same disease. The implication is that the two original variables are related because they have a common origin. Thus, frequency of sneezing and frequency of coughing are positively correlated. If the population is then divided according to those who have no colds, those who have mild colds, and those who have severe colds, we would discover that the *level* of the two original variables differed markedly in the three groups (in other words, that the third variable is highly correlated with the other two). The relationship between the two original variables in each of the three third-variable groups is not at stake here. In each of the three groups, the relationship between the two original variables might be identical to the overall relationship, or it might be quite different (Figure 1, Cases II, III, and IV). The fact that the third variable seems to control the level of the two original variables is sufficient to produce the original observed relationship. In the present area of interest, the search for such third variables might well concentrate on preexisting psychological states such as high aggressiveness, environmental conditions which promote aggressiveness, home atmosphere, and similar variables that might give rise to a characteristic level of hostility at which the subject operates and might indeed account for the level of the two "symptoms" observed. Unfortunately, the search is hampered by the fact that so little has been done to investigate the early childhood environment.

In some cases of "common origin" explanation, it may be discovered that the third variable not only controls the level of the two original variables but, indeed, controls the relationship; i.e., the third variable defines groups which differ from one another in mean level of the original two variables. In addition, within each of these defined groups, the original observed relationship disappears. As a hypothetical case, consider the relationship between presence of acne and interest in the opposite sex among young people. Chances are that the original relationship would be positive. Then, suppose that the group were divided into those before and after the onset of puberty. In each of these two third-variable groups, it would be quite possible to observe a null relationship between the two variables. The term "spurious" has sometimes been used to describe relationships which disappear when a third variable produces groups in which the original relationship disappears. Discovery of such third variables is a by-product and not necessarily the primary focus of the search for common origins.

### THE FINDINGS CONSIDERED IN THE LIGHT OF THE POSSIBLE INTERPRETATIONS

We turn now to consideration of the research findings in the light of the various interpretations cited above; but before we actually do so, a few words of review seem in order.

We have noted that the observed correlations between violence viewing and aggressive tendencies might be manifestations of one or more of three different processes, viz. (and stated somewhat summarily),

- that aggressive tendencies lead to violence viewing;
- that violence viewing leads to aggressive tendencies;
- that both aggressive tendencies and violence viewing, as well as the relationship between them, are products of some third variable or set of variables.

Two other points which have already been made also merit brief re-statement. First, we have noted that the demonstration of one of the three processes would not preclude the occurrence of the others; rather, all three could be operative among different persons, or even in the same persons at different times. Second, and perhaps most important, we

have noted that the correlational data available from the several reports reviewed in this chapter are by their nature inadequate to demonstrate causality. Under these circumstances, we have said, the most that we can do is search for and evaluate such specific data, or such patterns in the data, as appear to be consonant with or supportive of one or another of the interpretations, in the full knowledge that this exercise will provide no conclusive proof that any one of the three processes is actually in operation. We begin with data which appear to support the interpretation that violence viewing leads to aggressive tendencies.

### Evidence for the interpretation that violence viewing causes aggression

Findings supportive of this interpretation are reported by Lefkowitz et al. (1971) and by McLeod et al. (1971b). Two findings are consonant with the occurrence of the process, and two others identify mechanisms by which the process might plausibly occur.

Lefkowitz et al. report a correlation of .31 between a measure of exposure to television violence among Grade 3 boys and peer ratings of aggression among the same boys ten years later. This finding, in and of itself, is supportive of the interpretation that relatively high early exposure to television violence produces, in some boys, aggressive tendencies which are manifested in behavior years later. However, other findings of the same study, together with certain unresolved problems regarding the measures employed, leave the dynamic not nearly as clear as the .31 correlation coefficient suggests, and are also supportive of an interpretation which would ascribe a considerable causal role to early (Grade 3 or earlier) aggressive tendencies, however these may have been engendered.

Lefkowitz et al. collected data on the violence level of favorite television programs (hereafter "TVL") and aggression from rural New York state residents in the third grade, again in the eighth grade, and again in the "thirteenth" grade (one year after graduation from high school). Favorite programs were reported by mothers when the children were in Grade 3 and by the subjects themselves in Grades 8 and 13. The principal measure of aggression was a peer rating, containing such questions as, "Who starts a fight over nothing?"

Lefkowitz et al. found that for boys in Grade 3 there was a modest correlation ( $r = .21$ ) between TVL and aggressive tendencies. No such relationship was found for the same boys at Grades 8 and 13 ( $r$ 's =  $-.10$  and  $-.05$ ) nor for girls at any time. However, among boys, the "time-lagged correlation" between TVL at Grade 3 and aggression at Grade 13 was .31.

Several questions exist about the data which enter into this finding. The validity of mothers' reports of children's favorite programs at Grade 3 is uncertain, and such reports are in any case clearly not comparable with the self-reports obtained in later years. Perhaps more important, the peer-rating instruments used at Grade 3 and Grade 8 were essentially identical, but the instrument used at Grade 13 was phrased in the past tense (e.g., "Who started fights over nothing?" "Who used to say mean things?"), and the temporal reference of the replies is thus ambiguous: the Grade 13 youth may have been referring to the behavior of their prior classmates at different times across the ten-year span.

Data obtained from the boys at Grade 8 also complicate the process, although only a relatively small group was available at the time. As will be noted in Figure 2, TVL at Grade 3 correlated with aggression ratings at Grade 8 more weakly than the two had correlated at Grade 3 (.16 as compared to .21), and TVL at Grade 8 showed a null relationship (-.02) with aggression ratings at Grade 13. Thus, the predictive power of TVL appears to have been decaying across the span of years covered in the .31 correlation. The strongest relationships involving television were based on TVL at the earliest stage. Concurrently, however, the predictive power of aggression ratings appears to have been growing. Aggression ratings at Grade 3 correlated .48 with aggression ratings at Grade 8, and these in turn correlated .65 with aggression ratings at Grade 13. Across the entire ten-year span, aggression ratings at Grade 3 correlated .38 with aggression ratings at Grade 13. The predictive power of both TVL and aggression ratings behaves one way from Grade 3 to 8 and Grade 8 to 13, but another way across the overall ten-year span.

Examination of the bivariate distribution (scatter plot) underlying each of the correlation coefficients may help to clarify the situation.

The correlation coefficient between the index based on mother's report of program preferences when the child was about eight years old and the peer rating of past aggressive behavior when the boy was about 18 years old depends almost entirely on a small number of boys at the extreme high end of the preference scale who scored extremely high on the peer-rated measure of aggressive behavior (a measure with virtually no upper limit). Without question, these boys would justify individual case study, but there appears to be hardly any relationship elsewhere in the range.

There seems little doubt that in these data aggressiveness is a continuing trait manifested by autocorrelation over time. At the same time, there is some indication that television viewing at an early stage (not later) may also have contributed to aggressiveness among a few boys.

In short, the data from the Lefkowitz et al. study may be interpreted in terms of two quite different, but not incompatible, developmental sequences. One of these emphasizes the correlation of .31 between mothers' reports of the children's radio and television program preferences at Grade 3 and peer-rated aggression at Grade 13. The other emphasizes the predictive power of the aggression measures in five-year steps. These findings suggest the need for additional research attention to early aggressive tendencies and their early sources.

McLeod et al. (1971b) asked their Wisconsin high school subjects "how frequently they had watched each of 13 shows that were on television three or four years ago" and constructed "an index of past violence viewing" from their replies. This measure correlated as well with current overall aggression scores as did the measure of current violence viewing.

Thus, in reference to a pooled sample of junior and senior high school boys and girls, current violence viewing correlated with the overall summed score of *self*-reports of aggression at .30, and past violence viewing correlated at .33. Both current and past violence viewing correlated at .17 with the overall summed score of *others'* reports of aggression. When the pooled sample is broken down by sex and age, the relationships are less regular.

These data, as far as they go, are consonant with the interpretation that violence viewing leads to aggressive behavior, for they indicate a relationship between earlier television exposure and later aggression. However, two points must be noted. First, the "past violence viewing" measure was less refined than the current violence viewing measure, in

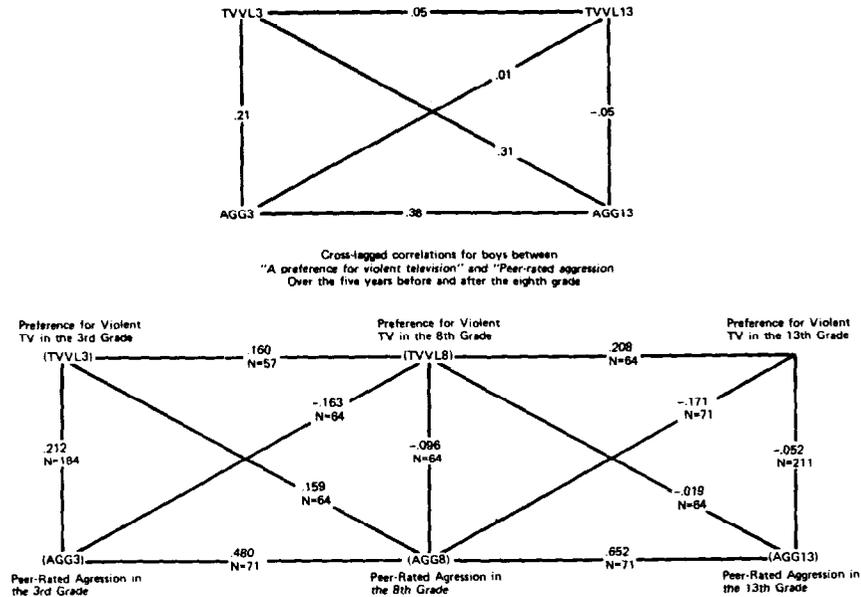


Figure 2: Correlations observed by Lefkowitz between television violence and aggression for 211 boys over a ten-year lag

that it involved 13 programs as compared with 65 and relied upon subjects' retrospective recall to a period three or four years ago. Second, and more important, the investigators had no opportunity to obtain a past aggression measure. Had such a measure been available, and depending on its relationship to the other measures, it might variously have strengthened the likelihood that the viewing was the causal element, weakened that likelihood, or left the question in abeyance. Lacking such a measure, we can conclude only that the data cited are consonant with the interpretation that violence viewing leads to later aggression, but are not conclusive.

*Mechanisms.* If the available data were to indicate clearly that violence viewing does lead to aggression, a logical next question would be, "By what mechanisms?" We may inquire whether anything in the data suggests the existence of "plausible mechanisms" through which the process could occur. It is important to keep in mind that such an inquiry, in the face of data whose causal implications are not conclusive, is an exercise in hypothesis building, rather than in hypothesis testing. Failure to find any such mechanisms would not nullify the possibility of the causal sequence occurring, but might merely indicate that the necessary mechanisms have not yet been discovered. Finding such mechanisms would in turn merely indicate means through which the causal sequence could occur.

Keeping these cautions in mind, let us consider what mechanisms might exist. Two obvious possibilities are *identification* and *learning*. If viewing violence on television did lead some youths to become more aggressive, it might do so through the viewers' identification with violent characters or through their learning of techniques of aggression or their development of attitudes more favorable to aggression.

McLeod et al. (1971a) investigated the relationship between both of these processes and violence viewing, and between both of these processes and aggression. "Identification with violent characters" was measured by replies to questions about the one person on television the respondent "would most like to be," and about which of several actors he would most "like to see at the movies." The scale was found to relate mildly to violence viewing (correlation coefficients of .21 and .15 in two pooled samples) and to relate somewhat better to aggression (.22 and .31).

The same investigators' scale of "perceived learning of aggression," further described below, related to violence viewing (.24 and .21) and more strongly to aggression (.53 and .33).

In assessing the role which "learning of aggression" might play in a behavioral dynamic, it is of course important to know precisely what is learned. The scales used in the studies under review contain items which variously bear on at least three different types of what might loosely be called "cognitive effects." More specifically, individual items variously bear on

- acquisition of *knowledge about techniques* (e.g., how to hit someone);
- acquisition of *knowledge of pertinent facts of life* (e.g., that hitting someone is in fact one way of gaining ends);
- acquisition of *values* (e.g., that hitting someone is a *preferred* way of gaining ends).

For learning to increase the likelihood of aggressive behavior, the acquisition of knowledge about techniques and about facts of life is a necessary, but not a sufficient, condition unless *values* favorable to aggression were also learned or had previously been learned.

The scale of "perceived learning of aggression" employed by McLeod et al., which correlated with violence viewing .24 and .21, consists of five items which constitute a mix of all three types of cognitive effects noted above. McLeod et al. (1971a) also employed a scale called "linkage of television violence to real life," which was found to relate modestly to violence viewing (.27 and .21 in two pooled samples) and to aggression (.31 and .13), but the content of the scale is again somewhat ambiguous in reference to the type of perception or learning which it represents.

The data that deal with violence viewing in relation to evaluation of violence are not fully consistent. Dominick and Greenberg (1971) found

no significant difference in "approval of aggression" between high-exposed and low-exposed subjects of either sex. McLeod et al. (1971b) found no meaningful relationship (a correlation coefficient of .09) between current viewing of violence and "approval of aggression" within their pooled sample of junior and senior high school boys and girls in Wisconsin, but did find a relationship of .27 between past violence viewing and approval of aggression.

These data on "identification with violent characters" and on "perceived learning of aggression" (at least in other respects than evaluation of violence) are consonant with a violence viewing-to-aggression hypothesis. On the other hand, the propensity to identify with violent characters or to learn aggression can also be conceived as a preexisting psychological condition. Such a dynamic might be summarized as a propensity leading both to violence viewing and to aggression. This is in essence a "third variable" or "common origin" sequence.

We may now summarize the discussion of "plausible mechanisms." Briefly, three candidate mechanisms (identification, learning, and linkage to real life) have been identified, and each has been found to be related—in most instances modestly—to both violence viewing and aggression. The evidence for the operation of one plausible mechanism, that of learning favorable evaluation of violence, appears to be weak. If a causal relationship of the viewing-leads-to-aggression type does exist, however, the remaining mechanisms might be operative. This is not to assert that that sequence does exist, since the same mechanisms are equally consonant with a causal relationship involving an antecedent common origin of both viewing and aggression.

### Summary: correlational evidence for the interpretation that violence viewing leads to aggression

We may now summarize the correlational evidence for the interpretation that violence viewing leads to aggression. (In the next chapter we will bring together the correlational and experimental data.) Within the studies reviewed in this chapter, all of which present correlational data, two of the highest correlation coefficients (both at about the level of .30) involved correlations in which earlier viewing was correlated with later aggression ratings. These data are supportive of the interpretation that viewing leads to aggression, within the parameters of a relationship at the .30 level. However, certain technical questions exist regarding the adequacy of the measures. In addition (or perhaps as a result), the correlational findings are equally consonant with a common origin interpretation, in which both violence viewing and aggression are conceived to stem from an antecedent condition or set of conditions. A quest for

“plausible mechanisms” by which the violence viewing-to-aggression sequence might operate provided some candidate mechanisms, but these again were equally consonant with a common origin interpretation. It should be reemphasized that both a directly causal and a “third variable” process can be operating simultaneously. It is not an either-or choice.

### Evidence for the common origin (“third variable”) interpretation

We turn now to consideration of whether the data contain any evidence supportive of or consonant with the interpretation that some antecedent condition or set of conditions may produce both violence viewing and aggression, or may in some way explain the association noted in the correlation studies. Since such an association, though a weak one, has been found, a scientific approach requires that instead of considering the matter explained, we explore for third variables that might explain it. Some ways in which such a third variable might operate have been discussed above.

Since we are here primarily interested in “common origin” third variables, we will touch only lightly on “interaction” third variables, which serve chiefly to identify different population subgroups in which the relationship between violence viewing and aggression is variously stronger and less strong. Several such variables can be observed in the data, although their action is not always consistent across the various studies. Two examples of such inconsistently behaving interactive variables will perhaps suffice to make the point.

*Socioeconomic status.* Robinson and Bachman (1971) observed a modest monotonic relationship between the violence level of 19-year-old boys’ favorite programs and certain indices of aggression. Controlling for “education of mother” nullified the monotonicity for some groups but not for others. On the other hand, McLeod et al. (1971a) found that controlling for socioeconomic status or for school performance did not affect the relationship between violence viewing and aggression in either their Maryland or Wisconsin mixed-sex samples.

*Age and sex.* Upon breaking down their samples by sex and age, McLeod et al. (1971a) found the relationship between violence viewing and aggression to be at its lowest among junior high school boys, and generally to be as strong or stronger among girls than it was among boys. Dominick and Greenberg likewise found the relationships they tested generally higher among fourth- to sixth-grade girls than among fourth- to sixth-grade boys. Lefkowitz et al., on the other hand, found virtually no relationship between their principal exposure and aggression measures for girls in Grade 3, 8, or 13, or across any of these time spans.

Sex differences, insofar as they exist, could in fact constitute a candidate common origin variable. If, for example, it were consistently found that a relationship between exposure to television violence and aggression existed for boys but not for girls, it could be plausibly hypothesized that sex role conditioning was in itself sufficient to preclude the relationship developing among girls and (by the other side of the coin) to maximize the likelihood of its development among boys. However, as we have noted, the findings of these studies in reference to sex differences are far from consistent. Clarification of these inconsistencies is obviously necessary before sex role conditioning can meaningfully be considered a plausible candidate for a common origin variable.

Other candidate common origin variables exist in the data at hand, although none can be observed to be serving such a function completely, nor even sufficiently to validate it as a definite common origin variable. We will here discuss three such variables, or types of variables: preexisting levels of aggression, subjective or personality factors, and a group of variables related to the attitudes and behavior of the respondents' families.

## Preexisting levels of aggression

Robinson and Bachman found that controlling for levels of aggression one year ago virtually eliminated the relationship between preference for violent programs and aggression for some 90 percent of their sample, and destroyed the monotonicity of the relationship for the remaining and most aggressive ten percent.

This finding can be interpreted as supportive of a common origin interpretation, with the third variable being the condition or conditions which produce the earlier levels of aggression. The interpretation is weakened, however, by the lack of a parallel early program preference measure (which could strengthen or weaken the interpretation) and by the fact that the male respondents were 19 years old at the time of the survey. Both their characteristic levels of aggression and their viewing preferences may by that age, or even a year earlier, have attained sufficient stability to be beyond any further interactive effect upon each other. Indeed, the data do not rule out the possibility that one of the antecedent determinants of their aggression level may have been their program preferences at some earlier stage of development.

## Personality factors

The data at hand contain several discrete findings which, though not individually particularly impressive, hint at a possible personality factor, or set of factors, which deserve investigation as a possible common origin variable. Thus, as previously noted, Robinson and Bachman

found that controlling for aggression level a year ago nullified a previously observed relationship between violence level of favorite programs and aggression for all but the most aggressive ten percent of their sample—a finding which suggests the possibility of a qualitative as well as quantitative difference between the ten percent and the 90 percent. In related vein, available details regarding Lefkowitz et al.'s sample of boys suggest that the observed relationship between violence level of favorite programs and aggression may be essentially a product of a very small number of extremely aggressive boys. Again, in the same vein, McIntyre and Teevan found that only about ten percent of their sample agreed with either of two statements about their favorite program ("The main character shoves people around" and "The rough guy gets his way"). The ten percent who agreed with either statement were more aggressive than the others, perceived violence in programs where others did not perceive it, and possessed various other deviant traits.<sup>1</sup>

Possibly related to the McIntyre and Teevan finding is the statistical behavior of a variable called by McLeod et al. "perceived learning of aggression." We have already noted that this index correlates with aggression more strongly than does violence viewing and have suggested that it could serve as a "plausible mechanism" in a violence viewing-to-aggression dynamic. We have suggested also that, to the degree that selective learning is a manifestation of a psychological set, that psychological set is a candidate for a common origin variable.

Taken together, these isolated findings from several studies suggest the possible existence of a set of traits characteristic of about ten percent of youth—or at least of boys—which merits better definition and measurement than it has yet received, and which merits investigation to see whether it is a common source of both violence viewing and aggression.

## Variables relating to the family

In reference to a host of topics other than exposure to television violence and its correlates or effects, the attitudes and behaviors of young persons' parents have been found to be important, and in some instances critically determinative, influences upon the attitudes and behavior of the young persons themselves. The data at hand suggest that

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<sup>1</sup>Controlling for agreement with either statement completely eliminated a previously observed relationship between violence level of favorite programs and "aggressive" or "serious" deviance in both the ten percent and 90 percent groups, leading the investigators to state "that the subjects' perception of violence is more closely related to deviant behavior than is the objective rating of the violence content of television shows." Precisely what psychological characteristic of the respondents' psychological makeup was tapped by these statements is unclear, and the relationship which was nullified was originally so trivial ( $r$ 's = .04 and .06) as to call into question the validity of the authors' quoted statement.