

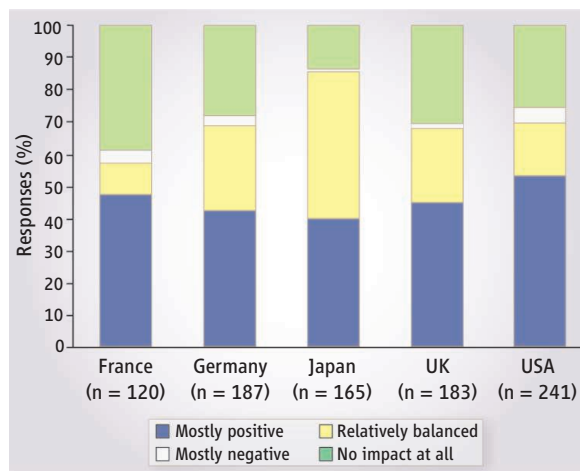
Interactions with the Mass Media

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Previous research, as well as anecdotal evidence among researchers and journalists, often leads to perceptions of “barriers” to a more active involvement of scientists in public communication [e.g. (1–3)] or of a “gap” between science and journalism (4) or to areas of potential conflict between the two professions (5, 6). Recently, researchers have begun to recognize the symbiotic character of many scientist-journalist interactions (7). Nonetheless, negative experiences with the media still dominate peer communication about science-media relations. On the basis of extensive survey data, we now challenge several of the negative impressions of science-media interactions that are still all too common.

Although surveys of scientists’ interactions with the media have been conducted in several countries [e.g. (1, 4, 6)], little empirical research has compared scientists’ public communication attitudes and activities across countries in a rigorous way. One might expect cross-cultural differences in the science-media interface for several reasons, among them possible differential benefits of public visibility because of variance in competitive research funding environments, differences in the nature of professionalism in science journalism or science public relations, or cultural differences in public acceptance of science and technology across countries.

Our analysis was based on a mail survey in 2005–06 of 1354 researchers in the United States ($n = 358$), Japan ($n = 239$), Germany ($n = 283$), United Kingdom ($n = 281$), and France ($n = 193$), the top countries for research and development (R&D) at the time of the study. Averaged across countries, the response rate was 43%; the sampling bias is unlikely to invalidate our main findings [for details, see (8)]. We used two research



Perceived impact of media contacts on career by country. Distribution of answers to the question: “Consider the totality of your media contacts over your career. How great has their positive or negative impact been on you professionally?” Only respondents reporting media contact(s) in the past 3 years are included in the graph. See table S4 for a breakdown of responses by country and research field.

fields—epidemiology and stem cell research—as case studies. The sample comprises 648 epidemiologists and 706 stem cell researchers who had published during 2002–04 in peer-reviewed journals. With few exceptions, the results for the two research fields studied were quite similar. We, therefore, present aggregated research field results here and focus on cross-country comparisons. The supporting material (8) will provide the reader with breakdowns by field.

Across the countries under study, scientist-journalist interactions were not the province of a small set of scientists but, rather, were more common than anticipated (fig. S1A). Of the respondents, 30% said they had been engaged in more than five media contacts in the past 3 years, and another 39% reported one to five contacts. In all countries, epidemiologists had more contact with journalists than stem cell researchers, but there were no significant differences across countries (table S2). The primary type of media contact was the media interview; nearly two-thirds of the respondents (64%) said that they have been interviewed by journalists at least once in the past 3 years (fig. S1B). Frequency of contact with journalists was clearly associated with leadership functions and research productivity; a scientist’s personal attitude was also a

A survey reveals that media contacts of scientists in top R&D countries are more frequent and smooth than was previously thought.

factor but was relatively less important (fig. S2). The amount of contact, as well as its association with leadership role, research productivity, and personal attitude, formed a pattern that is quite similar across countries (tables S2 and S5).

We posed 16 motives, both positive and negative, that could influence scientists’ willingness to interact with journalists and asked respondents to rate the importance of each factor to themselves personally. Despite some differences regarding the perception of risks and benefits across countries, three main findings emerged (table S8).

Increasing the public’s appreciation of science was the most important benefit mentioned by scientists as an incen-

tive to interact with the media. More than 9 in 10 respondents (93%) indicated that achieving “a more positive public attitude toward research” was an important motivator; about as many (92%) similarly identified “a better-educated general public.”

In interactions with the media, many scientists indicated they felt uncertain and perceived a lack of control. Nine in 10 respondents identified the “risk of incorrect quotation” in stories as an important disincentive, and 8 in 10 felt that the “unpredictability of journalists” was also a problem.

Norms of the scientific community committing researchers to strong peer orientation and highly precise information (delivered in a formal, impersonal style) have historically been regarded as major deterrents to scientists’ interactions with journalists (3). However, those norms seem to be playing a more nuanced role today as only 34% of our sample identified “incompatibility with the scientific culture” as an important concern. Furthermore, the impact of scientific norms seemed to be perceived inconsistently (table S10). Although “possible critical reactions from peers” were considered important concerns for 42% of the respondents, a similar proportion (39%) found “enhanced personal reputation among peers” to be an important outcome of media contacts.

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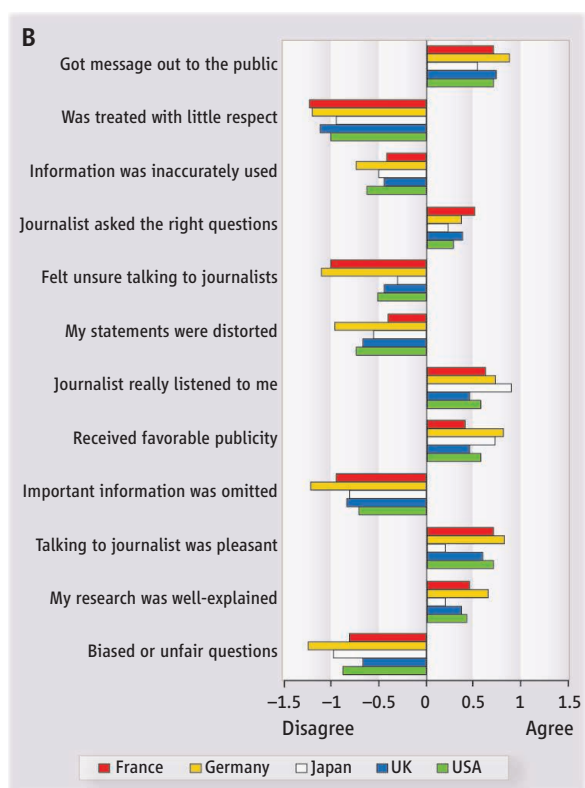
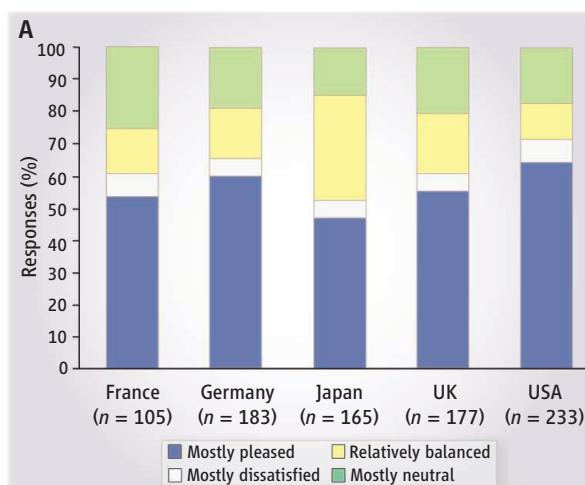
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In all five countries, a plurality of scientists who had contact with the media in the past 3 years rated the impact of those contacts on their careers positively (see chart, page 204). Overall, 46% of the respondents perceived a “mostly positive” impact, whereas only 3% reflected a “mostly negative” impact. Nearly one in five felt that the positive and negative impacts balanced each other (table S4). By cross-tabulating, we were able to check that, with one exception, concerns and perceived benefits were not significantly correlated with scientist’s management roles and number of publications. The one exception was that for researchers with lower rank (no management position, few publications) “possible critical reactions from the heads of department or organization” were somewhat more important than for researchers with higher rank [gamma test of strength of associations, $\gamma = 0.23$ and 0.29 , respectively]. This is not at all surprising.

While respondents were certainly critical of journalists (see above), they assessed their personal interactions with journalism quite positively. Overall, 57% of the respondents said they were “mostly pleased” about their “latest appearance in the media,” and only 6% were “mostly dissatisfied” (see chart, right, part A). When asked to evaluate their encounters with journalists over time and across a variety of characteristics, scientists in all countries agreed with positive statements about their contacts and disagreed with negative ones (see chart, right, part B).

In contrast, when assessing the quality of media coverage of scientific topics in general on four aspects (accuracy, use of credible sources, presence of a hostile tone, and comprehensiveness), scientists on average were neither clearly positive nor negative (table S9). We do not mistake scientists’ ratings of science coverage as valid evalu-

ations of its quality. Such an evaluation would have to be based on an analysis of the coverage itself and is not the subject of this paper.



Scientists’ assessment of media contacts by country. Only respondents reporting media contact(s) in the past 3 years are included in the graphs. (A) Distribution of answers to the question: “Think back to the latest occasion when you were mentioned, quoted, or interviewed by the media. [...] What was your own general response to that latest appearance in the media?” (B) Average agreement or disagreement of respondents with six positive and six negative statements about their encounters with journalists, measured on five-step answering scales ranging from -2 (“strongly disagree”) to $+2$ (“strongly agree”). The question was: “Scientists have a variety of experiences when serving as media sources. What are your typical reactions to encounters you have had with journalists in the past 3 years?” Labels in (B) are abbreviated. See table S7 for the exact item wording and for a breakdown of responses by country and research field.

Rather we take the difference between assessment of one’s own contacts and assessment of media science coverage in general as a cue that scientists apply different criteria when assessing journalistic performance with respect to coverage of their own research relative to research in general.

The data did illuminate minor country differences. Japanese researchers reported being slightly less “pleased” with their latest appearance in the media than their Western colleagues were, and researchers from the USA and Germany were slightly more “pleased” than British and French scientists (see figure this page, top). These country differences were statistically significant (table S6). Assessments of media coverage of science in general also varied modestly but significantly by country (table S9). German and French researchers rated the quality of science coverage most positively, British researchers perceived it most negatively, and U.S. and Japanese researchers took middle positions.

Our analysis shows that interactions between scientists and journalists are more frequent and smooth than previously thought. This five-country survey also suggests that the scientists most involved in these interactions tend to be scientifically productive, have leadership roles, and—although they consider concerns as well as perceived benefits—that they perceive the interactions to have more positive than negative outcomes. Despite minor variations in the assessment of media contacts across the five countries, the basic patterns are surprisingly similar. The functional necessity of public science communication may be a global phenomenon in democratic knowledge societies.

References and Notes

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Supporting Online Material

www.sciencemag.org/cgi/content/full/321/5886/204/DC1