A Comparison of Two Viewing Measures in Studies of Television-Influenced Perceptions of Criminal Victimization.

Comparing two measures of television exposure (time spent viewing, and the number of violent acts viewed per hour) as predictors of television-influenced fear of criminal victimization, a study conducted probability surveys in two midwestern cities with dissimilar crime rates. A preliminary study of 142 undergraduates in a mass communication class at a midwestern university used a five-page questionnaire to measure regular television viewing habits and estimates of criminal victimization. Findings showed that the simultaneous measurement of time spent viewing and violent acts per hour led to an unanticipated cultivation pattern. In the follow-up study, 102 subjects from a midwestern state were randomly selected for telephone interviews using a random digit dialing technique—50 subjects were drawn from a city known for its high crime rate, while another 51 subjects were drawn from a city with a much lower crime rate. Respondents reported the amount of time spent watching television, favorite television programs, and level of fear for each of several crimes listed by the interviewer. Results suggested mixed support for the cultivation reformulations known as mainstreaming (a convergence of views among those exposed to heavy amounts of television in various social subgroups) and resonance (situations in which salient aspects of real-world reality and television reality converge). (Two tables and one figure are included, and 6 footnotes and 25 references are appended.) (MM)
A Comparison of Two Viewing Measures in Studies of Television-Influenced Perceptions of Criminal Victimization

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CULTIVATION EFFECT

A Comparison of Two Viewing Measures in Studies of Television-Influenced Perceptions of Criminal Victimization

Abstract

Two measures of television exposure, time spent viewing and violent acts per hour viewed, were compared as predictors of television-influenced fear of criminal victimization in a probability survey conducted in two Midwestern cities with dissimilar crime rates. The criterion variables were true measures of respondents' fear of victimization rather than the likelihood-of-being-victimized estimates typically used in cultivation analyses. The results suggest mixed support for the cultivation reformulations known as mainstreaming and resonance.
A Comparison of Two Viewing Measures in Studies of Television-Influenced Perceptions of Criminal Victimization

Cultivation, a major reformulation of the television-viewing-and-aggression hypothesis (Morgan, 1983) advanced by George Gerbner and his associates, remains one of the most intriguing theories of mass communication and society. Conceptually, cultivation refers to the commonality of meanings that viewers derive from the dominant image patterns of dramatic television content (Gerbner, 1972; Gerbner, Gross, Morgan, & Signorielli, 1986). It is assumed that these meanings are constructed from repetitive, uniform, and stereotypical television images that are largely incongruent with the "real world" as defined by archival data about American society. The construction process is thought to be aided by the nonselective, ritual viewing habits of the American television audience (Gerbner, Gross, Signorielli, Morgan, & Jackson-Beeck, 1979). Cultivation "effects" have been charted in numerous domains (e.g., Gerbner et al., 1986) by independent researchers using various methodological procedures. These studies, reviewed by Hawkins and Pingree (1982) and Ogles (1987), have yielded several empirical generalizations that have illuminated the impact of television on audience members' constructions of social reality.

A principal issue in cultivation research is the link between dramatic television content and viewers' perceptions of real-world criminal victimization. Since cultivation is a function of television exposure "weight" (i.e., "light" vs. "heavy" viewing), empirical support for the cultivation of fear of victimization is based on correlations between questionnaire items about criminal victimization and measures of television exposure. In general, heavy viewers of television, compared to light viewers, give exaggerated estimates of victimization. These effects can be traced not only to the amount of television consumed, but also to characteristics of
program content such as violence. The distinction between global measures of television viewing such as total time spent watching, and content-specific measures such as average violent acts per hour viewed, is central to the empirical findings reported in this paper.

Background Literature

George Gerbner's Cultural Indicators Group at the University of Pennsylvania has published voluminous data that demonstrate, among many other things, a generally weak but positive correlation between heavy television viewing and perceptions of criminal victimization (e.g., Gerbner et al., 1979). But other researchers have identified contingencies in this relationship. For example, Doob and Macdonald (1979) reported a cultivation effect that was limited to respondents in a high-crime, city neighborhood. Hirsch (1980, 1981) raised several criticisms regarding the Gerbner Group's early research, including their failure to use the amount of violence viewed by respondents as a measure of television exposure. Given Gerbner's contention that the symbolic portrayal of victims and victimizers significantly contributes to cultivation, the amount of violence viewed would appear to be a conceptually important predictor of cultivation.

Furthermore, Hawkins and Pingree (1981) suggest that uniform content and ritual viewing may be unnecessary assumptions in cultivation theory. They argue that the most fruitful cultivation analyses might involve examining the effects of specific types of content on relevant social perceptions. Ultimately, cultivation effects could be interpreted as the results of extended exposure to any type of content in any mass medium.

Goal of this Paper

We believe the issue of viewing measurement in cultivation analyses merits further empirical study. The literature contains few comparisons among television exposure measures for a single sample. The purpose of this paper is
to explore the impact on cultivation theory of three such measures: (1) time spent watching television in general, (2) time spent watching violence, and (3) the number violent acts per hour viewed.

Preliminary Empirical Research: Study 1

Since these preliminary data have been presented previously (Ogles, Bochnia, Gould, & Rodin, 1986), only the major results are highlighted here.

Method

Respondents

The survey was administered to a group of 142 undergraduates in a large-lecture mass communication class at a Midwestern university.

Instrument

The respondents completed a five-page questionnaire that measured regular television viewing habits and estimates of criminal victimization.

Exposure measures. Viewing was assessed by having respondents mark on a checklist of 94 prime-time network programs the ones they watched regularly. The first exposure measure was based on the sum of the average number of violent acts per hour for each program checked, derived from the National Coalition on Television Violence (NCTV) list of current prime-time network programs content analysed for violence (NCTV News, 1985, July-August; National Coalition on Television Violence, 1985, November). The average number of violent acts per hour in these programs ranged from 0 to 55.

This was not the first study to use NCTV content data in cultivation analysis. Roberts (1985) used a procedure similar to the one just described. Moreover, it should be noted that the NCTV's monitoring results are basically congruent with Gerbner's content findings. But more important, the use of NCTV content data in cultivation research constitutes a conceptual replication of the sizable number of cultivation studies conducted by Gerbner and his associates using Gerbner's content data.
The second exposure measure was total time spent viewing, based on the sum of the lengths of the programs (30 or 60 minutes) the respondents indicated they watched regularly.

The third exposure measure, time spent viewing programs in four mutually exclusive categories based on the average number of violent acts per hour, was constructed from the previous two. The categories are the same ones used by the NCTV to distinguish between programs with low, moderate, heavy, and excessive amounts of violence.

Victimization estimates. An eight-item scale measured respondents' estimates of criminal victimization. Five items tapped estimates of victimization in society at large, and three items tapped estimates of personal victimization. These items have been used elsewhere (Ogles and Hoffner, 1987; Ogles and Ogles, 1987).

Results

Although the respondents in this sample were homogeneous in many ways (e.g., age, education, race), their television use varied considerably. Violent acts per hour viewed regularly ranged from 6 to 520 ($\bar{X} = 121$, $SD = 99$). Total hours viewed regularly ranged from 1 to 34 ($\bar{X} = 11$, $SD = 6$).

Side-by-side comparisons of the correlations between the victimization items and two of the viewing measures revealed that the total amount of time spent viewing and the number of violent acts per hour viewed were about equally effective in locating cultivation effects. But subgroup correlations between the criminal victimization items and amount of time spent viewing programming in the NCTV-based violence categories revealed that the relationship was nonlinear in this sample. As can be seen in Table 1, only one item in the low category, four items in the moderate category, and four items in the heavy category attained conventional statistical significance. But no item in the excessive category reached significance.
The average amount of time spent viewing programs in these groups was 4 hours 30 minutes in the low group, 3 hours 15 minutes in the moderate group, 1 hour 53 minutes in the heavy group, and 3 hours and 7 minutes in the excessive group. Two particularly interesting points should be emphasized: (1) Four of the nine significant correlations were in the least-viewed category, the one in which the programs contained heavy but not excessive amounts of violence; and (2) no significant correlation was in the excessive-violence category. In sum, watching popular programs with excessive amounts of violence does not seem to contribute to exaggerated estimates of criminal victimization. On the other hand, the least popular programs, those in the moderate and heavy violence categories, account for eight of the nine significant correlations between exposure and estimates of victimization. This curious pattern is summarized in Figure 1.

Discussion

Media research conducted on university students, especially those enrolled in mass communication classes, is always less than ideal. This study, therefore, should be viewed as an exploratory pilot investigation. Nevertheless, these findings demonstrate how the simultaneous measurement of time spent viewing and violent acts per hour led to the unanticipated cultivation pattern depicted in Figure 1. One would expect to see more significant correlations in the heavy- and excessive-violence subgroups than in the low- and moderate-violence subgroups. At the least, there should be as many significant correlations in the excessive-violence subgroup as there were in the
heavy and moderate-violence subgroups, since programs in the excessive-violence category were plentiful, compared to 29 in the moderate- and heavy-violence categories combined and popular with the respondents (see Figure 1). As the figure reveals, these expectations were not confirmed. We were intrigued by these results, and sought to investigate further the relationship between televised violence and estimates of criminal victimization in a nonstudent sample.

Follow-up Empirical Research: Study 2

Method

Respondents

During the fall of 1987, 101 respondents from a Midwestern state were randomly selected for a telephone interview using a random digit dialing technique. Fifty respondents (males 25; females 25) were drawn from a city known for its high crime rate. Another 51 respondents (males 26; females 25) were drawn from a city with a much lower crime rate. Two female interviewers conducted the survey; each interviewer surveyed an equal proportion of males and females from each of the two cities.

Exposure Measures

Respondents were asked to estimate the amount of time they watched television on an average weekday and on an average weekend day. After multiplying the weekday estimates by five and the weekend estimates by two, the estimates were summed to yield a single measure of average television viewing. Although this measure is less precise than the program checklist used in Study 1, it was a necessary tradeoff between measurement precision and ecological validity.

In addition, respondents were asked to report as many favorite television programs as they could bring to mind. For each program mentioned that had been content analyzed for violence by the NCTV, a figure was recorded representing
its average number of violent acts per hour. These figures were summed to yield an average number of violent acts per hour. These figures were summed to yield a measure of violence viewing.

**Fear of Victimization Measures**

Respondents were asked to answer 16 questions that Ferraro and LaGrange (1987) strongly endorse as true measures of fear of criminal victimization. These questions have appeared in the sociological literature in studies by Warr (1984) and by Warr and Stafford (1983). Respondents indicated their fear of each specific offense after the interviewer said the following:

At one time or another, just about everyone experiences fear about becoming the victim of a crime. I'm going to ask you some questions about different types of crime. Try to answer according to how afraid you are about becoming the victim of each type of crime in everyday life. I'd like you to answer on a zero-to-ten scale. If you're not at all afraid, your answer would be zero. If you are very afraid, your answer would be ten. If your fear falls somewhere between, please answer with a number somewhere between zero and ten. Here's the first one.

Respondents then indicated their level of fear for each of the crimes read by the interviewer. To control for a possible order effect in the responses, half of the respondents answered the questions about television viewing first; the other half answered them last. Respondents also were asked to indicate their age, gender, and whether they previously had been the victim of a crime.

**Results**

In order to test the cultivation hypothesis, fourth-order partial correlations were computed between the 16 fear-of-victimization items and (1) respondents' estimates of time spent viewing television and (2) NCTV-based estimates of their exposure to television violence, derived from the violence ratings of the favorite programs they listed.
As Table 2 reveals, the positive correlations between television viewing and fear of specific criminal offenses were significant for three of the sixteen offenses in City A (low crime). Television viewing was related significantly to the fear of being threatened with a knife, club, or gun \( r(43) = .26, p < .05 \), the fear of being murdered \( r(42) = .28, p < .04 \), and the fear of being beaten up by someone known \( r(43) = .25, p < .05 \). In City B (high crime), television viewing was related significantly to the fear of being raped \( r(34) = .34, p < .02 \).

For the violence measure, significant correlations emerged for five of the sixteen offenses in City A (low crime). Violence viewing was related significantly to the fear of being raped \( r(14) = .65, p < .004 \), the fear of being hit by a drunk driver while driving a car \( r(21) = .38, p < .05 \), the fear of having strangers loiter near the home late at night \( r(21) = .69, p < .001 \), the fear of being threatened with a knife, club, or gun \( r(21) = .40, p < .03 \), and the fear of being sold contaminated food \( r(21) = .34, p < .05 \). None of the correlations between violence viewing and the fear of specific criminal offenses was significant in City B (high crime).

Discussion

It is obvious from these data that the measurement of exposure to violent television content may add significantly to what we presently know about how television may cultivate fear of criminal victimization among viewers. For example, in City A (low crime) the violence measure located two correlations that account for more than 40 percent of the variance between exposure and fear (fear of rape and fear of having strangers loiter near one's home late at night). These are relatively large correlations. The pattern of correlations
in Table 2 also suggests implications for two reformulations of the cultivation hypothesis: mainstreaming and resonance.

Mainstreaming refers to a convergence of views among those exposed to heavy amounts of television in various social subgroups. Resonance refers to situations in which salient aspects of real-world reality and television reality converge, such as the heavy viewing of violent television by persons residing in high-crime areas (Gerbner, Gross, Morgan, & Signorielli, 1980).

Although these reformulations have been criticized (see Hirsch, 1980, 1981 and Gerbner, Gross, Morgan, & Signorielli, 1981a, 1981b for a complete discussion of these and other issues pertaining to early cultivation analyses), we tend to agree with the Cook, Kendzierski, and Thomas (1983) evaluation of mainstreaming as an improvement over the original global cultivation hypothesis. But in our sample, time spent viewing and violence exposure led to different conclusions about the resonance concept.

**Correlations Based on Time-Spent-Viewing Estimates**

The significant correlations in Table 2 based on television viewing can be interpreted to support both mainstreaming and resonance. Looking at the positive correlations in City A (low crime), television viewing would appear to bring these respondents to the mainstream on the items tapping fear of being (1) threatened by a knife, club, or gun; (2) murdered; and (3) beaten up by someone known. These activities no doubt occur more frequently in action-adventure television programs than in the lives of respondents in the low-crime community (see footnote 3). Hence, the respondents' fears of these specific offenses may have increased with their television viewing.

In the high-crime city (City B), it can be argued that the positive correlation between watching television and fear of being type of activity depicted in action-adventure programming and also likely to be encountered in a high-crime area, suggests a resonance effect.
Correlations Based on Violence Exposure Estimates

Although both mainstreaming and resonance are evident in this sample when television exposure is based on global estimates of time spent viewing, the pattern of correlations based on the violence measure yields mixed support for these concepts. In the low-crime city (City A), the violence measure was positively correlated with items measuring respondents' fear of being (1) raped; (2) hit by a drunk driver while driving a car; (3) bothered by strangers loitering around the home; (4) threatened by a knife, club, or gun; (5) and sold contaminated food. With the possible exception of the loitering item, these offenses typically are depicted in various types of television programming. In sum, these correlations could be interpreted as additional support for mainstreaming.

On the other hand, the measure of exposure to televised violence failed to locate a single significant correlation in City B (high-crime). The resonance effect, therefore, disappeared when violence was used as the predictor variable. But violence is no doubt salient to the high-crime respondents.

Several points that are extraneous to our main argument are worth considering here. First, it is important to note that correlations always fall short of satisfying the criteria for a causal relationship between two variables. As Doob and Macdonald (1979) pointed out earlier in this literature, researchers should always remain cautious about the interpretation of correlational evidence, regardless of the number of control variables employed in the process.

Second, although we have labeled the two cities in our sample "low crime" and "high crime," our data are clearly different from Doob and Macdonald's (1979), which revealed that the level of crime in a neighborhood was an important control variable in testing the cultivation hypothesis. Doob and
Macdonald collected data from different neighborhoods in the same city. Although it is true that the two cities in our sample differ in their crime rates, they also may differ in numerous other ways. Any of these other differences could mediate the cultivation coefficients that are reported. This may be an important point to acknowledge because Doob and Macdonald found a positive correlation between television exposure and cultivation measures for respondents in a high-crime, city neighborhood. Eight of the nine positive correlations between exposure and cultivation in our study were in the low-crime city.

In conclusion, we have tried to make one point explicit in the foregoing discussion: Measures of time spent viewing can lead to conclusions about the cultivation hypothesis that are different from those based on measures of exposure to television violence. In view of the empirical evidence presented, it may be prudent to use both measures since each contributes something to the whole.6

We recommend that mass communication researchers interested in the relationship between television content and fear of crime adopt the fear measures of Ferraro and LaGrange (1987). These items are preferable to traditional measures of victimization, which typically do not assess fear but instead focus on estimates of personal safety and perceived risk, which are conceptually distinct (Sparks, Ogles, Vavrus, & Spirek, 1988). We believe that continued improvement in conceptualization and measurement ultimately will lead to greater understanding of how viewers construct meaning from the dominant themes of television.
References


Footnotes

1 Cultivation typically is regarded as a media effect, even though the vast majority of studies supporting cultivation have used correlational designs. A few experimental studies in which causality clearly was established have been interpreted as cultivation (e.g., Ogles & Hoffner, 1987). Moreover, we recognize that selective exposure processes are very likely operative in most media usage (cf. Zillmann & Bryant, 1985). Nevertheless, we follow convention and refer to cultivation as an "effect" of television exposure.

2 It should be noted that the work of Gerbner and his associates has addressed many issues regarding the impact of television on society. For a recent review of this research, see Gerbner et al. (1986).

3 According to FBI statistics (Crime in the United States, 1986), City A and City B differed in the following ways.

<table>
<thead>
<tr>
<th></th>
<th>City A</th>
<th>City B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>44,108</td>
<td>143,254</td>
</tr>
<tr>
<td>Murders</td>
<td>0</td>
<td>46</td>
</tr>
<tr>
<td>Rapes</td>
<td>11</td>
<td>82</td>
</tr>
<tr>
<td>Robberies</td>
<td>29</td>
<td>561</td>
</tr>
<tr>
<td>Aggressive Assaults</td>
<td>27</td>
<td>696</td>
</tr>
<tr>
<td>Burglaries</td>
<td>547</td>
<td>2,169</td>
</tr>
<tr>
<td>Larceny, Theft</td>
<td>1,469</td>
<td>2,824</td>
</tr>
<tr>
<td>Motor Vehicle Theft</td>
<td>114</td>
<td>1,900</td>
</tr>
<tr>
<td>Arson</td>
<td>17</td>
<td>689</td>
</tr>
</tbody>
</table>

City B is roughly 3.2 times larger than City A. But crime in City B is far more than 3.2 times more frequent for most offenses.

4 The goal of the two-city sample was to investigate the cultivation of fear in viewers who (1) were not necessarily college students and (2) resided in communities situated within 100 miles of each other and located in the same
state but which varied considerably with regard to crime rate. We recognize that the sample may not be representative of viewing in the two cities, but this is beside the point. The crux of the analysis is the obvious variance in the characteristic of interest (i.e., crime rate), not in sample-to-population representativeness.

5 The diminution of n is due to the failure of some respondents to list favorite programs. These respondents tended to say that they watched anything that was on television.

6 Note that the two viewing measures located only one cultivation relationship in common, the positive relationship between television exposure and fear of being threatened with a knife, club, or gun in City A (low crime).
Table 1

Partial Correlations Between Crime-Estimation Items and Amount of Prime-Time Violence Viewed Regularly, Divided by Categories Based on Number of Violent Acts Viewed Per Hour, Study 1 (Ogles et al., 1986)

<table>
<thead>
<tr>
<th></th>
<th>Low (0-2/hr.)</th>
<th>Moderate (3-9/hr.)</th>
<th>Heavy (10-19/hr.)</th>
<th>Excessive (20-55/hr.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Societal-estimate items</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. What percentage of women in the United States were victims of a violent crime last year?</td>
<td>.24*</td>
<td>.31*</td>
<td>.14</td>
<td>.06</td>
</tr>
<tr>
<td>2. What percentage of men in the United States were victims of a violent crime last year?</td>
<td>.12</td>
<td>.10</td>
<td>-.08</td>
<td>.06</td>
</tr>
<tr>
<td>3. What are the chances that a man walking alone at night in a city would be the victim of a violent crime?</td>
<td>.05</td>
<td>.05</td>
<td>.21*</td>
<td>.13</td>
</tr>
<tr>
<td>4. What are the chances that a woman walking alone at night in a city would be the victim of a violent crime?</td>
<td>.11</td>
<td>.11</td>
<td>.25*</td>
<td>.14</td>
</tr>
<tr>
<td>5. What percentage of women do you think will be raped in their lifetime?</td>
<td>.17</td>
<td>.29**</td>
<td>.12</td>
<td>.05</td>
</tr>
<tr>
<td>Personal-estimate items</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. What do you think are the chances that you will be the victim of a violent crime during the next year?</td>
<td>-.10</td>
<td>.21*</td>
<td>.25*</td>
<td>.16</td>
</tr>
<tr>
<td>2. What do you think are the chances that one of your family or a close friend will be the victim of a violent crime during the next year?</td>
<td>-.07</td>
<td>.23*</td>
<td>.26*</td>
<td>.19</td>
</tr>
<tr>
<td>3. What are the chances that a woman you know will be the victim of a rape during her lifetime?</td>
<td>.08</td>
<td>-.11</td>
<td>.08</td>
<td>-.01</td>
</tr>
</tbody>
</table>

* p < .05, ** p < .01 (one-tailed)

Note. Gender controlled.

*aCategories are suggested by NCTV publications. Numbers in parentheses are violent acts per hour; n refers to the number of shows on the program checklist in each category.
Table 2

Fourth-Order Partial Correlations Between Television Viewing and Fear of Specific Criminal Offenses, Study 2

<table>
<thead>
<tr>
<th>Offense</th>
<th>City A (low crime)</th>
<th>City B (high crime)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Having someone break into your house while you are away</td>
<td>-0.13</td>
<td>0.09</td>
</tr>
<tr>
<td>Being raped</td>
<td>-0.01</td>
<td>0.65*</td>
</tr>
<tr>
<td>Being hit by a drunk driver while driving your car</td>
<td>0.02</td>
<td>0.38*</td>
</tr>
<tr>
<td>Having someone break into your home while you are at home</td>
<td>-0.16</td>
<td>0.21</td>
</tr>
<tr>
<td>Having something taken from you by force</td>
<td>0.04</td>
<td>-0.05</td>
</tr>
<tr>
<td>Having strangers loiter near your home late at night</td>
<td>0.19</td>
<td>0.69*</td>
</tr>
<tr>
<td>Being threatened with a knife, club, or gun</td>
<td>0.28*</td>
<td>0.40*</td>
</tr>
<tr>
<td>Having a group of juveniles disturb the peace near your home</td>
<td>0.03</td>
<td>0.11</td>
</tr>
<tr>
<td>Being beaten up by a stranger</td>
<td>0.07</td>
<td>0.18</td>
</tr>
<tr>
<td>Being murdered</td>
<td>0.32*</td>
<td>0.15</td>
</tr>
<tr>
<td>Having your car stolen</td>
<td>-0.19</td>
<td>0.05</td>
</tr>
<tr>
<td>Being cheated or conned out of your money</td>
<td>-0.11</td>
<td>-0.23</td>
</tr>
<tr>
<td>Being approached by people begging for money</td>
<td>0.22</td>
<td>-0.06</td>
</tr>
<tr>
<td>Receiving an obscene phone call</td>
<td>-0.02</td>
<td>-0.16</td>
</tr>
<tr>
<td>Being sold contaminated food</td>
<td>0.18</td>
<td>0.34*</td>
</tr>
<tr>
<td>Being beaten up by someone you know</td>
<td>0.25*</td>
<td>0.15</td>
</tr>
</tbody>
</table>

* = p < .05

Note: Control variables are age, gender, previous victimization, and order of survey questions.
Figure 1. Comparison of Programming Popularity and Cultivation Effects in Four Violence-Based Viewing Categories, Study 1.

Note. The ordinate represents two distinct pieces of information: (1) the average time (in hours) respondents spent viewing programs in the categories (i.e., program popularity); and (2) the number of significant correlations between time spent viewing programs in the NCTV-based categories and the crime-estimation items (represented by shading). Note the absence of significant correlations in the excessive-violence category.

Categories are suggested by NCTV publications. Number of violent acts per hour per category: Low, 0-2; Moderate, 3-9; Heavy, 10-19; Excessive, 20-55.