What is newsworthy? Longitudinal study of the reporting of medical research in two British newspapers

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Abstract

Objective To assess the characteristics of medical research that is press released by general medical journals and reported in newspapers.
Design Longitudinal study.
Data sources All original research articles published in *Lancet* and *BMJ* during 1999 and 2000.
Main outcome measures Inclusion of articles in *Lancet* or *BMJ* press releases, and reporting of articles in *Times* or *Sun* newspapers.
Results Of 1193 original research articles, 517 (43%) were highlighted in a press release and 81 (7%) were reported in one or both newspapers. All articles covered in newspapers had been press released. The probability of inclusion in press releases was similar for observational studies and randomised controlled trials, but trials were less likely to be covered in the newspapers (odds ratio 0.15 (95% confidence interval 0.06 to 0.37)). Good news and bad news were equally likely to be press released, but bad news was more likely to be reported in newspapers (1.74 (1.07 to 2.83)). Studies of women's health, reproduction, and cancer were more likely to be press released and covered in newspapers. Studies from industrialised countries other than Britain were less likely to be reported in newspapers (0.51 (0.31 to 0.82)), and no studies from developing countries were covered.
Conclusions Characteristics of articles were more strongly associated with selection for reporting in newspapers than with selection for inclusion in press releases, although each stage influenced the reporting process. Newspapers underreported randomised trials, emphasised bad news from observational studies, and ignored research from developing countries.

Introduction

Newspapers are an important source of information about the results of medical research, both for lay people and health professionals. Health related articles in newspapers may influence policy makers, consumers of health services, and the population in general and may therefore affect provision and use of health services and health related behaviours.[1] Newspapers' reporting of health issues has been criticised for attributing too much certainty to research findings, for premature representation of findings as breakthroughs, and for being alarmist, incomplete, or inaccurate.[2–4] Qualitative research has described how journalists seek health stories that will seize readers' attention and how they tend to present issues using straightforward, stereotyped themes, sometimes contradicting earlier reports about the same issue.[5]

Little attention has been paid to quantifying the degree to which factors such as study design, type of disease, and nature of the population are associated with which research papers are reported in newspapers irrespective of the quality of reporting. We focused on two stages on the path to newspaper coverage—firstly, the selection by general medical journal editors of articles to be included in press releases, and, secondly, the selection of newsworthy articles by journalists. The two leading general medical journals in Britain, the *Lancet* and the *BMJ*, issue weekly press releases that give details of a limited number of articles in the forthcoming issue.[6] Details are embargoed until Thursday night, which means that stories based on these articles tend to appear in the Friday or Saturday editions of newspapers. We conducted a longitudinal study of articles published in the *Lancet* and *BMJ* over two years to identify characteristics of articles that were associated with inclusion in press releases and with subsequent reporting in two British newspapers, one broadsheet and one tabloid.

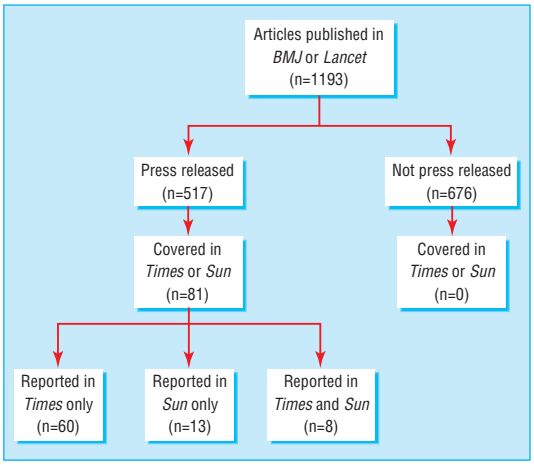
Methods

We searched all issues of the *Lancet* and *BMJ* for 1999 and 2000 and, based on titles and abstracts, recorded the characteristics of original research articles. We excluded editorials, commentaries, articles for debate and education, narrative reviews, letters, and case reports. Using a standardised data sheet, we recorded the study design, study location, population type, and topic of each article (an article could be assigned to more than one topic). We classified study designs as randomised controlled trials, systematic reviews, observational studies (defined as prospective or retrospective cohort studies, cross sectional studies, case-control studies, or ecological studies), or other designs (such as audits of services, analyses of routine data, and qualitative or methodological research). We also recorded whether the research was led from the United Kingdom or another industrialised country or pertained to a developing country. We classified each article—as "good news," "bad news," or "neutral"

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BMJ 2002;325:81–4

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Flow of original research articles published in the *BMJ* and *Lancet* in 1999 and 2000 through selection for press release and selection for coverage in the *Times* or *Sun*

according to the tendency of its conclusions—blind to whether the article was subsequently press released or reported in a newspaper. For example, we classified the finding that jogging is associated with a beneficial effect on mortality[7] as good news, the observation that infants who sleep with their parents on a sofa are at increased risk of sudden death[8] as bad news, and the finding that severe life events around conception reduce the proportion of males among the offspring[9] as neutral. One of us (CB) performed the data extraction and classification, with checks made by the other two authors.

We then recorded which articles had been mentioned in the press releases issued by the *Lancet* and *BMJ* in the relevant week. We obtained press releases from the journal's press office (*Lancet*) or its website (*BMJ*). We searched the Friday and Saturday editions of the *Times* and *Sun* for 1999 and 2000 by hand, identifying newspaper reports relating to *Lancet* and *BMJ* articles. The manual search was cross checked by a CD Rom search. We recorded the headline and length of these reports.

Statistical analysis

We used logistic regression to analyse the characteristics of studies associated with the issuing of press releases by the two journals and with reporting in the two newspapers. Results are presented as odds ratios and 95% confidence intervals. We used multinomial logistic regression with a four level outcome (not reported, reported in *Times*, reported in *Sun*, reported in both) to assess whether characteristics of articles affected the probability of reporting differently for the two newspapers. All analyses were done in Stata version 7.0 (Stata Corporation, College Station, USA).

Results

In total 1193 eligible articles (605 in the *Lancet*, 588 in the *BMJ*) were published during the study period; 517 (275 in *Lancet*, 242 in *BMJ*) were highlighted in a press release, and 89 newspaper reports (68 in *Times*, 21 in *Sun*) were based on these articles. Eight journal articles were covered in both newspapers. Thus, a total of 81 articles (7%) received newspaper coverage (figure). All of these articles had been press released, and most (75) were presented as a full story rather than as a short report (one or two paragraphs). Most of the stories in the *Times* (43 (63%)) were attributed to the medical correspondent, whereas in the *Sun* this was the case for only five stories (24%). Headlines in both newspapers tended towards an emphasis on entertainment value rather than on importance to public health (see box for examples).

The factors associated with an article being press released were similar for the two journals, except that articles with a focus on elderly people were less likely to be press released by the *BMJ* (odds ratio 0.61 (95% confidence interval 0.25 to 1.52)) and more likely to be press released by the *Lancet* (2.71 (0.93 to 7.92)). Factors associated with reporting of articles were similar for the two newspapers, with the exception of study design. Compared with observational studies, the odds ratios for reporting of randomised trials were 0.11 (0.03 to 0.35) in the *Times* and 0.32 (0.09 to 1.11) in the *Sun*. Combined results (press releasing by either journal and reporting by either newspaper) are presented in the rest of the paper.

Journal articles reporting randomised controlled trials and observational studies were more likely to be press released (see table), but randomised trials were substantially less likely to be covered in the newspapers (odds ratio 0.15 (0.06 to 0.37)). Good news and bad news were equally likely to be released to the press, but bad news was more likely to appear in the newspapers. Certain topics associated with being press released were also associated with subsequent newspaper coverage: articles with a focus on women's health,

Examples of headlines of newspaper articles reporting research published in *Lancet* or *BMJ*

Times

- Classes make children sick
- Breasts will lure men to think of own cancer risk
- Doctors find new cause for grumbling appendix
- Women's lung cancer an epidemic
- Camelford spill damaged brains, says doctor
- Breast milk curbs asthma
- Fighting spirit not enough to beat cancer
- Breast screening a waste of time
- Having a baby has never been easier
- Jogging is just the tonic for a long and sexy life

Sun

- Your hormones can stop you going gaga as you get older, say researchers
- Just keep taking the pill: docs tell women there are no long-term risks
- One footie in the grave – thrilling matches can kill, say docs
- Size cuts chances of baby
- It's all bite on the night
- The Nitty Professor: expert Ian's tips on nit-picking
- New help with the monthly miseries
- Teen mums get Pill, but are too daft to take it: they forget advice by docs
- Frisky men and women who engage in risky sex could be suffering psychiatric problems
- Earlier checks 'can KO breast cancer'

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Factors associated with the issuing of press releases of original research published in the *Lancet* or *BMJ* and factors associated with reporting in the *Times* or *Sun*

Factor	No of research articles published (n=1193)	Press released (n=517)		Reported in *Times* or *Sun* (n=81)	
		No (%) of articles	Odds ratio (95% CI)	No (%) of articles	Odds ratio (95% CI)
Study design:					
Observational study*	444	219 (49)	1.0 (reference)	47 (11)	1.0 (reference)
Randomised trial	295	133 (45)	0.84 (0.63 to 1.13)	5 (2)	0.15 (0.06 to 0.37)
Systematic review	70	25 (36)	0.57 (0.34 to 0.96)	4 (6)	0.51 (0.18 to 1.47)
Other	384	139 (36)	0.59 (0.45 to 0.78)	25 (7)	0.59 (0.35 to 0.98)
Nature of results:					
Good news	533	237 (44)	1.0 (reference)	30 (6)	1.0 (reference)
Bad news	447	217 (49)	1.18 (0.92 to 1.52)	42 (9)	1.74 (1.07 to 2.83)
Neutral	213	63 (30)	0.52 (0.37 to 0.74)	9 (4)	0.74 (0.34 to 1.58)
Focus on†:					
Women's health	144	93 (65)	2.69 (1.84 to 3.94)	25 (17)	3.73 (2.14 to 6.32)
Babies or children	163	82 (50)	1.38 (0.98 to 1.96)	13 (8)	1.23 (0.61 to 2.31)
Men's health	36	19 (53)	1.49 (0.72 to 3.06)	4 (11)	1.75 (0.44 to 5.13)
Elderly people	39	18 (46)	1.13 (0.56 to 2.24)	0	Not defined
Cancer patients	105	55 (52)	1.49 (0.98 to 2.27)	19 (18)	3.66 (1.97 to 6.53)
Heart patients	172	70 (41)	0.88 (0.62 to 1.24)	8 (5)	0.63 (0.26 to 1.35)
Diabetes patients	27	6 (22)	0.37 (0.12 to 0.95)	1 (4)	0.52 (0.01 to 3.27)
Reproduction	84	54 (64)	1.85 (1.19 to 2.91)	13 (15)	2.43 (1.18 to 4.68)
Mental health	73	40 (55)	1.63 (0.99 to 2.71)	5 (7)	1.01 (0.31 to 2.58)
Study location:					
United Kingdom	554	249 (45)	1.0 (reference)	54 (10)	1.0 (reference)
Other industrialised	518	216 (42)	0.88 (0.69 to 1.12)	27 (5)	0.51 (0.31 to 0.82)
Developing country	121	52 (43)	0.92 (0.62 to 1.37)	0	Not defined

*Cohort, cross sectional, case-control, or ecological study.
†Reference groups: all other studies.

reproduction, and cancer were more likely to be press released and reported in newspapers, but associations were stronger for newspaper coverage than for issuing press releases. Research findings relating to babies and children and mental health were more likely to be press released but were not more likely to be reported. Research with a focus on elderly people was proportionately represented in press releases but ignored by the newspapers. There was little evidence of an association of press releases with study location, but studies from the United Kingdom were more likely to be reported in the two newspapers than studies from other industrialised countries or developing countries. Of 121 research reports that pertained to developing countries, 52 were press released, but none was reported in a newspaper article.

Discussion

We examined two key stages on the path from the reporting of studies in medical journals to the coverage of findings in newspapers—selection by medical editors of studies for press releases and choice of stories by journalists. Selection processes acted at both stages but not always in the same direction. For example, studies relating to women's health and reproduction were overrepresented in press releases, and journalists increased the emphasis on these topics. On the other hand randomised trials, which represent the gold standard for evaluation of medical interventions, were underreported in newspapers despite their being more likely to be included in press releases. Observational studies, which are more prone to bias than randomised trials, were more likely to be included both in press releases and in newspaper reports.

Journalists also showed a marked preference with regard to the direction of results. Good news and bad news were equally likely to be press released, but the newspapers tended to report the bad news. Thus, newspapers reported the finding that the risk of acute myeloid leukaemia is increased in cockpit crews[10] and that childhood acute lymphoblastic leukaemia is linked to a chromosome translocation event in utero,[11] whereas they ignored a reassuring study (also press released) that failed to show an association between exposure to ultrasound during pregnancy and lymphatic or myeloid childhood leukaemia.[12] Finally, the reporting in newspapers was parochial: studies from industrialised countries other than Britain were only half as likely to be covered, and research relevant to developing countries was ignored.

Our analysis was based on a large, well defined series of research articles from a period of two years that were candidates for inclusion in press releases and coverage in newspapers, which is an important strength of our study. Previous work has been largely non-quantitative and has been based on case studies[3 13] or samples of newspaper reports and corresponding journal articles.[4 6 14]

Limitations of study

We covered two newspapers from the same publishing group (News International), and our results may not be applicable to other newspapers in Britain and elsewhere. The two newspapers do, however, represent two extremes of the newspaper market, they have high circulations, and we did not find evidence of any common political agenda in the presentation of stories. Interestingly, and perhaps surprisingly, we found little difference between the two newspapers in the factors predicting coverage, although this result should be interpreted with caution as the number of newspaper reports was small and our study lacked the power to exclude small differences between the two newspapers.

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What is already known on this topic

Newspapers are an important source of information about the results of medical research

There are two stages on the path to newspaper coverage—selection by medical journal editors of articles to be press released and the selection of newsworthy articles by journalists

What this study adds

Examination of press releasing by the *Lancet* and *BMJ* and reporting by the *Times* and *Sun* showed that selection processes acted at both stages

The net effect meant that newspapers emphasised results from observational studies, in particular studies of women's health, reproduction, and cancer

Good news and bad news were equally likely to be press released, but bad news was more likely to be reported in newspaper articles

Certain research groups and charities produce their own press releases, independent of medical journals, but we were not able to include these in our study. Nor were we able to examine other factors, such as the attitudes of the people making the selection or the current topicality of particular health issues. The quality of newspaper reports was not the focus of our study, and we did not perform a formal quality assessment of the newspaper reports, such as with the Oxman index.[2] Finally, we examined only two medical journals, but the *Lancet* and *BMJ* are known to be frequently consulted by journalists from all over the world.[15]

Implications of results

An editorial in the *New England Journal of Medicine* recently criticised the issuing of press releases as inherently self interested and argued that reporters should make their own decision about what is important to their readers.[16] We confirmed the results of earlier studies[6 14] that most health research stories that appear in newspapers are based on journal press releases. Our focus on newspaper reports that appeared in Friday and Saturday issues of the same week may explain why we did not find any report that was not based on a press released journal article. Our study was designed to gauge what was considered immediately newsworthy and worthy of rapid reporting.

We found that the selective process introduced by newspaper journalists was stronger than that operating in the issuing of press releases. Press releases might have been compiled, to some extent, in anticipation of popular tastes. We are concerned that many aspects of medical research are not well represented in newspapers. Randomised trials provide the strongest evidence in many situations, but are seldom regarded as newsworthy by journalists. Newspapers have a role to play in health care—for example, by explaining the importance of evidence from randomised controlled trials, dispelling the misconceptions and confusion that surround the concepts of randomisation and equipoise,[17–19] and reporting both good and bad news and research that is relevant to international health. However, newspapers operate in fierce competition with each other. As Jeremy Laurance, health editor of the *Independent*, pointed out, the first rule of journalism is that what is published must be read.[20] A report on any menace to daily life in Britain from observational research will be easier to relate to readers' personal experiences than a more convincing finding that a particular drug improves cure rates for a particular disease.

We consider the findings of our study newsworthy and invite the editors of the *Times* and the *Sun*, and indeed other journalists, to report them and give the implications due consideration.

We thank News International, the Bodleian Library in Oxford, Richard Lane from the *Lancet*'s press office, Tess Moore, Cameron Dunn, Jacky Tonkin, and Nicola Low for help with this study. We also thank Tony Delamothe and Richard Smith for helpful comments on the poster presentation of this work at the Fourth Peer Review Congress in September 2001 in Barcelona. We thank Vikki Entwistle for helpful referee comments. The Department of Social Medicine of the University of Bristol is the lead centre of the MRC Health Services Research Collaboration.

Contributors: All authors contributed to the conception and design of the study. CB did the searches and extracted the data, JS and ME performed statistical analyses, and ME wrote the first draft. All authors were involved in the writing of the final draft. ME is guarantor for the study.

Competing interests: None declared.

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(Accepted 18 April 2002)

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