Television, Sexual Behavior and Attitudes Towards AIDS: A Study in Cultivation Analysis

by Kwadwo Bosompra

Abstract

This study seeks to address the following questions: (i) Is amount of television viewing related to sexual behaviour? (ii) Do some background and demographic factors affect the relationship (if any) between amount of television viewing and sexual behaviour? (iii) Is amount of television viewing related to attitudes towards AIDS? (iv) Do some background and demographic factors affect the relationship (if any) between amount of television viewing and attitudes towards AIDS?

The study focuses on only the dimension of sexual behaviour - the number of sexual partners the respondent has had over the twelve month period prior to the survey. The overall findings indicate a number of patterns in the relationships among sexual behaviour, attitudes towards AIDS and amount of television viewing. These results are significant in the evolving campaigns for AIDS education.

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*Kwado Bosompra teaches communication studies at the University of Legon, but contributed this from the University of Massachusetts, Amherst, USA where he is undertaking doctoral studies.

La Télévision, le Comportement Sexuel et les Attitudes Envers le SIDA: Une Etude de l'Analyse de la Cultivation

par Kwadwo Bosompra

Résumé

L'étude tente d'aborder les questions suivantes: (i) Existe-t-il des rapports entre les heures passés à regarder la télévision et le comportement sexuel; (ii) les facteurs d'ordre démographique ou l'appartenance sociale influencent-ils les rapports, (s'ils existent) entre les heurs passées à regarder la télévision et le comportement sexuel; (iii) existe-t-il des rapports entre les heures passées à regarder la télévision et les attidues envers le SIDA?

L'étude ne se limite qu'à la dimension comportement sexuel; à savoir, le nombre de partenaires sexuels que l'interrogé a eu au courant des douze mois qui ont précédé l'enquête. Les résultats ont indiqué qu'il existait certains rapports entre les heures passées à regarder la télévision, le comportement sexuel et les attitudes envers le SIDA. Ces resultats peuvent avoir une grande portée dans les campagnes d'éducation sur le SIDA qui se conçoivent à l'heure actuelle.

Introduction

In the last decade public concern over the rate at which sex has been implicitly and explicitly portrayed on prime time American television has grown tremendously. Over the same period, due in large measure to the onset of AIDS, sexual behavior has become a major topic of discussion for both the public and the media.

The growing body of literature on content analysis of television confirms that by and large the overall message is that sex is essentially casual and for the unmarried (Lowry and Towles, 1989; Sapolsky and Tabarlet, 1989), and that sex is glamorous, exciting and risk-free (Furstenberg and Brooks-Gunn, 1985). Other studies dating as far back as the early 1970s and reviewed by Roberts (1980) corroborate this. The literature also confirms that such issues as safe sex, contraception and the consequences of sex such as unwanted pregnancies and sexually transmitted diseases are rarely mentioned (at least, through the late 1980s).

While a lot is now known about how sex is portrayed on American television (through numerous content analytic studies) and how the public feels or reacts to this portrayal (Planned Parenthood Federation of America, 1987; Greenberg et al., 1980; Sprafkin et al., 1980), empirical evidence on the effects of television exposure on sexual behavior is almost nonexistent (Signorielli, 1990; Brown and Newcomer, 1991; Sapolsky Tabarlet, 1991).

The few studies that have attempted to address this important gap have either been laboratory studies (Greeson arld Williams, 1986) or have adolescents or specific "sexy" programs as their main focus (Brown and Newcomer, 1991; Peterson et al., 1991). In the case of laboratory studies, their validity can even be questioned on the basis of the artificiality of the experimental situation, the brevity of the TV exposure and the effects that are presumably being measured.

Sexual behavior on television covers a wide spectrum (Roberts, 1980) and the handful of studies that did not specify any particular programs or genres but looked at the contribution that overall amount of television viewing made to (sexual) behaviors and conceptions of viewers could naturally only address a limited area at a time. A ready example is the initiation of sexual intercourse (Peterson et al., 1991; Brown and Newcomer, 1991).

Thus the present study hopes to contribute to the important issue of determining the extent to which viewers' sexual beliefs and behaviors conform to the world of television from the perspective of overall amount of television viewing and not exposure to any specific program or genre. The study covers the period 1988 to 1991.

Conceptual Framework

Given that television is sending out a steady and consistent "barrage of sexual images and innuendo with little attention to the consequences of sexual behavior" (Sapolsky and Tabarlet,1991), how exactly do these images impact on the conceptions and behaviors of viewers and how does the impact (if any) relate to overall amount of television viewing?

This study thus seeks to address the following questions:

i.   Is amount of television viewing related to sexual behavior?
ii.   Do some background and demographic factors affect the relationship (if any) between amount of television viewing and sexual behavior?
iii. Is amount of television viewing related to attitudes towards AIDS?
iv.   Do some background and demographic factors affect the relationship (if any) between amount of television viewing and attitudes towards AIDS?

The specific mechanisms by which television might influence sex-related attitudes and behaviors have been the subject of considerable debate and several theories have been proposed (Peterson *et al.*, 1991). Perhaps the essence of the debate may best be captured in the words of Brown and Newcomer (1991):

> "Such a phenomenon might be explained by a variety of models of media effects, including social learning theory (Bandura,1977): adolescents see other unmarried teens or young adults enjoying going off to bed together on television, so they engage in similar behavior; and cultivation theory (Gerbner, Gross, Morgan and Signorielli, 1986): heavy television viewers consistently see unmarried couples having sex and thus come to believe that such is the cultural norm."

It could be argued that there is no necessary connection between perceived norms and personal behavior (ie. cultural norms can be rejected). However, current research in social psychology indicates that performance of a behavior is determined by social norms about the behavior alongside attitudes toward the behavior and the individual's perception of the ease or difficulty with which the behavior can be performed (Ajzen, 1991, 1988, 1985; Ajzen and Driver, 1991; Ajzen and Madden, 1985). Thus at least we can speculate that perceived norms can impact behavior in some ways.

While Brown and Newcomer's position refers to adolescents, the mechanism could be different for older people. Older characters on television are often projected as being sexually dysfunctional and we

may therefore speculate that heavy television viewers who are old would be less likely than their light viewing age mates to have more than one sexual partner. For younger people, heavy viewing might be associated with a tendency to have more than one sexual partner thus implying that television could affect different age groups in different ways.

A look at the literature shows that both cultivation and social learning perspectives are very versatile and have been applied to a wide range of attitudes and behaviors (Gerbner and Gross,1976; Gerbner et al.,1982; 1980a; Morgan,1992, 1987). This versatility allows our discussion to proceed from the cultivation perspective.

Cultivation theory suggests that a steady and consistent exposure to television influences viewers' conceptions of social reality in such a way that heavy viewers' ideas about the real world are shaped by the images of television. The cultivation perspective recognizes the existence of substantial differences in patterns of associations for different social groups between amount of viewing and certain conceptions of social reality and the possible contribution of the salience of certain real life circumstances to this difference (Gerbner et al. 1980b).

The cultivation framework has been criticized on both conceptual and methodological grounds (Doob and Macdonald, 1979; Hughes, 1980; Hirsch, 1980, 1981; Potter, 1988, 1991; Signorielli and Morgan, 1990) but the fact that the theory has been confirmed in a wide array of studies across diverse contexts attests to its versatility.

This study focuses on only one dimension of sexual behavior–the number of sexual partners the respondent has had over the twelve month period prior to the survey. "Number of sexual partners" has become a very important index of sexual behavior especially with the onset of AIDS. It is in fact one of the major goals of AIDS educators that couples should stick to mutually faithful monogamous relationships.

Apart from this there is a good methodological reason for using number of sexual partners. This study uses data from the General Social Surveys conducted by the National Opinion Research Center (NORC) between 1988 and 1991 and although there are many questions on sexual behavior they were not all asked in the same year and even in one year there are three versions of the same questionnaire for different segments of the sample.

The measure of number of sexual partners a respondent has had over the previous twelve months was the only question related to sexual behavior that had the dual distinction of being asked in each of the four years of interest to the study and also had a high enough number of respondents in various subcategories of viewers to allow for

any meaningful data analysis across subgroups.

We did not test any specific hypothesis in this study since this paper is only a preliminary step in the huge task of bridging the gaps in the literature on television and sexual behavior. However, in general terms we may speculate that if it is true that TV is filled with casual, unprotected, premarital, and extramarital sex, especially among young people, with little or no mention of sexual responsibility then heavy viewing would be linked to notions that casual sex is the norm. This would be true particularly for younger viewers.

Thus we expect that young, heavier viewers would be more likely than young, lighter viewers to have more than one sexual partner over the previous 12 months. We may also speculate that since older characters on television are often projected as being sexually dysfunctional, heavy television viewers who are old would be less likely than their light viewing age mates to be associated with having more than one sexual partner.

It is, however, not so simple to speculate on any *a priori* plausibility notions with regard to AIDS attitudes since AIDS was ral-ely mentioned in the media (Sapolsky and Tabarlet, 1991) palticularly until the late 1980s. When it was mentioned the image was not one to induce sympathy. For instance in the early days of the epidemic both the media and the public appeared to be rather hysterical about AIDS; it was projected basically as a disease of homosexuals. In recent times there appears to have been some increased media coverage of AIDS and AIDS as a whole appears to have benefited from increased public understanding.

There could thus be either of two scenarios. If the earlier hysterical image of AIDS as a homosexual disease is still prevalent on television then heavy viewers would be more likely than light viewers, to have unsympathetic attitudes towards AIDS. On the other hand if the new image of care, understanding and concem for AIDS and its victims turns out to be a more powerful one on television, then one could speculate that heavy viewers would be relatively more likely than lighter viewers to hold sympathetic attitudes towards AIDS. Also, mixed messages could have the effect of canceling each other out.

Previous Research

This section reviews previous studies on television and sexual behavior that have used such methodological tools as content analysis, survey research and experimental design.

Numerous content analytic studies dating back to the early 1970s

have been done on the portrayal of sex on television. In a study of the impact of television on sexual learning in childhood, Roberts (1982) reviewed twenty-one different studies dating from 1972 to 1980 that covered such diverse aspects of sexuality as gender roles, body image, affection, love and intimacy, marriage and family, and erotic conduct. She found the entertainment television of the period to be "saturated with sexual lessons, lessons which are likely to have an impact on young viewers' sexual development and behavior."

A decade later Sapolsky and Tabarlet (1991) also undertook a content analysis of sex on prime time television but this differed from those reviewed by Roberts in two major respects, apart from the time dimension: theirs was designed to allow for a comparison of sexual content at two different points in time (1979 and 1989) and it also included categories relating to sexually transmitted diseases, sex education, homosexuality, AIDS, pregnancy and birth control.

This second aspect of their study appears to have been informed largely by an earlier one undertaken by Lowry and Towles(1988) and their conclusions were similar: that prime time television says very little about sexual responsibility or the consequences of casual or unprotected sex.

However, all the content analytic studies have common weaknesses. In terms of their sampling procedures relating to which programs to select over what time frame, they tend to select one block of seven consecutive days of prime time offerings from the three major networks: ABC, CBS and NBC. As Sapolsky and Tabarlet (1991) correctly point out, it has become necessary as a result of the expanded and variable nature of prime time television to sample more than one episode of programs across the season and this should include at least the ABC, CBS and NBC networks.

Furthermore, most of the studies involve essentially the mere tracking of frequencies of occurrence of all ready defined verbal, implied or physical acts. Here also, as suggested by Signorielli (1990), research has to go beyond mere counting and get to the dynamics of the situation such as who is involved, why are they involved, and what are the outcomes of specific sex-related scenes.

Since sexual behavior is such a broad area, studies that move beyond content analysis to look at television viewing and sexual behavior usually focus on a rather narrow dimension of the dependent variable. For instance, Peterson et al. (1991) and Brown and Newcomer (1991) all operationalized sexual behavior among 15 and 16 year olds as a dichotomous sexual activity status variable "ever had sexual intercourse".

In a similar vein Peterson and Kahn (1984) also looked at sexual

experience but they "stretched" their dependent variable by constructing a Guttman type scale that ranged from "kissing" to "going all the way with a member of the other sex" i.e. "ever having sexual intercourse", and Greeson and Williams (1987) studied among other issues, attitudes towards premarital sex.

This paper is different from Peterson *et al.*'s paper (1991) in so many respects. Methodologically they focused on 15 and 16 year olds but we studied a wide range of adults from 18 years and above and while their dependent variable was "ever had sexual intercourse" ours is "number of sexual partners over the last twelve months."

Conceptually, they looked at two issues: "watching television" and "watching television with a high degree of sexual content" while we fall on cultivation analysis and recognize the all pervasive nature of television and therefore look broadly at the overall amount of television viewing and not at the sexual content of any specific program or genre.

Peterson *et al.*. (1991) sought to answer the question "Does watching a lot of television or watching television with a high degree of sexual content contribute to the early initiation of sexual activity among adolescents?" Their data did not provide any strong or consistent links between the independent and dependent variables and they concluded by speculating that the context in which the adolescent watched television, such as whether there was co-viewing or discussion with parents, could produce a statistically significant relationship and therefore needed further studying.

However, there are some validity and reliability problems with their measurement of television viewing. Their data were collected in two waves. In the first wave they measured adolescents' amount of television viewing by asking parents for estimates and in the second wave respondents gave their own estimates. Whether parents (especially those who are usually out of home for long periods) can make accurate and reliable guesses about how much time their children watch television is a matter of conjecture.

Then also they classified the children's favorite programs into four different levels of sexual content and used these to define respondents' degrees of exposure to sexual content. The problem with this approach is that firstly they do not explain the criteria used to categorize a program as having relatively high, moderate, low or little sexual content although they concede that they did not undertake any content analysis before hand.

Secondly, the fact that a respondent identifies a program as a favorite does not necessarily always imply that the respondent spends more time viewing it and they therefore should not have taken that for granted.

Finally the data were collected in 1976-77 and 1981 and although the paper itself was published in 1991 it is our conviction that while their work might be of reference value in describing adolescent sexual behavior over ten years ago the data seem to be outdated for any serious discussion of this topic in the 1990s.

This criticism also applies to Brown and Newcomer's work on adolescents' sexual behavior (1991) since their data were collected between 1978 and 1981. For most of their analysis they focused on 190 respondents and, like Peterson *et al.*, they used correlational data to address the issue of whether frequency of viewing sexual content on television was related to initiation of sexual intercourse.

They found evidence of a significant relationship between the proportion of "sexy" programming adolescents watch on television and whether they have ever had sexual intercourse but the question of which leads to the other was not answered.

There were also some weaknesses in their measurement procedures. For instance, they constructed a five-item scale to measure perceived peer and media encouragement but they did not give any indication of having tested for the unidimensionality of the scale. Furthermore, their measure of television viewing included the "typical school day" and the "typical Saturday" but left out Sundays. There was no explanation as to why Sunday television viewing was left out and the potential effect of this on the measure so created.

Furthermore, their measure of "sexiness" as regards television viewing was not given any proper conceptual definition and also it was operationalized in a rather subjective way by using the "independent" evaluations of senior-level communications class students instead of a more objective content analysis of the relevant programs or genres although it is possible that the measure might have a high degree of face validity.

Finally, they used a non-random sample and should have noted the statistical implications of this on their generalizations and conclusions, but did not.

In their study of the media preferences of sexually active teens, Peterson and Kahn also relied on the "pooled expertise" of a panel of teenagers and young adults to code the manifest sexiness, violence, romantic orientation, and anti-social expression of movies, television programs and musical groups but they too, like Peterson *et al.* (1991), did not spell out the criteria that were used.

One of their conclusions was that whereas youths were exposed to a lot of television, this exposure was perhaps less important to their sexual behavior than other media like movies and teen-oriented (popular) music. Although they employed quite rigorous methodological

p.ocedures, the generalizability of their findings is limited by the smallness of their sample.

A study that appears to confirm Peterson and Kahn's conclusions regarding the possible link between teen-oriented music and teens' sexual experience comes from the realm of experimental studies (Greeson and Williams, 1986).

They found that after watching random selections of MTV videos–47% of which referred to sexual themes in either the lyrics or the visual scenes–adolescents in seventh and twelfth grades were more likely to approve of premarital sex than their peers who had not watched the music videos. The applicability of their findings to the wider world is rather limited due to the usual problems of external invalidity associated with experimental studies.

Methodology

This study is based on a secondary analysis of the annual General Social Surveys undertaken by the National Opinion Research Center (NORC) for the period 1988 to 1991. Over this period there were questions relating to television exposure, attitudes towards AIDS and sexual behavior, sometimes in the same year and at other times in different years.

Questions about attitudes towards AIDS were asked only in 1988 and were therefore tackled separately from the main analysis. Similarly questions relating to sexual behavior like engaging in extra-marital sex and paying for sex were also asked only in 1991 and even then only of a small subsample of respondents.

Additionally while some questions were asked of one-third or two-thirds of the sample in a particular year, other questions that would have provided key measures relevant for our analysis were asked only of a different one-third or two-thirds of the sample. This reduced the number of cases we could deal with and made some subgroup analysis rather trivial. Most of such questions were therefore left out.

Thus on sexual behavior there was only one relevant question left but what was more important here was that it made a lot of conceptual sense. This was our primary dependent variable, numbel of sexual pal-tllers and it was measured by the question, "How many sex partners have you had in the last 12 months?" Responses were categorized from "none" to "more than 100 partners".

There were a few outliers and to reduce the risk of these extreme respondents biasing the results the variable "number of sexual partners" was dichotomized into "one partner or less" (86.7%) and "more than one partner" (13.3%). In the analysis "one partner or less" was coded

as 0 and "more than one partner" was coded as 1.

This allowed for a focus on "proportion of respondents who have had more than one sexual partner in the last twelve months." Conceptually this made sense since AIDS educators stress the importance of sticking to mutually faithful monogamous relationships. Thus anybody with more than one partner could be said to be engaging in risky sexual behavior and the analysis was akin to focusing on "proportion engaged in risky sexual behavior."

We speculated that people who condemned as "always wrong" sexual behaviors like homosexual-, premarital-, extra marital-, or teenage-sex (for those aged 14-16), were likely to behave differently (regarding the number of sexual partners they would have) from those who did not. Therefore we created a "sexual tolerance" index to be used as a control.

Questions relating to the four sexual behaviors required respondents to indicate whether they considered each of them to be always wrong; almost always wrong; wrong only sometimes or not wrong at all. We counted the number of behaviors that each respondent described as always wrong. Due to the large number of missing cases, we accepted all cases that had responses to at least two behaviors and divided this score by the number of valid cases. The index therefore ranged from 0-1 with the end points 0 and 1 indicating the highest and lowest levels of tolerance of the four sexual behaviors.

The sexual tolerance index had an acceptable level of internal homogeneity (Cronbach's alpha = 0.65) and factor analysis confirmed that there was only one factor underlying all the four variables. The frequency distribution of the index was as follows: 20.9% had zero implying high tolerance; 26.9% had a score of 0.25 and 23.2% scored 0.50 while 15.3% had 0.75 and 13.7% had a score of 1. A dichotomous version of the index was created using as a cut-off point the closest approximation to a two-way split of the distribution. Thus, those with a score of 0.25 or less were described as having "high sexual tolerance" (47.8%) and those with a score from 0.50-1 as having "low sexual tolerance" (52.2%).

The second dependent variable we used in this study was "attitude towards AIDS" and in the NORC data the relevant questions, asked only in 1988, were as follows:

"Do you support or oppose the following measures to deal with AIDS?":

i.   Prohibit students with the AIDS virus from attending public school.
ii.   Develop a government information program to promote safe sex practices, such as the use of condoms.
iii. Permit insurance companies to test applicants for the AIDS virus.
iv.   Have the government pay all of the health care costs of AIDS

patients.

v. Conduct mandatory testing for the AIDS virus before marriage.
vi. Require the teaching of safe sex practices, such as the use of condoms, in sex education courses in public schools.
vii. Require people with the AIDS virus to wear identification tags that look like those carried by people with allergies or diabetes.
viii. Make victims with AIDS eligible for disability benefits.

Out of these eight attitudinal statements about AIDS half were constructed such that support for them meant a respondent viewed AIDS unfavorably. The other half were "favorably" worded. An index measuring negative attitudes towards AIDS was created by summing up the number of negatively worded statements a respondent supported and the number of positively worded statements he or she opposed.

Different attitude questions were asked of different segments of the sample and thus the index did not range from 0-8 for the eight questions as might be expected but rather from 0-4. A higher score meant a respondent had a more negative attitude towards AIDS. A dichotomous version of the index was created separating those who did not endorse any negative statement about AIDS (12.2%) from those who endorsed at least one (87.8%). This dichotomy made conceptual sense in that it allowed us to talk about those who had endorsed some negative statements about AIDS (coded as 1) and those who had not endorsed any such statements (coded as 2).

All the questions were asked only in 1988 and therefore the index was used only for the analysis of other 1988 data. Although the index had an unacceptably low level of internal homogeneity (Cronbach's alpha = 0.19) we still went ahead and used it in the analysis because we were particularly interested in capturing all the eight AIDS-related issues that the attitude statements sought to measure.

An acceptable level of internal homogeneity (Cronbach's alpha = 0.85) was obtained with an index that grouped only the first four questions on attitudes but since we were interested in using all eight questions, the data relating to this second index are not discussed in this paper.

The year 1988 appears to be the period when the media and society at large were full of images of AIDS being a disease for homosexuals, and also around this time no celebrities had gone public about their HIV positivity. We thus speculated that attitudes towards homosexual sex could play a key role in the relationship between television viewing and attitudes towards AIDS. Therefore we included as a control, one of the component variables of our "sexual tolerance" index which tapped respondents" opinions about homosexual sex as to whether they thought it was always wrong, almost always wrong, wrong only

somtimes or not wrong at all. This variable was dichotomized into always wrong (76.3%) and not always wrong (23.7%).

The television viewing measure in the NORC survey related to overall amount of television viewing which is of conceptual interest to us since cultivation analysis is concerned with the long-term cumulative effect of non-selective television viewing rather than exposure to a particular genre or program. The exact NORC question was "On the average day, about how many hours do you personally watch television?"

The response was measured in hours and ranged from 0-21. A trichotomous version was created to group respondents who watched less than one hour as "light viewers" (22.5%), 2-3 hours as "medium viewers" (46.1%) and 4 or more hours as "heavy viewers" (31.4%). These cut-off points were used primarily because they represent a fairly close approximation to a three-way split of the data and they are also frequently used in most cultivation studies.

Since amount of TV viewing, attitudes towards AIDS and sexual behavior can all be influenced by background and demographic factors (Peterson *et al.*, 1991; Peterson and Kahn, 1984; Gerbner *et al.*, 1980b), a number of control variables were introduced. These were age, sex, race, education, frequency of attendance at religious services, intensity of religion, family income and marital status.

Respondents' ages ranged from 18 to 89 and the closest approximation to a three-way split of the distribution resulted in grouping those aged 18 to 34 years (33.6%), those aged 35-52 years (33.9%) and those aged 53 or more (32.5%).

Sex was coded as 1 - male (43.1%) and 2 - female (56.9%). Race was originally coded as white, black and other but the last two categories had very low frequencies and were therefore collapsed into nonwhite (15.4%) versus white (84.6%) and coded as 2 and 1 respectively.

The education variable measured the highest year of school the respondent had completed and this ranged from 0- 20 years. We created a dichotomous version with 12 years as the dividing line: those who had more than 12 years of education were categorized as having received "some college education" (45.5%) and those with 12 years or less as having received "no college education" (54.5%).

The family income measure was trichotomized using the closest approximation to a threeway split of the distribution. These were respondents whose annual family income was less than $17,500 (33.8%), those in the range of $17,500 - $34,999 (32%) and those $35,000 and over (34.2%).

Frequency of attendance at religious services and strength of religious affiliation were combined to create a religiosity index after a

series of recodes that are explained below. Firstly strength of religious affiliation was recoded such that those who described themselves as "strong" in the practice of their religion had the highest score of 3; those who were "not very strong" had a score of 2 and those who were "somewhat strong" had the minimum score of 1. Then attendance at religious services was also recoded so that those who attended just "about once a year or less" had the lowest score of 1; those who attended from "several times a year" to "two or three times a month" had a score of 2; and those who attended "nearly every week" or more often had the maximum score of 3.

A simple additive index was constructed which ranged from two to a maximum of 6. The index had a fairly acceptable level of internal homogeneity (Cronbach's alpha = 0.52) and factor analysis confirmed that there was only one underlying factor. A dichotomous version of the index was created by splitting the distribution as close to the median as possible. Those with a score of 4 or less were described as low on religiosity (61.4%) and those with a score of 5 or 6 were described as high on religiosity (38.6%).

Marital status was dichotomized into married (53.5%) and coded as 1 and not married (46 5%) which was coded as 2. The next section presents our findings.

Results and Discussion

The data analysis is in two parts. The first part addresses our research questions that cover the entire four year period, 1988 - 1991 and has sexual behavior (ie. proportion with more than one sexual partner) as the dependent variable while the second section focuses on the 1988 data and has attitudes towards AIDS as the dependent variable.

Proportion with more than one sexual partner
Bivariate Relationships
We used the nonparametric correlation procedure in SPSS to examine the bivariate relationships among the control variables and television exposure and proportion with more than one sexual partner over the entire four year period covered by the study. As shown in Table 1 below, family income and education had the strongest relationships with amount of television viewing and both relationships were negative.

Also all the correlations were statistically significant except the variable year, which implied that although amount of television viewing appeared to have declined over the four year period under study, this apparent relationship could be attributed to chance.

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In the case of the proportion with more than one sexual partner the highest correlations were with marital status and age as shown in Table 2 below. The positive relationship with marital status meant that respondents who were not married were more likely than those who were married to have more than one sexual partner. On the other hand the negative relationship with age implied that older respondents were less likely than the younger ones to have more than one sexual partner.

Table 1. Non-parametric Correlations with Amount and Television Viewing

Variable	Correlation coefficient	N	Sig. level
Age	0.10	3910	***
Sex	0.05	3916	***
Education	-0.26	3906	***
Race	0.13	3916	***
Religiosity	-0.08	3071	***
Family income	-0.27	2617	***
Marital status	0.04	3915	**
Sexual tolerance	0.03	3659	*
Year	-0.02	3916	n.s.

*p<.05 **p<.01   ***p<.001   n.s.–not significant

Table 2. Non-parametric Correlations with Proportion having less than one Sexual Partner

Variable	Correlation coefficient	N	Sig. level
Television viewing	0.02	3028	
Age	-0.24	3026	***
Sex	-0.16	3028	***
Education	0.01	3023	***
Race	0.10	3028	***
Religiosity	-0.13	2355	***
Family income	0.08	2392	***
Marital status	0.29	3027	**
Sexual tolerance	-0.13	2845	*
Year	−0.03	3028	*

*p<.05 **p<.01   ***p<.001   n.s.–not significant

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Amount of television viewing and education did not have any significant correlation with likelihood of having more than one sexual partner. We also found that the variable year had a negative and low but significant correlation coefficient implying that overall, the proportion with more than one sexual partner declined between 1988 and 1991.

Multivariate relationships: subgroups
We used the crosstabs and means procedures in SPSS to examine the relationships between amount of television viewing and sexual behavior in the subgroups defined by our control variables. The results were exactly the same. However, the means procedure has the advantage of enabling us to check for the significance of linearity or deviation from linearity The data from the means procedure are presented in Table 3 on the following pages.

Table 3. Proportion of Adults with more than one Sexual Partner by amount of Television Viewing percent with more than one sexual partner

	Total	Light viewers	Medium viewers	Heavy viewers	CD	Sig.	N	Linearity
Overall	13.3	13.3	12.2	14.8	1.5	ns	3028	–
Controlling for…								
Sex:								
Male	19.6	19.9	17.1	24.1	4.1	'	1293	–
Female	8.6	8.6	7.7	9.6	1.0	ns	1735	–
Age:								
18–34 years	23.4	20.2	20.7	29.3	9.1	''	1066	+
35–52 years	11.5	11.3	10.7	13.4	2.1	ns	1021	–
53 years or more	3.8	5.1	4.5	2.6	-2.5	ns	939	–
Income:								
<$17500	17.9	15.1	18.2	18.5	3.5	ns	800	–
$17500–$34999	12.2	15.6	10.6	12.7	-2.9	ns	768	–
$35000 or more	11.2	12.8	10.3	10.7	-2.1	ns	824	–
Education:								
no college	13.1	15.4	12.0	13.5	-1.9	ns	1640	
some college	13.5	12.3	12.4	18.0	5.7	'	1383	+
Race:								
White	11.9	12.7	11.6	11.8	-0.9	ns	2581	–

Non-white	21.3	20.3	16.8	25.4	5.1	ns	447	–
Marital status:								
Married	4.2	4.9	3.4	5.0	0.1	ns	1622	–
Not married	23.8	23.2	24.0	23.9	0.7	ns	1405	–
Religiosity:								
Low	15.7	16.2	15.8	15.4	-0.8	ns	1480	–
High	7.0	7.2	5.2	9.5	2.3	ns	875	–
Sexual tolerance:								
Low	9.0	9.8	9.4	7.7	-2.1	ns	1475	–
High	17.6	16.9	15.0	22.3	5.4	"	1370	+
Other specifications:								
18–34 years, not married	32.0	35.3	44.0	8.0		'	602	
Male, 18–34 yrs. old	28.7	26.7	38.8	10.1		'	481	
Male, 35–52 yrs. old	15.4	14.7	25.8	10.4		'	451	
Female, 18–34 yrs. old	13.1	14.9	23.2	10.1		'	585	
Some college, 18–34 yrs. old	18.7	19.8	30.7	12.0		'	532	
Nonwhite, 18–34 yrs. old	30.0	20.9	39.0	9.0		'	187	
High sexual tolerance, 18–34 yrs.	22.0	22.6	37.1	15.1		'''	564	

'p<.05; "p<.01; "'p<.001; ns – not significant; + sig. linearity at p<.05; – no sig. linearity at p<.05

The data and other specifications were extracted form the crosstabs procedure in SPSS and therefore do not have entries in the "linearity" and "Total" columns.

The data appeared to indicate some instances of mainstreaming and possibly, resonance. Overall, heavy viewers more likely than light viewers to have more than one sexual partner although the relationship was neither statistically significant nor monotonic. Among respondents with no college education, increased television viewing appeared to be associated with a decreased likelihood of having more than one sexual partner although the relationship was not statistically significant. On the other hand, among those with at least some college education, increased television viewing was significantly associated ($p < 0.05$) with an increased likelihood of having more than one sexual partner thereby confirming the convergence of outlooks that Gerbner *et al.* (1980a)

referred to as mainstreaming.

There appeared to be similar tendencies among respondents with low and high levels of religiosity respectively. For those who were "less religious", increased TV viewing appeared to be associated with a decreased likelihood of having more than one sexual partner whereas among the "highly religious", more TV viewing appeared to be associated with an increased likelihood of having more than one sexual partner. However, these relationships were not statistically significant.

The data also appear to indicate some possible instances of resonance in subgroups defined by sex, age and sexual tolerance. Gerbner *et al.* (1980a) explained resonance thus:

> When what people see on television is most congruent with everyday reality (or even perceived reality), the combination may result in a coherent and powerful "double dose" of the television message and significantly boost cultivation. Thus, the congruence of the television world and real-life circumstances may "resonate" and lead to markedly amplified cultivation patterns.

As can be seen in Table 3, among females increased TV viewing is not associated with an increased likelihood of having more than one sexual partner. However, among males who, as light viewers, are more likely than female light viewers to have more than one sexual partner, increased television viewing appears to be associated with an increased likelihood of having more than one sexual partner and this relationship is significant ($p < 0.05$).

Regarding age, as we rightly speculated, increased television viewing among older respondents (53 or more years old) was associated with a reduced likelihood of having more than one sexual partner (although this was not statistically significant) whereas among younger respondents (18-34 years old) it was associated with an increased likelihood of having more than one sexual partner. A similar significant association was specified for respondents who were high on sexual tolerance whereas the relationship for those low on sexual tolerance was not significant.

Could we then speculate that for those respondents who are aged 18-34 males or those who do not condemn as always wrong such sexual behaviors as homosexual sex, premarital sex, extramarital sex and teenage sex (for those aged 14-16), having more than one sexual partner is probably more salient and thus the casual, exciting and risk-free sex that is shown on television (Lowry and Towles, 1989; Sapolsky and Tabarlet, 1989; Furstenberg and Brooks-Gunn, 1985) might be most congruent with their real-life perceptions and thereby lead to a resonance between these aspects of their social environment

and television's messages? A similar argument could be invoked to explain the other specifications that have been highlighted by the data analysis as shown in the last seven rows of Table 3. There appear to be further instances of resonance in the following subgroups: (a) respondents aged 18-34 who are not married; (b) males aged 18-34; (c) males aged 35-52; (d) females aged 18-34; (e) those age 18-34 who have also had at least some college education; (f) nonwhites aged 18-34; and (g) those aged 18-34 who do not condemn as always wrong, sexual behaviors like homosexual-, premarital-, exnamarital- or teenage-sex.

Multivariate relationships: Logistic regression
We used the logistic regression procedure in SPSS to examine which of the eight control variables might be the best predictors of having more than one sexual partner, given that amount of television viewing has to be in the regression model. We used the procedure because our dependent variable had a binary outcome: (a) having more than one sexual partner or (b) having a zero or one sexual partner.

By coding the former outcome as 1 and the latter as 0 the logistic regression procedure enables us to predict how many times one category or subgroup of a variable, as compared to another category or subgroup of the same variable (reference category), would tend to be associated with the outcome of interest (in our case, having more than one sexual partner).

For the first step we used amount of television viewing as the only independent variable with light viewers as the reference category and having more than one sexual partner as our dependent variable. The odds ratios we obtained from the regression implied that as compared to light viewers, moderate viewers were 0.90 times more likely to have more than one sexual partner (in effect this means they will be less likely) and heavy viewers would be 1.13 times more likely to have the same outcome. However, these ratios were not statistically significant.

In the second step we introduced all the other independent variables–education, age, family income, race, religiosity, marital status, sex and sexual tolerance–into the regression equation. Family income and education did not turn out to be statistically significant and were dropped (in that order) from subsequent models. The odds ratios and associated statistics for the final regression model are presented in Table 4 below.

Table 4 implies that age, sex, race (being white or nonwhite), religiosity, marital status and not describing as always wrong such sexual behaviors as homosexual-, premarital-, extramarital-, and

teenage-sex, were significant predictors of the outcome of having more than one sexual partner and together they explain away any apparent differences among the different categories of television viewers regarding having more than one sexual partner.

Table 4. Logistic regression of having more than one sexual partner with amount of television viewing and controlling for six demographic and other variables

Variable category	Reference category	Wald statistic	Sig.	Odds Ratio
Moderate viewers	Light vieweres	0.31	n.s.	0.98
Heavy viewers	Light viewers	0.01	n.s.	1.08
Age	—	62.86	***	0.96
Females	Males	54.87	***	0.33
Nonwhite	Whites	5.25	*	1.56
High religiosity	Low religiosity	8.34	**	0.60
Sexual tolerance	—	6.86	**	0.52
Not married	Married	123.89	***	7.25

N.B. The continuous versions of age and the sexual tolerance index were used and therefore they do not have any reference categories

The data also appear to indicate that after controlling for the other independent variables, and with reference to light TV viewers, moderate viewers are 0.98 times more likely to have more than one sexual partner. Similarly, with reference to light viewers, heavy viewers are 1.08 times more likely to have more than one sexual partner. However, these apparent differences are not statistically significant.

Multivariate relationships: Multiple regression
In the discussion on relationships in subgroups we came across some significant associations between amount of television viewing and some categories of various control variables thus indicating the presence of interactions. We therefore decided to regress the control variables and amount of TV viewing on the original continuous version of our dependent variable to check whether the interactions would be confirmed by the multiple regression procedure.

We used hierarchical regression with multiplicative interaction terms and kept the interactions out to avoid multicollinearity but examined their contribution through partial regression coefficients. The

interaction terms were obtained by multiplying amount of television viewing by each of the control variables.

The results showed that sex ($p < .001$), age ($p < .001$) and race ($p < .05$) were significant predictors of the number of sexual partners a respondent had had in the previous year and the regression equation explained 11.54% of the variance in number of sexual partners. However, there were no significant interactions between amount of television viewing and any of the control variables. Education was the only variable that came closest to producing a significant interaction ($p = .0592$).

In another approach we first entered all the control variables ie. sex, age, race, marital status, education, family income, religiosity and sexual tolerance and these together explained 11.36% of the variance in the dependent variable, number of sexual partners. Then we entered amount of television viewing and this made a significant increase of 0.18% in the explained variance.

The results also showed that sex ($p < .001$), age ($p < .001$) and race ($p < .05$) were, once again, significant predictors of the dependent variable. When we analyzed the partial regression coefficients of the interaction terms the results showed that none of the control variables interacted significantly with amount of TV viewing. In both regression approaches, amount of TV viewing was not statistically significant.

The results so far seem to indicate that more TV viewing appears to be associated with an increased likelihood of having more than one sexual partner and this was the case even among respondents with some college education who, as light viewers, were less likely than their non-college-educated counterparts to have more than one sexual partner. As heavy viewers, they were more likely than before to have more than one sexual partner and the gap between them and heavy viewers with no college education had narrowed considerably. The results also appear to have specified instances in which television's messages may have "resonated" with respondents' real-life circumstances.

In the next section we turn our attention to the 1988 data on attitudes towards AIDS and amount of television viewing.

Attitudes towards AIDS (1988)
Multivariate Relationships: Subgroups
The means procedure in SPSS was used for this section of the analysis and the variables of interest to us were attitudes towards AIDS (dependent variable), amount of television viewing (independent variable), family income, education, age, sex, race, religiosity, marital status and opinions about homosexual sex (control variables).

Overall, the mean number of negative statements about AIDS that were endorsed by respondents was 1.68 and increased television viewing appeared to be associated with higher means although this was not statistically significant as shown in Table 5 on the next page. When we introduced the eight controls almost all the relationships were not statistically significant. However, there appeared to be some instances of mainstreaming in the subgroups defined by education, sex and religiosity.

As Table 5 shows, respondents with no college education tend to have more negative attitudes towards AIDS and amount of television viewing does not make any difference. On the other hand, respondents with some college education, as light viewers, tend to have less negative attitudes towards AIDS. However, as heavy viewers, college educated respondents tend to be associated with more negative attitudes towards AIDS (although this increase is not monotonic) and the difference among the three groups of television viewers is statistically significant ($p < .05$).

Similarly, males tend to have more negative attitudes towards AIDS and TV viewing makes no difference. Females, as light viewers have far less negative attitudes towards AIDS. However, as heavy viewers they tend to be associated with more negative attitudes towards AIDS and this relationship is significant at $p < .05$.

Again, those who are "less religious" tend to have more negative attitudes towards AIDS and television viewing does not appear to make any difference. On the other hand, when they are light viewers, the "highly religious" respondents seem to have less negative attitudes towards AIDS but as heavy viewers they tend to be associated with more negative attitudes and the differences among light, medium and heavy viewers is significant ($P < .05$)

It thus seems that at least until the late 1980s, increased television viewing tended to be associated with having more negative attitudes towards AIDS (ie. endorsing more negative statements about AIDS). Among those groups that as light viewers were relatively sympathetic towards AIDS–females, the college educated and the "highly religious"– increased television viewing still tended to be associated with more negative attitudes towards AIDS. They were apparently drawn into television's mainstream.

Thus our use of the means procedure has helped specify instances of mainstreaming in the data. In the last section of our data analysis, we examine the potential predictors of attitudes towards AIDS using the logistic regression procedure in SPSS.

Multivariate relationships: Logistic regression

Table 5. Relationship between amount of television viewing and an index measuring negative attitudes towards AIDS (mean number of negative statements endorsed)

	Total	Light viewers	Medium viewers	Heavy viewers	CD	Sig.	N	Linearity
Overall	1.68	1.57	1.75	1.64	0.07	ns	979	–
Controlling for...								
Sex:								
Male	1.77	1.74	1.78	1.75	0.01	ns	435	–
Female	1.60	1.42	1.72	1.58	0.16	ns	544	–
Age:								
18–34 years	1.58	1.41	1.68	1.56	0.15	ns	340	–
35–52 years	1.65	1.58	1.67	1.69	0.11	ns	316	–
53 years or more	1.81	1.82	1.93	1.70	-0.12	ns	332	–
Income:								
<$17500	1.69	1.89	1.70	1.62	-0.27	ns	331	–
$17500–$34999	1.71	1.53	1.79	1.71	0.18	ns	289	–
$35000 or more	1.69	1.54	1.75	1.81	0.27	ns	279	–
Education:								
no college	1.80	1.91	1.85	1.72	-0.19	ns	552	–
Some college	1.51	1.39	1.63	1.45	0.06		425	–
Race:								
White	1.72	1.58	1.78	1.75	0.23	ns	823	–
Nonwhite	1.44	1.43	1.59	1.32	-0.09	ns	156	–
Marital status:								
Married	1.76	1.62	1.84	1.73	0.11	ns	513	–
Not married	1.59	1.51	1.64	1.58	0.07	ns	466	–
Religiosity:								
Low	1.63	1.57	1.73	1.54	-0.03	ns	447	–
High	1.71	1.41	1.83	1.77	0.36		251	–
Homosexual sex:								
Always wrong	1.85	1.86	1.86	1.83	-0.03	ns	353	–
Not always wrong	1.24	1.15	1.33	1.17	0.02	ns	109	–

'p<.05; "p<.01; '"p<.001; ns – not significant; + sig. linearity at p<.05; – no sig. linearity at p<.05

Table 6. Logistic regression of 8-item index measuring negative attitutdes towards AIDS with amount of television viewing and some controls

Variable category	Reference category	Wald statistic	Sig.	Odds Ratio
Moderate viewers	Light vieweres	4.56	*	1.91
Heavy viewers	Light viewers	0.23	n.s.	1.15
Age	—	1.51	n.s.	1.01
High religiosity	Low religiosity	4.02	*	0.61

*p<.05; **p<.01; ***p<.001; ns – not significant.

First we regressed only amount of television viewing on the dependent variable, attitudes towards AIDS. The results showed that as compared to light viewers, medium viewers were 1.55 times more likely, and heavy viewers were also 1.28 times more likely to have negative attitudes towards AIDS (ie. to endorse negative statements about AIDS) although this odds ratio was not statistically significant.

We then entered all the control variables in the model (including, this time, having more than one sexual parner) and dropped the insignificant variables one at a time until the "improvement" in the model became statistically significant ($p < .05$). The variables in the model at that stage and their associated statistics are presented in Table 6 above.

Table 6 shows that as compared to respondents who were low on religiosity, those who were high on religiosity were 0.61 times more likely to endorse negative statements about AIDS and this odds ratio was significant after taking into account the effects of age and amount of television viewing. This meant that those who were "less religious" were almost twice more likely than those "highly religious" to have negative attitudes towards AIDS.

Similarly, after taking into account the effects of age and religiosity, medium viewers were almost twice as likely, as compared to light viewers, to endorse negative statements about AIDS and this odds ratio was significant at $p < .05$. Heavy viewers were also 1.15 times as likely as light viewers to make similar endorsements although this odds ratio was not statistically significant.

Conclusion

Our data analysis seemed to indicate that more TV viewing was associated with an increased likelihood of having more than one sexual

partner and this was the case even among respondents with some college education who, as light viewers, were less likely than their non-college educated counterparts to have more than one sexual partner . The analysis also appeared to have specified categories in which television's messages may have "resonated" with respondents' real-life circumstances: respondents aged 18-34, males and those who did not condemn as always wrong such sexual behaviors as homosexual-, premarital-, extramarital-, and teenage-sex.

In relation to attitudes towards AIDS, our findings appeared to indicate that at least, until the late 1980s increased television viewing tended to be associated with having more negative attitudes towards AIDS (ie. endorsing more negative statements about AIDS). Among those groups that as light viewers were relatively sympathetic towards AIDS–females, the college educated and the "highly religious"–increased television viewing still tended to be associated with more negative attitudes towards AIDS. These groups were the ones that were apparently drawn into television's mainstream.

Thus overall this study has unearthed a number of patterns in the relationships among sexual behavior, attitudes towards AIDS and amount of television viewing and it has specified some conditions under which mainstreaming and possibly, resonance could occur.

Although the patterns sometimes appear to be weak and inconsistent, they do at least provide some indications that amount of television viewing is mediating in some subtle way in its three-cornered relationship with attitudes towards AIDS and sexual behavior and this would need to be studied further.

It is important to note some limitations to this study which would probably have painted a clearer picture of the relationships we set out to study. Firstly, since we were dealing with cross-sectional data none of the relationships can explain causality.

Secondly the small number of non-whites in the sample led to low cell frequencies which precluded what could have been some useful subgroup analysis.

Thirdly, we could only use one measure of sexual behavior due to some of the unfortunate limitations of secondary data analysis but this study has spawned ideas which can inform an original survey research undertaking.

The fourth, and perhaps most important, limitation relates to the reliability of our eight-item index measuring negative attitudes towards AIDS. Although the problem could be partly due to the lack of variability in responses to the attitude questions (respondents were merely asked to indicate their support or opposition to the various statements) we would still suggest that in any subsequent study, instead of constructing

a simple index that assigns equal weights to all variables (ie. the attitude questions), it might be more rewarding to construct a factor based index that assigns weights based on the relative contribution of each variable to the underlying dimension.

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