



## Pornography and Sexual Violence

Robert Jensen

With contributions from Debbie Okrina

Given the epidemic levels of sexual violence and the widespread availability of increasingly graphic pornography in the United States, it is not surprising that researchers and activists have tried to answer the question of whether there is a connection between men's use of pornography and sexual violence. Since legal controls on sexually explicit material began to loosen dramatically in the 1970s and the issue attained a new visibility, a variety of different methods have been used to try to answer that question, or at least provide clues to the answer. After two decades of research, there is little consensus, not only as to that answer but as to definitions of terms, appropriate methods of investigation, or even how to frame the question. This essay will attempt to highlight the most relevant aspects of these disputes and reach tentative conclusions that can guide people working in the field.

### Definitions

Two terms often used in common parlance for sexually explicit material — obscene and indecent — have specific meanings in the law. "Obscenity" is that category of sexual material that the courts have deemed to be outside full protection of the First Amendment and subject to regulation by the state. Obscene material is defined as that which appeals to the prurient interest in sex, depicts sexual conduct in a patently offensive manner, and lacks serious literary, artistic, political, or scientific value (*Miller v. California*, 1973). "Indecency" is a term from broadcasting (radio and over-the-air television) that defines an even broader category that can be regulated — language or material that, in context, depicts or describes, in terms patently offensive as

measured by contemporary community broadcast standards for the broadcast medium, sexual or excretory organs or activities (Federal Communications Commission, 2004).

The term used most often in the public debate over sexually explicit material is "pornography," which is not rooted in law and has no commonly accepted definition. It is sometimes used as a generic term for commercially produced sexually explicit books, magazines, movies, and Internet sites, with a distinction commonly made between soft-core (nudity with limited sexual activity that does not include penetration) and hard-core (graphic images of actual, not simulated, sexual activity including penetration). In other contexts the term is juxtaposed to erotica, which typically is defined as material that depicts sexual behavior in a context of mutuality and respect. In that dichotomy, pornography is defined as material depicting sex in a context of domination or degradation. In many laboratory studies of pornography's effects, three categories of pornography are created: overtly violent; non-violent but degrading; and sexually explicit but neither violent nor degrading.

A separate category is child pornography — material that is either made using children or, in the digital age, made through the use of technology that makes it appear the sexual activity uses children. The former is illegal without question (*New York v. Ferber*, 1982); the status of the second remains uncertain but, for the moment, legal (*Ashcroft v. Free Speech Coalition*, 2002).

The legal status of pornography using adults depends not only on the nature of the material, but also on the community and the political climate. Much of what is sold in pornography shops in the

United States potentially fits the definition of obscenity, but in most jurisdictions prosecutors choose not to initiate cases. The same obscenity laws apply to the genres of lesbian or gay pornography. Those genres raise specific issues that will not be taken up here, and for the remainder of this essay, “pornography” will be used to refer to graphic, sexually explicit materials using adults engaged primarily in heterosexual sex, which makes up the bulk of the market.

### The Question

If the question about the connection between pornography and violence is constructed simplistically — “Does pornography cause rape?” — the answer is clearly no. Since some men who use pornography don’t rape, and some men who rape don’t use pornography, pornography is neither a necessary nor sufficient condition for rape. There is no way to make a convincing claim that pornography is, as the lawyers say, an “if not but for” cause — “if not but for the use of pornography, this man would not have raped.”

But if we ponder the question beyond simplistic cause-and-effect models (which are not particularly useful in explaining any human behavior), we might ask, “Is pornography ever a factor that contributes to rape?” That question recognizes the limits of the human ability to understand complex behavior while at the same time opening up pathways for deeper understanding within those limits.

Critics of pornography do not argue that pornography is ever the sole direct causal agent in sexual violence. No one argues that if pornography disappeared that rape would disappear. Instead, the discussion should be about the ways in which pornography might be *implicated* in sexual violence in this culture. We understand that pornography alone doesn’t make men do it, but that pornography is part of a world in which men do it, and therefore the production, content, and use of pornography are important to understand in the quest to eliminate sexual violence.

### The Industry

Pornography in the post-World War II era has changed from an underground business with extensive ties to organized crime, to a flourishing industry that operates more openly and includes many small producers and several corporations with substantial assets. In 2002, more than 11,000 new hard-core video/DVD titles were released (*Adult Video News*, 2002) and annual sales are estimated at \$10 billion or higher (Lane, 2000, p. xiv). Although it is not the focus of this essay, one crucial question about pornography and violence concerns the conditions under which the women work in pornography. There is evidence that force and coercion are sometimes used to secure women’s participation (Lovelace, 1980, 1986), but the contemporary mainstream/corporate industry has no problem finding women (and men) who are willing to perform. Still, the question of what effect the routine sexual activity in pornography (such as double-penetrations, in which a woman is penetrated vaginally and anally by two men at the same time) has on women is largely unexplored. Anecdotal evidence (Gittler, 1999) combined with extrapolations from the data available about women in prostitution (Baldwin, 1989; Farley, 2003) suggests that psychological and physical damage is common and that heavy alcohol and drug use are routine.

### The Content of Pornography

An extensive analysis of the content of contemporary pornography is beyond the scope of this essay, but some understanding is important in evaluating the effects. My own studies and reviews of other examinations of content suggest there are a few basic themes in pornography: (1) All women at all times want sex from all men; (2) women enjoy all the sexual acts that men perform or demand, and; (3) any woman who does not at first realize this can be easily turned with a little force, though force is rarely necessary because most of the women in pornography are the imagined “nymphomaniacs” about whom many men fantasize.

Contemporary pornography will make use of any relationship of domination and subordination — a power differential between people that can be sexualized and exploited. The primary domination/subordination dynamic eroticized in pornography is, of course, gender. Beyond that, there are specific genres of pornography that trade on racist stereotypes: the hypersexual black men, hot-blooded Latinas, compliant Asian women. There is pornography set on plantations with slaves and in Nazi concentration camps. Pornography is made using women with disabilities (Elman, 1997). There is virtually no relationship of power and domination one can imagine that has not been “pornographized.”

As pornography has become more acceptable, both legally and culturally, the level of brutality toward, and degradation of, women has intensified (Jensen, 2004). As one pornography director put it, “People just want it harder, harder, and harder . . . what are you gonna do next?” (*Adult Video News*, 2003, p. 60). Another director was blunt in describing his task:

“[O]ne of the things about today’s porn and the extreme market, the gonzo market, so many fans want to see so much more extreme stuff that I’m always trying to figure out ways to do something different. But it seems everybody wants to see a girl doing a d.p. (double penetration) now or a gangbang. For certain girls, that’s great, and I like to see that for certain people, but a lot of fans are becoming a lot more demanding about wanting to see the more extreme stuff. It’s definitely brought porn somewhere, but I don’t know where it’s headed from there” (p. 46).

These comments point to the problem in many researchers’ creation of categories such as violent versus non-violent pornography. Are double anals (in which two men penetrate a woman anally at the same time) or gag-inducing oral sex (in which men try to press their penises so far down women’s throat that they gag or vomit) violent or merely degrading but non-violent? If virtually all pornography constructs women as sexual objects to be used by men, is there pornography that isn’t denigrating?

### Consumption and Effects

Virtually all reviews of the research on the potential connections between pornography and sexual violence suggest there is evidence for some limited effects on male consumers but no way to reach definitive conclusions. If one is looking for direct causal links in a traditional science model, this is likely to be a permanent assessment; it is difficult to imagine research methods that could provide more compelling data and conclusions. However, if we expand the scope of the inquiry, other insights are possible (Boyle, 2000).

Three basic types of studies have emerged in the search for an answer to the question about the relationship between pornography and violence, two of which are within the traditional science model and of limited value. First, a few large-scale studies have investigated the correlation of the availability of pornography to rates of violence, with mixed results (Kutchinsky, 1991; Jaffee & Strauss, 1987). The complexity of confounding variables and the imprecision of measures make these studies of extremely limited value.

Second, experimental studies in the laboratory have been constructed to investigate directly the question of causal links. A typical study might expose groups of subjects to different types or levels of sexually explicit material for comparison to a control group that views non-sexual material. Researchers look for significant differences between the groups on a measure of, for example, male attitudes toward rape. From such controlled testing — measuring the effect of an experimental stimulus (exposure to pornography) on a dependent variable (attitudes toward women or sex) in randomly selected groups — researchers make claims, usually tentative, about causal relationships.

One of the most thorough reviews of the experimental literature by leading researchers in the field concluded, “if a person has relatively aggressive sexual inclinations resulting from various personal and/or cultural factors, some pornography exposure may activate and reinforce associated coercive tendencies and behaviors” (Malamuth, Addison, &

Koss, 2000, p. 81). The authors also pointed out that “high pornography use is not necessarily indicative of high risk for sexual aggression” (p. 79). Another large-scale literature review also concluded that men predisposed toward violence are most likely to show effects from viewing pornography and that men not predisposed are unlikely to show effects (Seto, Maric, & Barbarre, 2001, p. 46).

While this experimental work sometimes offers interesting hints at how pornography works in regard to men’s sexual behavior, it suffers from several serious problems that limit its value. First, the measures of men’s attitudes toward women, such as answers to questions about the appropriate punishment for rapists, do not necessarily tell us anything about men’s willingness to rape. Men often view their sexually aggressive or violent behavior not as aggression or violence but as “just sex.” In other words, men who rape often condemn rape, which they see as something other men do (Koss, 1988). Also, sexual behavior is a complicated mix of cognitive, emotional, and physical responses, and the answers one gives to a survey may or may not accurately reflect that mix.

Most important, these lab studies also are incapable of measuring subtle effects that develop over time. If viewing pornography develops attitudes and shapes behavior after repeated exposure, there is no guarantee that studies exposing people to a small amount of pornography over a short time can accurately measure anything. For example, in one study, the group exposed to what the researchers called the “massive” category of pornography viewed six explicitly sexual eight-minute films per session for six sessions, or a total of four hours and 48 minutes of material (Zillmann & Bryant, 1982). And, of course, no lab experiment can replicate the common male practice of masturbating to pornography, which no doubt influences the way in which men interpret and are affected by pornography. Orgasm is a powerful physical and emotional experience that is central to the pornographic experience, yet there is no ethical way that lab studies can take this into account. Although most

critics of the experimental research caution that such studies may overstate the effects, for these reasons it is just as likely that the research underestimates pornography’s role in promoting misogynistic attitudes and behavior.

A third method of investigation — interviews with men who use pornography and are sexually aggressive, and women involved in relationships with such men — does not hold out guarantees of conclusive judgments about the effects of pornography, but such work can help us achieve deeper understanding. It is especially important to include the experiences of women, the main targets of violence, who have crucial insights (Bergen & Bogle, 2000). What we learn from the testimony of women and men whose lives have been affected by pornography is how the material is implicated in violence against women and how it can perpetuate, reinforce, and be part of a wider system of woman hating. Rather than asking whether pornography causes rape, we can ask how pornography helps make rape inviting.

Based both on the lab research and such interviews, Diana Russell has argued that pornography is a causal factor in the way that it can: (1) predispose some males to desire rape or intensify this desire; (2) undermine some males’ internal inhibitions against acting out rape desires; (3) undermine some males’ social inhibitions against acting out rape desires; and (4) undermine some potential victims’ abilities to avoid or resist rape (Russell, 1998, p. 121).

Even without making claims that strong, the public testimony of women (MacKinnon & Dworkin, 1997), my interviews with pornography users and sex offenders, and various other researchers’ work, have led me to conclude that pornography can: (1) be an important factor in shaping a male-dominant view of sexuality; (2) be used to initiate victims and break down their resistance to unwanted sexual activity; (3) contribute to a user’s difficulty in separating sexual fantasy and reality; and (4) provide a training manual for abusers (Dines & Jensen, 2004). Consider the following reports and



what they tell us about the relationship between pornography and behavior:

From a woman involved in street prostitution, who reported that when one john exploded at her he said: "I know all about you bitches, you're no different; you're like all of them. I seen it in all the movies. You love being beaten. [He then began punching the victim violently.] I just seen it again in that flick. He beat the shit out of her while he raped her and she told him she loved it; you know you love it; tell me you love it" (Silbert & Pines, 1984, p. 864).

From a woman, interviewed in a study of sexual assault: "My husband enjoys pornographic movies. He tries to get me to do things he finds exciting in movies. They include twosomes and threesomes. I always refuse. Also, I was always upset with his ideas about putting objects in my vagina, until I learned this is not as deviant as I used to think. He used to force me or put whatever he enjoyed into me" (Russell, 1980, p. 226).

And from three different men in my study who had been convicted of sex offenses (Dines, Jensen, & Russo, 1998):

From a 34-year-old man who had raped women and sexually abused girls: "There was a lot of oral sex that I wanted her to perform on me. There were, like, ways that would entice it in the movies, and I tried to use that on her, and it wouldn't work. Sometimes I'd get frustrated, and that's when I started hitting her. ... I used a lot of force, a lot of direct demands, that in the movies women would just cooperate. And I would demand stuff from her. And if she didn't, I'd start slapping her around" (p. 124).

From a 41-year-old man who had sexually abused his stepdaughter: "In fact, when I'd be abusing my daughter, I'd be thinking about some women I saw in a video. Because if I was to open my eyes and see my stepdaughter laying

there while I was abusing her, you know, that wouldn't have been very exciting for me. You know, that would bring me back to the painful reality that I'm a child molester, where I'm in this reality of I'm making love or having intercourse with this beautiful woman from the video. The video didn't even come into my mind. It was just this beautiful person who had a beautiful body, and she was willing to do anything I asked" (p. 126).

From a 24-year-old man who had sexually abused young girls while working as a school bus driver: "When I was masturbating to these pornography things, I would think about certain girls I had seen on the bus or ones I had sold drugs to, and I would think as I was looking at these pictures in these books, what would it be like to have this girl or whoever doing this, what I'm thinking about. ... Just masturbating to the thought wasn't getting it for me anymore. I actually had to be a part of it, or actually had to do something about it. ... Like sometimes after I'd see like a certain load of kids would get off the bus, I'd pick out a couple and I'd watch them or stop and look at the mirror and stare at them and stuff like that. I would think, later on in the day, I'd masturbate to some pornography, I'd just use that picture kind of as a mental, it's kind of a scenery or whatever, and I'd put in my mind I'd put myself and whoever at the time I was thinking about, in that picture" (p. 128-129).

### **Implications for Policies and Practice**

Debates about pornography up until the late 1970s were dominated by moral and legal arguments made in a framework that pitted religious conservatives who support traditional sexual mores against liberal defenders of sexual freedom. The feminist critique of pornography, growing out of the anti-rape and anti-violence movement, rejected that dichotomy and introduced a harm-based, civil-rights approach to the question (Dworkin, 1988;

MacKinnon, 1987). Rooted in the real-world experiences of women sharing stories through a grassroots movement, the feminist critique highlighted pornography's harms to the women and children:

- (1) used in the production of pornography;
- (2) who have pornography forced on them;
- (3) who are sexually assaulted by men who use pornography; and
- (4) living in a culture in which pornography reinforces and sexualizes women's subordinate status.

From this perspective, instead of focusing exclusively on narrow questions of causation, we can see that pornography's impacts on the lives of all women and children — and especially those who have experienced violence and sexual violation — can be important. For example, if a woman is raped by a man she is dating who has in the past tried to force her to use pornography with him, the question of whether or not his pornography consumption was a causal factor in the rape may not be the most important issue. Instead, it would be important to examine how pornography was one component of a pattern of abuse in the relationship. This suggests that advocates in domestic and sexual violence work should ask survivors about the role of pornography in the abuse perpetrated against them.

While boys have long found ways to obtain pornography even though it is illegal to sell such material to minors, their access to hard-core pornography in the age of the Internet and VCR/DVD player has become steadily easier. And at the same time that pornography has become more mainstream, the mainstream media have become more pornographic. So, not only are men exposed to more — and more extreme — pornography at younger ages, but so are girls, with effects on their conception of their own sexuality.

It is also important to recognize that pornography is but one aspect of a huge sex industry, which includes not only mass-media sex but phone sex, strip clubs, massage parlors, escort services, street prostitution, and sex tourism. And sexuality — especially women's sexuality — is used in increasingly more explicit ways to sell products of all kinds

in advertising and marketing. This leads to what may be the most crucial question about pornography: What kind of human feeling, empathy, and intimate connections are possible in a world in which bodies are used so routinely in the process of selling and also are for sale virtually everywhere we turn? The implications of that are potentially dramatic, not only in the realm of sexual and domestic violence, but also in those areas of our lives that we want to believe are untouched by the domination/submission dynamic of patriarchy (Jensen, 1997). Pornography is important not only for the specific effects it has on an individual man's behavior, but for its role in shaping our conceptions of the body, gender, sexuality, and intimacy.

People who raise critical questions about pornography and the sex industry often are accused of being prudish, anti-sex, or repressive, but just the opposite is true. Such questions are crucial not only to the struggle to end sexual and domestic violence, but also to the task of building a healthy sexual culture. Activists in the anti-violence and anti-pornography movements have been at the forefront of that task.

*Author of this document:*

Robert Jensen, Ph.D.  
School of Journalism  
University of Texas at Austin  
rjensen@uts.cc.utexas.edu

*Consultant:*

Debbie Okrina  
Clinical Supervisor  
Houston Area Women's Center  
dokrina@hawc.org

**Distribution Rights:** This Applied Research paper and In Brief may be reprinted in its entirety or excerpted with proper acknowledgement to the author(s) and VAWnet ([www.vawnet.org](http://www.vawnet.org)), but may not be altered or sold for profit.

**Suggested Citation:** Jensen, R. (2004, July). *Pornography and Sexual Violence*. Harrisburg, PA: VAWnet, a project of the National Resource Center on Domestic Violence/Pennsylvania Coalition Against Domestic Violence. Retrieved month/day/year, from: <http://www.vawnet.org>

### References

- Adult Video News*. (2002, December). Annual sales charts.
- Adult Video News*. (2003, January). AVN director's roundtable, 45-68.
- Ashcroft v. Free Speech Coalition, 535 U.S. 234 (2002).
- Baldwin, M. (1989). Pornography and the traffic in women. *Yale Journal of Law and Feminism*, 1(1), 111-155.
- Bergen, R. K., & Bogle, K. A. (2000). Exploring the connection between pornography and sexual violence. *Violence and Victims*, 15(3), 227-234.
- Boyle, K. (2000). The pornography debates: Beyond cause and effect. *Women's Studies International Forum*, 23(2), 187-195.
- Dines, G., Jensen R., & Russo, A. (1998). *Pornography: The production and consumption of inequality*. New York: Routledge.
- Dines, G., & Jensen, R. (2004). Pornography and media: Toward a more critical analysis. In M. S. Kimmel and R. F. Plante (Eds.), *Sexualities: Identity, behavior, and society*. New York: Oxford University Press.
- Dworkin, A. (1988). *Letters from a war zone*. London: Secker & Warburg. (Reprint edition, 1989, Dutton).
- Elman, R. A. (1997). Disability pornography: The fetishization of women's vulnerabilities. *Violence Against Women*, 3(3), 257-270.
- Farley, M. (Ed.). (2003). *Prostitution, Trafficking, and Traumatic Stress*. Binghamton, NY: Haworth Press.
- Federal Communications Commission. (2004). FCC consumer facts: Obscene, profane & indecent broadcasts. Retrieved June 27, 2004 from <http://www.fcc.gov/cgb/consumerfacts/obscene.html>
- Gittler, I. (1999). *Pornstar*. New York: Simon and Schuster.
- Jaffee, D., & Strauss, M. A. (1987). Sexual climate and reported rape: A state-level analysis. *Archives of Sexual Behavior*, 16, 107-123.
- Jensen, R. (1997). Patriarchal sex. *International Journal of Sociology and Social Policy*, 17(1-2), 91-115.
- Jensen, R. (2004, January/February). Cruel to be hard: Men and pornography. *Sexual Assault Report*, 33-48.
- Koss, M. P. (1988). Hidden rape: Sexual aggression and victimization in a national sample of students in higher education. In A. W. Burgess (Ed.), *Rape and sexual assault II* (pp. 3-25). New York: Garland.
- Kutchinsky, B. (1991). Pornography and rape: Theory and practice? *International Journal of Law and Psychiatry*, 14, 47-64.
- Lane, F. S. (2000). *Obscene profits: The entrepreneurs of pornography in the cyber age*. New York: Routledge.
- Lovelace [Marciano], L. (1980). *Ordeal*. New York: Berkley Books.

- Lovelace [Marciano] L. (1986). *Out of bondage*. New York: Berkley Books.
- MacKinnon, C. A. (1987). *Feminism unmodified: Discourses on life and law*. Cambridge: Harvard University Press.
- MacKinnon, C. A., & Dworkin, A. (1997). *In harm's way: The pornography civil rights hearings*. Cambridge: Harvard University Press.
- Malamuth, N. M., Addison A., & Koss, M. (2000). Pornography and sexual aggression: Are there reliable effects and can we understand them? *Annual Review of Sex Research*, 11, 26-91.
- Miller v. California, 413 U.S. 15 (1973).
- New York v. Ferber, 458 U.S. 747 (1982).
- Russell, D. E. H. (1998). *Dangerous relationships: Pornography, misogyny, and rape*. Thousand Oaks, CA: Sage.
- Russell, D. E. H. (1980). Pornography and violence: What does the new research say? In L. Lederer (Ed.), *Take back the night: Women on pornography* (pp. 218-238). New York: William Morrow.
- Seto, M. C., Maric, A., & Barbaree, H. E. (2001). The role of pornography in the etiology of sexual aggression. *Aggression and Violent Behavior*, 6, 35-53.
- Silbert, M. H., & Pines, A. M. (1984). Pornography and sexual abuse of women. *Sex Roles*, 10(11/12), 857-869.
- Zillmann, D. & Bryant, J. (1982). Pornography, sexual callousness, and the trivialization of rape. *Journal of Communication*, 32(4), 10-21.





***In Brief:***  
**Pornography and Sexual Violence**

Commercial pornography in the United States is at the same time increasingly more normalized and more denigrating to women. There is understandable interest in the question about the connection between pornography and sexual violence. Rather than asking “does pornography cause rape?” we would be better served by investigating whether pornography is ever a factor that contributes to rape. In other words, *Is pornography implicated in sexual violence in this culture?*

There are limits to what research can tell us about the complex interactions of mass media and human behavior. But from both laboratory research and the narratives of men and women, it is not controversial to argue that pornography can: (1) be an important factor in shaping a male-dominant view of sexuality; (2) be used to initiate victims and break down their resistance to unwanted sexual activity; (3) contribute to a user’s difficulty in separating sexual fantasy and reality; and (4) provide a training manual for abusers.

These conclusions provide support for the feminist critique of pornography that emerged in the 1970s and ‘80s, which highlighted pornography’s harms to the women and children: (1) used in the production of pornography; (2) who have pornography forced on them; (3) who are sexually assaulted by men who use pornography; and (4) living in a culture in which pornography reinforces and sexualizes women’s subordinate status.

People who raise critical questions about pornography and the sex industry often are accused of being prudish, anti-sex, or repressive, but just the opposite is true. Such questions are crucial not only to the struggle to end sexual and domestic violence, but also to the task of building a healthy sexual culture. Activists in the anti-violence and anti-pornography movements have been at the forefront of that task.

Videos tagged « violence » (279 results). Filters¼. Sort by. Relevance. Upload date. Rating. Length.É Emilie Deville Violence elle seule 2011 5 min. 5 minSexynudecelebs - 219k Views -. 1080p. Struggling Girlfriend Loves Rough Anal a. 12 min. 1080p12 minFucking Hippies - 1.4M Views -. Friday the 13th 18 min. 18 minB10Thmandown - 205.4k Views International legal framework. DEDAW. CEDAW. VDPA. DEVAW. BelÁ©m do ParÁ; Maputo. Istanbul. Related topics. Prosecution of gender-targeted crimes. Women's shelter. 25 November. 6 February. By country. Gender violence. v. t. e. Sexual violence is any sexual act or attempt to obtain a sexual act by violence or coercion, acts to traffic a person or acts directed against a person's sexuality, regardless of the relationship to the victim. It occurs in times of peace and armed conflict situations, is Commercial pornography in the United States is at the same time increasingly more normalized and more denigrating to women. There is understandable interest in the question about the connection between pornography and sexual violence. Rather than asking "does pornography cause rape?" we would be better served by investigating whether pornography is ever a factor that contributes to rape. In other words, Is pornography implicated in sexual violence in this culture? There are limits to what research can tell us about the complex interactions of mass media and human behavior. Pornography and Sexual Violence Robert Jensen With contributions from Debbie Okrina. Given the epidemic levels of sexual violence and the widespread availability of increasingly graphic pornography in the United States, it is not surprising that researchers and activists have tried to answer the question of whether there is a connection between men's use of pornography and sexual violence. Since legal controls on sexually explicit material began to loosen dramatically in the 1970s and the issue attained a new visibility, a variety of different methods have been used to try to answer that quest