Print Media Coverage of Environmental Causation of Breast Cancer

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Abstract Given the growing concern with breast cancer as a largely unexplained and common illness of our time, we would expect considerable print media coverage. An accurate portrayal of breast cancer would also include a good amount of attention to the potential environmental factors since many women with breast cancer and activists are pointing to such potential causes. Our examination of daily newspapers, newsweeklies, science periodicals, and women’s magazines showed that there was little coverage of possible environmental causation. There was also scant attention paid to corporate and governmental responsibility. Articles often focused on individual responsibility for diet, age at birth of first child, and other personal behaviours. Articles also emphasised genetic causation, even though this explained only a small fraction of breast cancer incidence. These factors combine to place personal responsibility on women for preventing the disease. Despite gains in understanding possible environmental causation and much scientific dialogue about it, especially in light of the endocrine disrupter hypothesis, and despite growing social activism, the print media have not paid much attention to environmental causation of breast cancer. Because the media have significant influence over public understanding and social action, this lack of attention may hold back scientific and activist pursuit of environmental causes of breast cancer.

Keywords: breast cancer, media, environmental health
**Introduction**

This paper looks at the role of print media in disputes over the environmental causation of breast cancer. Our research is part of a larger project that examines ‘contested illnesses’, which involve major scientific disputes and extensive public debates over environmental causes of breast cancer, Gulf War-related illnesses, and asthma. The larger project examines how these three diseases and conditions came to be seen as social problems, by asking: (1) How have survivors and their lay allies identified diseases and organised to seek redress? (2) How does the illness become contested? In particular, what are the different perspectives of major players (government agencies, professional organisations, scientific research groups, media, corporations, industry organisations, and public advocacy/activist groups)? (3) How have disputes over environmentally induced diseases led to scientific and technological progress in disease detection and etiology, and the development of less toxic products and processes? In particular, how do scientists and government agencies deal with issues such as lay research participation, standards of proof, the quality of official studies, disputes over the cost-benefit analysis of risks and hazards, the official acceptance of the disease/condition and its etiology, and remediation and prevention approaches? and (4) What has been the effect of illness contestations on survivors’ health and on public health policy? All these concerns can be shaped to varying degrees by media portrayals, and hence it is worthwhile to see how print media cover environmental causation of breast cancer.

Activists and committed scientists have focused attention on investigating potential environmental causation of breast cancer, often concentrating on endocrine disrupters, chemicals that affect the endocrine system. Of these, the xenoestrogens, that mimic natural oestrogen, are seen as potential factors in breast cancer, since oestrogen is already a known factor in the form of oestrogen replacement therapy. Books focusing on this topic such as *Living Downstream* (Steingraber 1996) and *Our Stolen Future* (Colborn et al. 1996) have received much popular attention and support\(^1\). A vibrant social movement has developed to support women with breast cancer and other supporters to seek more research and treatment, and to raise the question of environmental etiology. Activists have obtained state and federal funding for researching environmental causation and have prompted considerable research by others (Klawiter 1999, Kasper and Ferguson 2000)\(^2\). All these phenomena signify a major change in the broad perception of breast cancer and its causes. This strength of a perceptual shift is even more striking, in light of the lack of scientific evidence for environmental causation. The endocrine disruptor hypothesis is compelling, and is a priority for breast cancer research. Supportive evidence comes from animal and cell studies of EDCs, human studies of pharmaceuticals, breast cancer risk associated with in utero exposures to endogenous oestrogens, and the literature on
endogenous oestrogens in general. But the human studies of environmental pollutants and breast cancer have been mostly negative in the late 1990s. Radiation is the only environmental exposure for which there is widely accepted evidence of an effect on breast cancer.

In their quest for data to confirm environmental causation of breast cancer, breast cancer activists and a growing number of researchers have put forth an alternative perspective that criticises the general belief system about the existence and causes of disease. We term this general belief system a ‘dominant epidemiological paradigm’ (see Figure 1) which is composed of a diverse set of social actors, knowledge sets, and institutionalised science. The media play a role in this construction of common perception as well. It takes many different kinds of efforts for challengers to dislodge that paradigm and develop a new perspective. Although in other contested illnesses, the dominant epidemiological paradigm involves both disease discovery and etiology, with breast cancer it only involves etiology. With breast cancer we see that the dominant epidemiological paradigm opposes environmental causation as a significant component, and focuses largely on dietary, lifestyle, and genetic etiology. The dominant epidemiological paradigm (DEP) does not operate in a conspiratorial manner. Indeed, the fact that there are so many components of the DEP suggests that there must be a broad social consensus of many parties. The formulation and maintenance of the DEP may include some calculated efforts to withhold information and selectively to fund certain types of research. But at the same time, ordinary governmental, scientific and organisational practices routinely place barriers in the path of an environmental causation explanation.

The media are one of many actors in the DEP. In the case of reporting on environmental causation of breast cancer, we expect the media generally to support the existing DEP, which is genetics and lifestyle/personal responsibility. We expect that to be the case since past research on media reportage of breast cancer (Lantz and Booth 1998, Saywell et al. 2000) suggests that the media do not take a politicised or feminist stance regarding breast cancer. Because environmental causation arguments represent contestation of the DEP, we expect such causes to be mentioned less frequently.

An additional factor influencing the ability of the print media report on environmental causation, one we would categorise as a private sector actor within the DEP, is advertising. Gloria Steinem’s (1995) account of the struggle Ms. magazine had utilising advertising that would complement the articles and politics of the magazine demonstrates the intricate connection between reporting and advertising. As reported by McManus (1995) in his analysis of broadcast media, while there has long been a tradition of freedom of the press in the United States, this has often been manipulated by the strength of advertisers that provide major financial support. Therefore, the corporate interest in downplaying potential environmental hazards from their products might lead to dislike of accompanying environmental causation articles. Additionally, especially in the case of women’s
magazines, the focus of advertising on individual responsibility might lead reporting away from a more politicised view disrupting the traditional DEP of breast cancer.

We will not take up each component of the dominant epidemiological paradigm here, though our discussion will touch upon some of them. But it is worth showing graphically the many factors that make up a traditional perspective, since opponents must take on most or all of them to succeed in an alternative perspective. We view the media’s low level of attention to
environmental causation of breast cancer as an important element of the DEP.

Because of the multiple ways that the environment has been defined when considering breast cancer causes, it is necessary to clarify our definition. We define environmental causes as chemicals, pollutants, and radiation that exist in the environment, but not from medical treatment. Some articles we studied used the term environmental to describe lifestyle factors, a perspective also shared by the National Cancer Institute and the National Breast Cancer Coalition. These lifestyle factors do not fit within our definition. There are many good reasons for focusing only on toxic substances. It is an area that has engendered an enormous amount of conflict, policymaking, legislation, public awareness, media attention, and social movement activity. It puts into sharp relief a variety of disputes between lay people and professionals, citizens and governments, and among professionals. It demonstrates an interesting and ongoing example of social-problems construction. Furthermore, toxics are an enormous source of anxiety – Kai Erikson’s (1994) notion of ‘a new species of trouble’ and Ulrich Beck’s (1986) conceptualisation of a pervasive ‘risk society’ touch on the widespread fears that a new social order has developed which is intensely threatening to human survival. In the case of breast cancer, investigating toxic elements signifies a more politicised perspective on the disease than the accepted personal responsibility framework.

Background: the role of the media in environmental causation of disease

The news media have vastly increased their medical and scientific coverage, including special science sections in major newspapers, making it a major force in public and governmental understanding (Nelkin 1987). Science writers have begun to specialise, and the Society of Environmental Journalists now constitutes a group of highly knowledgeable journalists. Still, Wallack (1994) notes, environmental reporting too often focuses on an ‘information gap’ whereby individuals are blamed for not acting appropriately due to a lack of complete knowledge. Instead, he believes that these journalists should emphasise the ‘power gap’ between social groupings and institutions, by placing emphasis on the role of social structures to limit public understanding, and by highlighting alternative definitions of the problems, rather than largely accepting official definitions. A few journalists do follow this prescription in their appeal to both lay and scholarly audiences. Michael Brown covered Love Canal and then moved on to write a book about hazardous waste (M Brown 1981). Ross Gelbspan (1997) wrote a popular scholarly book on global warming. Paul Brodeur wrote magazine articles on asbestos (1985) and then on electromagnetic fields (1993), and produced well-cited books based on that research. Theo Colborn and her colleagues’ *Our Stolen Future* (1996), a central component of the
endocrine disrupter debate, was largely written by Dumanoski, a *Boston Globe* journalist. Even scientists have often used a journalistic outlet to begin their publicity concerning environmental issues. For instance, Rachel Carson’s *Silent Spring* (1962) began as a series in *The New Yorker*. Journalistic approaches to environmental issues are increasingly sought by other journalists, as expert knowledge. For example, the PBS June 10, 1998 ‘Frontline’ report on endocrine disruptors highlighted journalists’ perspectives on the subject.

The mass media help shape scientific arguments, making them seem more or less plausible, and making the players more or less sympathetic. Gitlin (1980), in studying media coverage of the antiwar movement, found that there was a frequent use of negative frames: trivialisation (disparaging remarks on language, dress, style, goals), polarisation (focusing on counter-demonstrators), emphasis on internal dissension, marginalisation (demonstrators as deviants), disparagement by numbers, disparagement concerning effectiveness, reliance on government statements, emphasis on violence in demonstrations, delegitimising use of quotation marks as in ‘peace march’, and considerable attention to right-wing opposition.

Science journalists also have an effect on government and science by often testifying in Congress and helping determine the importance of scientific research. *New England Journal of Medicine* articles that are reported in the *New York Times* receive 73 per cent more scholarly citations than *NEJM* articles not mentioned in the *Times* (Phillips *et al.* 1991). Mass magazines and television documentaries also play a role. The TV airing of Bill Kurtis’s film *Agent Orange: Vietnam’s Deadly Fog*, made Agent Orange’s health effects a national issue for the public and for Congress (Scott 1992). Tippit’s (1994) article on Gulf War Syndrome in the *Ladies’ Home Journal* provided a significant spark to more scholarly media and to public and governmental attention.

Media coverage is also crucial in whether or not individual troubles are transformed into social problems. As Dorothy Nelkin (1987) points out, ‘The terms used to describe a problem, the sources cited, the perceptions conveyed, point the finger of blame and imply responsibility for remedial policies’. The framing of a social problem, particularly in terms of causation, has been associated with who is viewed as being responsible for addressing the problem (Wallack 1994). This was exemplified in the British press when salmonella poisoning was framed as the responsibility of housewives rather than the egg industry’s (Reilly *et al.* 1995). If the media focus blame and responsibility on the individual, it is likely that the problem will not be considered a social problem that merits public or governmental attention. If, however, the problem is framed so that structural or institutional causes receive the blame, it becomes a social problem of concern to all members of a community.

The media also play an instrumental role in determining individual responses to issues. For example, work by Seydlitz *et al.* (1994) and Spencer...
and Triche (1994) suggests that news coverage of risks associated with a hazard is more likely to lead people to take action when they perceive a personal relevance. Work by Wiegman et al. (1989) shows that the discussion of the frequency of environmental and technological hazards affects reader response. They found that readers of newspapers with greater coverage of a hazard had more negative views of related risks, perceived the risks as more threatening, showed more feelings of insecurity, and were more likely to seek additional information.

When an issue in the media is portrayed as a social problem it can have profound consequences for social policy. The media have access to a wide variety of people who play a part in responding to social problems. Media outlets have the potential to reach politicians, government regulators, community leaders and the business community. A media message can help influence or in some cases even force government agencies to take action by making a problem an issue the public wants addressed. A similar effect can be extended to businesses or entire industries. If the media frame a problem as being caused by industrial action and/or disregard for the public’s well-being, then the industry is likely to respond to save face. When the media spotlight public figures as key actors in an issue, they face intense public pressure to respond. A common response is a call for research or support for increased funding for research, but rarely an attribution of chemical or corporate responsibility.

Because of the factors mentioned above, reports of environmental health effects have become powerful flash points in public life. Rapid transmittal of research findings, or even suppositions, can scare and mobilise people. Other health reporting may provoke immediate positive public responses; for instance, a report of a promising clinical trial may lead many people to try to get access to that trial. But that is a different kind of immediacy from environmental health effects, where people may respond to the scare factor by mobilising a social movement organisation or by considering moving out of their homes or leaving their jobs.

**Specific research questions**

We are interested in an overall characterisation of the role of media in disputes over environmental causation of breast cancer. Specifically, we are studying the following questions:

1. How commonly do articles on breast cancer include mention of environmental causation?
2. How do these articles attribute other forms of causation, e.g. genetic, personal dietary and lifestyle choices?
3. How does the media characterise the scientists, agencies, and organisations involved in looking at environmental causation?
4. What differences are there in the above issues, across different types of print media?
5. How are women’s magazines different from the other media types?

Methods

Periodical selection
Periodicals were chosen in two ways. First, we selected general media sources which were not specifically related to scientific or women’s issues. We also employed field-specific selection, in which other periodicals were chosen because of their direct connection with an area, e.g. women’s magazines and breast cancer.

Non-specialised news publications included daily newspapers and newsweeklies. Two daily newspapers, the New York Times and the Washington Post, were searched. Both have a circulation above 700,000. The New York Times is commonly considered the newspaper of record, in which virtually all significant news will be reported. The New York edition was used, since it is more complete than local/regional editions. The Washington Post is commonly viewed as the next major newspaper, given its coverage of issues important to national politics. It is common practice among communications researchers and media sociologists to study these two newspapers in order to examine media coverage of environmental issues (McComas and Shanahan 1999). The three major newsweeklies, Time (circulation 4.1 million), Newsweek (circulation 3.2 million), and US News and World Report (circulation 2 million), were searched as well, since a large part of the population gets its news in this fashion.

Specialised science periodicals were also selected, because we were dealing with disputes over scientific knowledge. Popular Science and Discover were examined, since they are widely circulated magazines that offer popular coverage of science, and we were interested in seeing how the general public frames scientific opinion. Scientific American was selected because it reaches a highly scientifically literate readership which is not primarily composed of scientists. Science News was included because it offers a digest of major science news and is read by both scientists and highly literate nonscientists.

We examined articles from 1961 to the present time, since 1961 was the publication of Rachel Carson’s Silent Spring, a sentinel event in the history of connections between chemicals and human disease. For field-specific coverage of women’s issues, we examined the following leading women’s magazines: Essence, Good Housekeeping, Ladies’ Home Journal, Mademoiselle, McCall’s, Redbook, Vogue, and Ebony. We based this choice on the work of Nancy Berns (1999), who used four criteria: (1) the magazine was published during the whole period of study; (2) it had a paid circulation of at least 750,000; (3) it was indexed in the Reader’s Guide; and (4) it was primarily a women’s magazine. In our study, there was some slight deviation
from Berns’s criteria, in that *Essence* did not start publication until 1970, but it is a widely read periodical aimed at African-American women. Nevertheless, the importance and circulation of these periodicals made it worthwhile to include them. We examined social scientific research (Keller 1994, McCracken 1993) and publications reference books (Endres and Lueck 1995, Gage and Coppese 1994, Holm 1998) to further solidify our selection criteria.

**Inclusion criteria**

We located all articles mentioning breast cancer, in order to gauge the extent of coverage, but we only coded and analysed those that dealt with environmental causation. Any article that mentioned environmental causation of breast cancer was included for coding and analysis, although the entire article did not have to be about environmental causation. For example, an article about general causation of breast cancer that happened to mention the environment was relevant. So were articles that discussed cancer incidence (and that mentioned breast cancer specifically) and then later mentioned environmental causation as a general cancer cause. The important point was that specific mention of breast cancer and environmental causation appeared in the same article.

Articles that discussed cancer in general were too frequent. Occasionally these articles about general environmental cancers offered an interesting insight into how we might look at environmental causation of breast cancer, and were useful for context and background of the larger topic, but they were still not included in the sample because they did not deal directly with issues of environmental causation of breast cancer.

Our inclusion criteria ruled out articles that addressed possible causation by treatment (including oestrogen replacement therapy and radiation), genetics, personal diet/exercise, and DES, but did not mention environmental factors. This was a difficult set of inclusion criteria, since oestrogen replacement therapy (HRT) and DES are indeed related to the environmental oestrogens that are so prominent in the environmental causation debate. Further, DES provided one of the earliest hints of oestrogenic causation. But these medical treatments are politically very different from environmental ones. As we shall see in the results section, it is striking how commonly medical and public health professionals discuss HRT as a potential breast cancer cause, yet fail to make the leap to environmental oestrogens; this is mirrored in media coverage.

**Obtaining articles**

For both the *Washington Post* and the *New York Times* we relied primarily on the hard copy indices. Both newspapers were also available on Lexis-Nexis (L-N) back to approximately 1980, and had limited online searches available on their websites. We initially did a comparison of search methods for the three methods (hard copy, L-N, and online) using common electronic
search terminology (e.g. ‘breast cancer’ and ‘environment’). Although there was some overlap between the methods, often one type would turn up stories that others would not. For example, the online indices turned up columns and personal accounts not found in the L-N, while L-N returned editorials and some letters to the editor not found in the hard copy indices. For completeness, we included articles found in all three searches. Ultimately all articles had to be collected through microfiche because placement within the paper is one of our interests.

Both newspapers’ online indices require paying for each full text article viewed, yet this was unnecessary as we were able to search the databases by keyword and then note the titles and dates of the results to be looked up under microfiche. The New York Times was good for only the previous year or so, but the Washington Post was available until the mid-1980s. Because Lexis-Nexis allowed us to read each article, we were able to rule out a number of them as irrelevant before retrieving them from microfiche.

The hard copy indices were the most time-consuming. While the New York Times index was fairly uniform and available for the last 100 years, the Washington Post index was available only until 1971 and the indexing methods changed frequently. Of special difficulty were the earlier years when each article was indexed only by a seven or eight word headline or summary, which made it very difficult to guess the article’s relevance. Thus for many years in the mid to late 1970s it was possible to find 20 listings that might have had relevance, only to realise very few did so when the article was read in full. This was in contrast to the New York Times, which spent up to a paragraph describing each article and had numerous separate cross-indices (e.g. an entry for breast cancer that listed which articles within the sizeable cancer section mentioned ‘breast’).

After sorting through the hard indices using the criteria above, we took our list of article dates and titles to the microfiche, along with those article listings gleaned from L-N and other online databases. Upon viewing each article in the microfiche, we would then further eliminate those that did not fit our criteria for inclusion in the database. For breast cancer, this usually resulted in a total of one to seven articles per year per newspaper, depending mostly on what year it was. Each article was printed as a hard copy and recorded.

Lexis-Nexis reproduces text only, not graphics. This was a minor problem, affecting only the coding of graphic frequency and size. With this multiplicity of indexing sources, we believe we have located the relevant periodicals as accurately as possible, and that the divergence in indexing source is not a problem.

The collection of articles from other media types was much more straightforward. For them, we used the Reader’s Guide to Periodical Literature to find references to articles. We then collected the original articles directly from their sources which enabled us to gather information about accompanying images and references to the article on the cover of the publication.
Coding
The coding sheet was devised from an initial set of codes that was created on the basis of our knowledge to date of the key issues involved in media coverage of environmental health disputes, as well as the extraction of codes determined by pilot coding among the research group of six people. This was followed by repeated group discussion of draft questions. Special attention was given to what constituted repeated versus additional mentions of the subject within the article, what constituted a writer’s subjective statement (e.g., using ‘loaded’ terms), and how the article dealt with specific research studies. Articles were coded for the way and frequency that they addressed specific research studies, scientists, government officials and agencies, individual prestige, activist organisations and individuals, professional and scientific organisations, business and economic interests, individual responsibility for illness, and arguments over environmental causation.

The pilot coding provided an initial sense of inter-rater reliability, via group discussion. Once agreement was reached on a coding sheet, inter-rater reliability was established by group coding of one article in each of the three illness categories. Four people were present for that process. Highly objective items were not included in the inter-rater reliability calculation, e.g., page number, number of photos, word count, location of article. Of the 15 items in the coding, reliability was 1.0 on 12 items, 0.75 on one item, and 0.5 on two items. There was clearly a high level of agreement on the coding criteria. In addition to the very specific items, more general summaries were written, for additional, qualitative analysis.

Coding was done using ‘Excel’ in order to systematise the data and allow for both qualitative and quantitative analysis. Summaries and analyses of the articles, written on the Excel coding sheets, were transferred to ‘NVivo’ to enable more detailed qualitative analysis.

RESULTS

Our selection criteria for full coding of articles required that they dealt with environmental causation. We eliminated the majority of articles on breast cancer because they only dealt with detection, treatment, or prevention, and not with causation.

Frequency of mention of environmental causation

Environmental causation was not mentioned very frequently, indicating that the media support the DEP generally surrounding breast cancer. Table 1 shows that only 207 articles mentioning breast cancer appeared in these eight major popular women’s magazines in 37 years. Although we do not
know the total number of articles mentioning other health issues, we can assume that, for instance, the average of five articles per year in women’s magazines, which means that some publications had no articles at all, is a low number.

Overall, only 10 per cent mentioned environmental causation, and in some magazines, no article did so; these 10 per cent are the articles we coded for detailed study. One would expect these publications to have far more general breast cancer coverage, given the impact of breast cancer on women, as well as the widespread fear of it.

Table 2 shows the paucity of coverage in large circulation science periodicals. Lack of coverage of breast cancer in Discover and Popular Science, two very widely read scientific magazines, is striking. Popular Science had no articles at all on breast cancer, while Discover had 15, none of which mentioned environmental causation. Scientific American, aimed at a well-educated audience of largely lay people, had only 21 articles, but the highest

<table>
<thead>
<tr>
<th>Women’s popular circulation magazine</th>
<th>Total number of breast cancer articles</th>
<th>Number of articles with environmental causation mention (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ebony</td>
<td>6</td>
<td>1 (16)</td>
</tr>
<tr>
<td>Essence</td>
<td>8</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Good Housekeeping</td>
<td>54</td>
<td>4 (7)</td>
</tr>
<tr>
<td>Ladies’ Home Journal</td>
<td>16</td>
<td>3 (19)</td>
</tr>
<tr>
<td>Mademoiselle</td>
<td>10</td>
<td>2 (20)</td>
</tr>
<tr>
<td>McCall’s</td>
<td>42</td>
<td>4 (9)</td>
</tr>
<tr>
<td>Redbook</td>
<td>31</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Vogue</td>
<td>40</td>
<td>6 (15)</td>
</tr>
<tr>
<td>Total</td>
<td>207</td>
<td>20 (10)</td>
</tr>
</tbody>
</table>

Table 2 Mention of environmental causation of breast cancer in large circulation science periodicals, 1961–1999

<table>
<thead>
<tr>
<th>Science periodicals</th>
<th>Total number of breast cancer articles</th>
<th>Number of articles with environmental causation mention (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discover</td>
<td>15</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Popular Science</td>
<td>0</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Scientific American</td>
<td>21</td>
<td>6 (29)</td>
</tr>
<tr>
<td>Science News</td>
<td>106</td>
<td>11 (10)</td>
</tr>
<tr>
<td>Total</td>
<td>142</td>
<td>17 (12)</td>
</tr>
</tbody>
</table>
percentage of articles dealing with environmental causation, 29 per cent. *Science News*, a digest format journal well utilised by scientists and journalists, had a large number of articles, 106, but only 10 per cent mentioned environmental causation.

Tables 3 and 4 relate the very low amount of coverage being given to environmental causes of breast cancer in newspapers and newsweeklies. Table 3 shows that of all media types newsweeklies have the smallest percentage of articles about environmental causes, but only slightly less than newspapers. *Newsweek* is noticeable for having a larger percentage than the other two, which we might attribute to its more liberal reputation.

### Table 3 Mention of environmental causation in newsweeklies, 1961–1999

<table>
<thead>
<tr>
<th>Newsweeklies</th>
<th>Total number of breast cancer articles</th>
<th>Number of articles with environmental causation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>US News and World Report</td>
<td>27</td>
<td>1 (3.7)</td>
</tr>
<tr>
<td>Time</td>
<td>39</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Newsweek</td>
<td>60</td>
<td>5 (8.3)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>126</strong></td>
<td><strong>6 (4.7)</strong></td>
</tr>
</tbody>
</table>

### Table 4 Mention of environmental causation in newspapers, 1961–1999

<table>
<thead>
<tr>
<th>Newspapers</th>
<th>Total number of breast cancer articles</th>
<th>Number of articles with environmental causation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The New York Times</td>
<td>844</td>
<td>43 (5)</td>
</tr>
<tr>
<td>The Washington Post</td>
<td>388</td>
<td>24 (6)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1232</strong></td>
<td><strong>67 (5.4)</strong></td>
</tr>
</tbody>
</table>

In Table 4 we see that although a large number of articles on breast cancer have been in newspapers, only a very small percentage of these articles, 5.4 per cent, cover environmental factors. There does not seem to be a difference in reporting between the *New York Times* and *Washington Post*.

**Mention of environmental causation over time**

In Figure 2 we show the total number of breast cancer articles published in newspapers, newsweeklies, and all magazines. While there is constant fluctuation, the number of articles mentioning breast cancer increases throughout most of the time period. Newspapers had a distinctively large
Figure 2. Total number of breast cancer articles per year
number of breast cancer articles, but they were also published on a daily basis versus the monthly or weekly publication of the other periodicals. In Figure 3 we show the proportion of breast cancer articles over time mentioning environmental causation. Women’s magazines, science magazines, and newsweeklies all had the greatest percentage at some point in the 1970s. After a low period, these percentages began to increase again in the 1990s, or in the 1980s for science magazines. However, the proportion of environmental causation articles was never large.

This general increase was true for all media except for newsweeklies. In newsweeklies there was a surprising distinctive difference between the early and late 1990s. In that 10-year period, there was an inverse relationship between total number of articles and percentage of breast cancer articles mentioning environmental causation. The number of breast cancer articles continued to increase, but the proportion of breast cancer articles mentioning environmental causation decreased. Newsweeklies apparently did not reflect the increased scientific inquiry and social action that had gone into environmental causation.

How environmental causation was reported
Evidence for environmental causation of breast cancer was consistently presented as uncertain. There were two primary ways that this was accomplished. One method was to utilise questions as a rhetorical device (e.g. ‘Is there a connection...’). Any discussion that is framed by a question is unlikely to have a definite answer. Another way the message of uncertainty was conveyed was through words that had a distinct qualifying nature (e.g. ‘there might be a link’ and words such as: suspect, possibly, perhaps, suggest, believe, wonder, may, might). Repeated use of such words and phrases portray only the uncertainty of environmental causation and not the existence of scientists and activists who believe such causes are legitimate.

Articles also frequently pointed to the difficulty in ascertaining causality, and the fact that there was no consensus on such causality. Scientific studies that found no environmental causation were often discussed in terms of their comprehensiveness. This trend was somewhat tempered by another trend in which studies showing either a pro-causation or anti-causation argument were matched with statements about contradictory evidence. But even this tempering effect still leaves the overall impression of uncertainty, which bolsters the anti-causation perspective that is embodied in the dominant epidemiological paradigm. Surprisingly, a number of articles that concluded evidence for environmental causation was, variously put, ‘far from conclusive’, still examined other studies that did suggest environmental causation. This was perhaps a way of keeping alive the possibility of environmental factors, even though reporters often failed to conclude that environmental factors were important.

The women’s magazines can be categorised into three levels of addressing environmental causation: thorough, short positive mention, and minimal.
Figure 3. Percentage of breast cancer articles referencing environmental factors
Vogue and McCall's were remarkable in addressing environmental causation the most thoroughly. Vogue published two articles in 1994 which could be classified as thorough. One was completely focused on the endocrine disruptor hypothesis and the other contained several paragraphs addressing environmental factors. Short positive mention articles were characterised by a short discussion of environmental contaminants in a positive to somewhat ambivalent light. Generally, that means a few sentences to a paragraph concerning such factors. Minimal mention might include a single recommendation of avoiding environmental contaminants, such as in a 1992 Mademoiselle article which said that ‘... strategies include avoiding exposing the breasts to radiation... and [avoiding exposures to] well-known carcinogens, like cigarette smoke, and of some of the lesser-known ones that may be components of air and water pollution’. Minimal articles may also have only mentioned one environmental factor in a list of others, such as one 1990 Ladies Home Journal article. This type of mention was by far the most frequent in women’s magazines.

Headlines of environmental causation articles
Many readers often only read, or primarily remember, the headlines of an article. Headlines also generally capture the political attitude encapsulated in an article. Across media type, headlines were a mix of questions and hesitant assessments of whether or not there was a link between breast cancer and the environment. Newspapers were generally ambivalent, but leaned towards a supportive perspective by providing direct connections between environmental elements and breast cancer in the title. For example, ‘Breast cancer near chemical sites’ (NYT 4/94), ‘Studies give pesticides role in breast cancer’ (Washington Post 10/93), and ‘“Environmental estrogens” may pose greater risk, study shows’ (Washington Post, 6/96). Scientific magazines were similar to newspapers in their headlines with titles such as ‘Breast effects of hormonal pollutants’ (Science News 8/95), ‘Dioxin indictment’ (Scientific American 1/94) and sometimes slightly more questioning with others like ‘Can environmental estrogens cause breast cancer?’ (Scientific American 10/95). Newsweeklies were predominantly ambivalent with titles like ‘Cancer’s Catch-22’ (Newsweek, 8/76).

Women’s magazine headlines were distinct in generally focusing on the personal response to breast cancer, and rarely on the cause. They only included specific environmental elements in the headline once. Typical titles included ‘Fighting the breast cancer panic’ (Vogue 10/92), ‘Preventing breast cancer’ (Good Housekeeping 9/93), and ‘Health: preventing breast cancer, What’s a girl to do?’ (Mademoiselle 10/92). The only breast cancer article in women’s magazines directed at a black audience which mentioned environmental causation of breast cancer was in Ebony (1971), called ‘I was a cancer coward’. This was the first article in women’s magazines to mention environmental causes.
Scientific context of environmental causation

The context in which environmental causation was mentioned says much about the way it is legitimised or delegitimised. Mention of the scientific context varied widely between media types. As Figure 4 shows, the most noticeable difference among types is that between the women’s magazines and the other three types. Women’s magazine articles mentioning environmental causes rarely included specific information about researchers or studies. Less than 10 per cent of those articles were initiated by a study or mentioned specific names of researchers.

Other media types were much more similar to one another. Scientific magazines mentioned studies and researchers the most; over 60 per cent of the time, both were discussed. They also mentioned the prestige of researchers most frequently. Newsweeklies and newspapers had the most similar context for mention of environmental causation. Articles in both of these types were prompted by a specific study 55 to 60 per cent of the time. Between 35 and 40 per cent of the time articles in newsweeklies and newspapers mentioned specific researchers. One slight difference between the two was that newspapers mention prestige of a researcher four per cent of the time, while newsweeklies never mentioned it.

Images accompanying articles

Publications rarely included graphics with environmental causation articles. It was highly unlikely to see photographs of chemical factories or toxic

Figure 4. Scientific context among environmental causation breast cancer articles
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waste sites. Scientific magazines occasionally included a diagram of the breast or cancer cells. Newspapers used basic portraits of an individual discussed in the piece. Women’s magazines were striking in that they almost always included photographs or drawings with the article. Even articles which didn’t include breast self-examination as a topic, often showed images of women examining their breasts. Frequently there were pictures of women nude from the waist up. The women shown in these pictures were consistently young and thin, even though women who generally get breast cancer are older, and many articles claimed that there was a connection between fat and increased risk. The graphic nature of the images varied slightly by year, with more recent articles more likely to show nudity. Our interviews with activists and researchers showed much antipathy to this nude portrayal, since it sexualises breast cancer and detracts from the message of prevention. Saywell et al. (2000) also point out that the image of the youthful breast in relation to breast cancer is fetishised in the media. They show that the generation of femininity equalling two intact breasts may in fact not be reflective of women’s own perceptions of their experiences with breast cancer.

**Forms of causation**

Attribution of breast cancer causation to sources other than the environment were more common than environmental attribution, even though they have not been very well supported scientifically. Genetic background and medical oestrogen were two commonly discussed issues.

*Lack of linkage between medical and environmental oestrogens*

While the risks of oestrogen in oral contraceptives and oestrogen replacement therapy (HRT) are often considered, environmental oestrogens are rarely discussed. Analysis of New York Times and Washington Post articles that addressed medical oestrogens showed that in no cases was this linked to synthetic oestrogens. This stems from the degree of professional attention to oestrogens. It may seem surprising that medical and public health professionals discuss HRT as a potential breast carcinogen, yet fail to make the leap to environmental oestrogens. After all, oestrogens in general are viewed as active agents in carcinogenesis. But in the eyes of these professionals, the environmental oestrogens are weaker and their exposure is less clear. This is despite growing interest in the endocrine disruptor hypothesis, as evidenced in scientific conferences, widely-read books and a special EPA programme (EDSTAC) to test chemicals for oestrogenicity.

*Genetic explanations*

Breast cancer in the media is often discussed in terms of genetic factors. While genetic explanations are strong, this explanation is emphasised
disproportionately, given scientific knowledge that the BRCA1 and BRCA2 gene mutations account for no more than 10 per cent of the cause of breast cancer. A recent study which examined 45,000 pairs of twins showed that 75 per cent of breast cancer risk can be attributed to nongenetic factors. This study shows that genetic factors play only a small role in most types of cancer (Lichtenstein et al. 2000). This unbalanced focus fits with the dominant epidemiological paradigm, which gives excessive attention to genetic explanations for many health outcomes, even in light of weak or negative evidence. Conrad (1998) has called this fixation a ‘mirage of genes’, and it is certainly noticeable in the hyperbole surrounding the June 26, 2000 announcement of the near-complete map of the human genome. Henderson and Kitzinger (1999) found that genetic and inherited risk factors were the main topic of one-third of 708 articles in British daily papers in the three-year period 1995-7, despite the small component of genetic causation. This was more than twice as much as any other risk factors, except for age, which was the main topic in slightly more articles than genetics. Of all articles dealing with inherited and genetic risks, the largest group dealt with two subjects – prophylactic mastectomy and the experience of living as a high-risk woman. Only 20 articles in that British sample dealt with environmental factors. This is a far smaller percentage than we found in US women’s magazines. This may be because the environmental breast cancer movement is more developed in the US, even though we are still surprised at the low level of impact this has had on women’s publications.

Attribution of responsibility

Even when articles mentioned environmental factors, they were unlikely to place much responsibility on toxics. We searched for four forms of attribution of responsibility: (1) personal responsibility/lifestyle, where articles emphasised individual responsibility to avoid risk factors; (2) human interest problems, where articles would focus on the personal narratives of women with breast cancer; (3) business/economic interests, where chemical companies and other forms of corporate responsibility might be mentioned; and (4) multiple toxics, where articles might mention toxics additional to the primary ones they were discussing. If articles were supportive of an environmental causation explanation, there would be more attention to the latter two categories.

Personal responsibility/lifestyle

Lantz and Booth’s (1998) analysis of articles in popular magazines from 1980 to 1995 found that there was much focus on ways women could prevent breast cancer through attending to individual risk factors. ‘Non-traditional’ behaviour, particularly the reproductive choice for later births, is often suggested as a likely cause. We found this to be common in our
sample, with 49 per cent of the articles mentioning at least one aspect of lifestyle or individual responsibility, such as dietary intake. In particular, articles about the high incidence on Long Island emphasised the risk factor approach by pointing out that many women in that area are Jewish, with a higher social class and a high fat diet.

Over 80 per cent of the articles in women’s magazines mentioned personal responsibility. Newsweeklies, newspapers and scientific magazines also did the same, 60, 45 and 30 per cent of the time respectively (see Figure 5). The high percentage of individual responsibility in women’s magazines might partly have been based on efforts to contain much information about controlling disease incidence. This is a much more palatable approach for readers than to suggest there are no ways to decrease disease risk. However, the concurrent presentation that the causes of breast cancer are mysterious and unknown disempowers women from creating a political response to a personal occurrence and instead leads to a mentality of fear around the disease, as well as a sense of personal responsibility for prevention. This reduces the possibility that there will be a strong response to counter the DEP.

It is easier from a journalist’s perspective to suggest personal strategies than to suggest that people should protest and organise. This is because personal strategy suggestions do not antagonise powerful people and institutions, nor do they appear to take the journalist outside the bounds of supposedly value-free journalism. Personal responsibility for the etiology of breast cancer is also an easy leap from other forms of personal responsibility; articles mirror the public and medical perspective that women bear much responsibility for detection and then treatment of breast cancer.

Figure 5. Attribution of responsibility among environmental causation breast cancer articles

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Diet was mentioned as a personal responsibility risk factor in all media types. Such discussions often mentioned connections between alcohol intake and fat consumption as possibly affecting risk levels for breast cancer. These discussions almost never included a mention of the fact that environmental contaminants are largely stored in fat, or that dietary choices might be a way to reduce the amount of contaminants in the body. In one of the breast cancer articles pesticides in food were mentioned in terms of a lifestyle choice: a person could avoid the chemicals based on the foods they choose to eat. This approach implies that whether or not a person is exposed to environmental causes of breast cancer depends on their lifestyle choices, not on the chemical and food industries. The environment becomes something within individual control, when in fact it is not. In the opinion of many breast cancer activists, this focus on personal responsibility is very limited. They are often interested in a broader contextual view that includes political and scientific factors.

**Human interest articles**
The low number of environmental causation articles in women’s magazines which had human interest mention was surprising in that there was a significant trend of personal narratives related to breast cancer in women’s magazines. An article was coded as containing human interest mention if it discussed any aspect of the personal experience of an individual. Since only 20 per cent of environmental causation articles in women’s magazines mentioned human interest issues, we can see that the personal narrative frame was not being used to legitimise environmental causes. Instead of the articles drawing attention to macro factors affecting incidence of breast cancer, including environmental causes, those human interest-focused articles tended to focus on the personal emotional response to the disease.

Human interest problems were mentioned much less frequently in other media types, except newsweeklies which mentioned human interest and personal responsibility 60 per cent of the time. Scientific magazines were most striking in that they never contained human interest factors. This fits with their focus of presenting issues framed by their scientific relevance.

**Economic and business interests**
The lack of attribution of responsibility for breast cancer to economic or business interests is also striking. These issues received the least attention in all media types. No articles mentioned specific corporations that might be responsible for carcinogens, but rather only industries or the Chemical Manufacturers Association were mentioned. Close to a quarter (24 per cent) of articles mentioned business or industry, with most of those articles involving corporate criticism of environmental causation theories and of increased costs due to environmental regulation. Newspapers gave the most attention to business or economic interests with 30 per cent of environmental causation articles mentioning them. Newsweeklies gave the second
most attention with 20 per cent. Women’s magazines mentioned business and economic interests 17 per cent of the time and scientific magazines mentioned them eight per cent of the time (see Figure 5).

**Multiple toxics**

We also looked at mention of multiple toxics, because a discussion supportive of environmental causation would be likely to mention other toxics implicated in cancer and other diseases. Multiple toxics were most frequently mentioned in science magazines, at 36 per cent, and women’s magazines approach that rate at 31 per cent. Newsweeklies and newspapers were fairly close to each other with 20 and 15 per cent of articles mentioning them respectively. The lack of mention of multiple toxics is surprising considering that many articles about other environmental illnesses did speak of multiple chemical or other toxic causes. Overall, these results show that of all media types newspapers gave the most balanced mention of personal responsibility, human interest, business/economic interests and multiple toxics.

**Portrayal of institutions and activists involved in environmental causation**

Articles that criticised activists and advocates often charged them with being ‘alarmists’ or of relentlessly forcing an agenda, e.g. ‘bombarding’ the public with claims (Interestingly, advocates for research about diet and breast cancer have been persistent, despite weak, conflicting, and negative studies, yet they are not seen as alarmist in the same way as are advocates of environmental causation). As can be seen in Figure 6, virtually no articles gave either direct praise (three per cent) or criticism (two per cent) of activists and advocates. Some articles did imply that they were motivated more by personal experience, and to a lesser extent, by political beliefs, than by scientific research. By portraying advocates as operating on a moral rather than a scientific level, the media delegitimate them. Breast cancer activists dislike such a division between moral and scientific realms, and they put much emphasis on a combined moral, political and scientific approach (Klawiter 1999). In their more holistic approach, the personal issue of breast cancer is political and should be addressed as such, as well as through scientific means. The most common media portrayal of women with breast cancer was not as activists or social critics, but rather was in terms of a human interest or personal coping element, occurring in 41 per cent of articles.

Given the strong social movement around breast cancer, accurate media portrayal of breast cancer would include mention of these activists. This is in fact not true for most media types. Environmental causation articles in newspapers have the most mention of activists and breast cancer organisations. While newspapers appraised activists slightly more positively than negatively, the majority of the time activists were discussed neutrally.
Scientific magazines were limited to mentioning breast cancer organisations and never mentioned activists in environmental causation articles. The most striking result concerns newsweeklies (see Figure 6). Twenty per cent of environmental causation articles in newsweeklies mentioned activists, all in a negative light. Women’s magazines articles that talked about environmental causation only mentioned breast cancer organisations and activists 21 per cent of the time. There was one article, ‘Women aren’t just scared, we’re mad’ in McCall’s in 1991 which was focused on activism. In slightly more than half of all articles the appraisal was neutral, and in the other half the assessment was split between being positive and negative. This continued lack of support of a politicisation of environmental causation of breast cancer is not surprising, considering the previous results regarding attribution of responsibility.

Discussion and conclusions

This study revealed little coverage of breast cancer in the print media, and among that coverage, discussion of environmental causation was a very minor element. Individual responsibility for diet, age at birth of first child, and other personal characteristics and behaviours was far more prevalent than any attention to chemicals and other carcinogens. Additionally, coverage of corporate and governmental responsibility was very limited.

These results show a disjuncture between media reportage and the existing situation. The contrast between the treatment both in the scientific community and in the media of environmental factors and diet is interesting. The media and the scientific community have given a great deal of attention
to possible dietary factors in breast cancer, despite lack of any coherent evidence from all the studies in this area. One might consider the scientific evidence about diet to be roughly similar to the evidence about environmental factors, yet diet has been a well-funded and high-profile area of research. We believe this is because, as in most health issues, it is easier to press individual responsibility than corporate and/or governmental responsibility. In this way, we see how individual responsibility, lifestyle, and genetics constitute the DEP of breast cancer. Genetic causation is also frequently presented, despite its low level of explanation of breast cancer. Despite much scientific attention to environmental causation, especially environmental oestrogens, and despite much social activism in this area, the print media have not paid much attention to environmental causation of breast cancer. Even in the absence of scientific support, the amount of public support and research funding has increased. The media, however, do not reflect this. Given their power to define social facts and perceptions, this lack of attention can be harmful to scientific and activist pursuit of connections between environmental contaminants and breast cancer.

Women’s magazines play a particular role in communicating information to women about many diseases, including breast cancer. It is apparent that these publications are not translating information about environmental causation of breast cancer to women proportionally to the discussion that is taking place in the scientific and activist communities. Lay people’s involvement in the scientific process is also not translated through women’s magazines, even though citizen/science alliances, with their innovative approaches to scientific study, have been increasing their attention to environmental causation.

Women’s magazines may lean away from this more scientific context because they are generally more interested in suggesting what is considered to be socially acceptable individual ways of dealing with personal issues. As Berns (1999) suggests, women’s magazines often marginalise feminist and sociological explanations, and are more likely to be focused on an individual framework. Berns gives an example of how an article addressing a problem child would be much less likely to say that mothers should organise with the Parent/Teacher Association to address larger issues affecting their children than it would be to promote new ways for the mother to help her child at home. This plays into the dominant view that considers responsibility for health and wellbeing to lay within the mother’s control and not on the shoulders of other possible entities or individuals. In this way, environmental causation of breast cancer in the media is confined by the dominant epidemiological paradigm as well as by other social norms underlying gender roles.

Media portrayals of breast cancer are important to activists and advocates, who fear that widespread emphasis on individual responsibility and genetic determinism will make it harder to search for environmental causation. One alternative, survivor/activist-driven research on environmental causation, is
witnessed in the creation of Silent Spring Institute. Silent Spring Institute takes its work to the public in a variety of ways. They hold public meetings on breast cancer and the environment, where they present a perspective that challenges traditional, cautious approaches to environmental causation. At forums planned by the Massachusetts Breast Cancer Coalition and other partners in the Precautionary Principle Project, Silent Spring Institute researchers also discuss the connections between their research and the need for greater awareness and action guided by the precautionary principle. These forums educate lay people, government representatives and staff, and scientists about the precautionary principle, including its relationship to other issues in addition to breast cancer. The precautionary principle, upon which much European environmental policy and international environmental protocols are based, holds that we should take measures to protect public health and the environment, even in the absence of clear, scientific evidence of harm. Hence, chemicals should be avoided if there is reason to assume they are dangerous, even before full-scale epidemiological and toxicological study (Raffensperger and Tickner 1999). The Precautionary Principle Project also approaches many college, community, environmental, and health groups to offer individually tailored workshops on their work. This effort is notable for two reasons. In addition to public outreach and education, Silent Spring also works to develop scientific methods that support precautionary policies. First, it demonstrates a broader approach to environmental health. Secondly, it involves a social movement approach, where Silent Spring Institute does public organizing to spread its message.

Silent Spring Institute’s work also challenges the DEP presented in the print media. They are particularly interested in the historical record of advertisements for beauty products in women’s magazines. In reviewing 8,000 magazine advertisements featuring women’s personal care products from 1950 through 1994 that might affect women’s risk of breast cancer or other health problems, researchers found that endocrine disruptors and other controversial compounds in many everyday personal care products have been marketed in popular women’s magazines. There was prolonged advertising of two chemical ingredients that were later restricted because of their health effects – the antibacterial hexachlorophene (in deodorant products) and ammoniated mercury (in skin bleaching creams) (Maxwell 2000).

If we combine this Silent Spring Institute media research with our own and others’ findings on the media portrayal of breast cancer, we find that the sources where we might expect to find a supportive stance toward potential environmental causation are often not doing so. The barriers to covering environmental causes of, and societal responsibility for, breast cancer are understandable in light of the dominant epidemiological paradigm. The cautious and anti-environmental causation approach of any actors in government, science, media, and other private sector organisations and institutions combine to make a potent perspective. Media sources are both a part of the apparatus of this dominant epidemiological paradigm,
and a reflection of it. Media sources help shape the general reluctance concerning environmental causation, and the more they do so, the more they can only write from that perspective.

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Notes

1. While Our Stolen Future deals primarily with reproductive effects of endocrine disrupters, many breast cancer activists have found its message to be important in developing hypotheses about the role of xenoestrogens in breast cancer.
2. In the interest of space, we do not present a capsule of the manifold actions of the breast cancer movement. This is the subject of another article in progress, and can also be found in Kasper and Ferguson (2000).

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