

Survey of active verbs in the titles of clinical trial reports

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BMJ 2000;320:914-5

The title of the report of a clinical trial can be indicative (such as "Newbetalol in the treatment of tachycardias") or informative ("Newbetalol prevents tachycardias").¹ Rosner believes informative titles are "improper and imprudent" and a symptom of "science as product."² Weiss objected to an "overly optimistic" title beginning "Improved survival ..." from a pilot study using historical controls.³ According to the popperian model, hypotheses cannot be proved but only supported or rejected, and then only to an arbitrary level of statistical significance. This makes an informative title incorrect, but rejected hypotheses live on in such titles.

I tested the validity of informative titles in clinical reports and their prevalence.

Methods and results

To see whether informative titles are valid, I searched Medline (Paperchase) for clinical trial reports published in 1996 whose titles contained the word "prevents." I searched Medline at five year intervals from 1970 to 1995, and for 1997 as the last full year, for titles containing some active verbs as markers for informative titles. Although limiting, this method of identification is more efficient than, say, examining titles at random. I grouped them as absolute verbs ("prevents," "abolishes," and "eliminates"), relative verbs ("prolongs," "reduces," "improves," "predicts," "lessens," and "weakens"), and "nounal" verbs ("increases," "decreases," and "causes"), although a quick scan of the retrieved titles showed that most occurrences in the nounal group were as verbs not nouns.

I found 24 reports in 1996 with "prevents" in their title. All were of the effect of a clinical intervention. Their abstracts showed that in at least eight of the reports the intervention did not "prevent"—for example, 14 infections in the intervention group compared with 44 in the other, and 15 fractures of the spine in the intervention group compared with 21 in the other. The concluding sentences of the retrieved abstracts were often more honest: "significantly reduces the rate of ... infections," "reduces the incidence of spine fractures." Six of the 24 studies were explicitly pilot studies or preliminary presentations. So researchers were indeed "overly optimistic," at least in their interpretation of "prevents."

No clinical trial title from 1970 contained any of the 12 verbs I searched for, but their prevalence increased over time more rapidly in the titles of clinical trials than in other types of paper (table). My search was not exhaustive, but the consistency of the findings across the three types of verb suggests a general trend. The percentage of clinical and non-clinical titles containing active verbs (all 12 verbs and the three groups of verb separately) was correlated with year. For clinical titles, occurrences of the verbs correlated with the square of the year (with 1970 as year zero): $(0.0028 \times (\text{year})^2) - (0.01 \times \text{year}) - 0.0037$. The second order term of the equation is significant ($P < 0.001$, $r^2 = 0.999$). If this relation continues, 4.4% (95% confidence interval 3.8% to 5.8%) of all clinical papers in 2010 will have one of these 12 verbs in the title. By 2070, 27.6% (23.5% to 36.1%) will do so.

Comment

I do not know why informative titles are becoming more popular. It may be unconscious mimicking, or maybe researchers, sponsors of trials, or journal editors prefer them. We live in a "soundbite" society, and there is evidence that doctors sometimes make clinical decisions from the titles of journal articles.⁴

There may be arguments for reviews and editorials carrying informative titles, but what Rosner termed "assertive sentence titles"² have little place in the reporting of research. They are indeed "improper and imprudent," and too often plain wrong. Readers should have to look beyond the title for the conclusion of a clinical trial.

Competing interests: None declared.

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(Accepted 26 November 1999)

Summary

An indicative title gives the purpose of a study; an informative title gives the conclusion. Informative titles usually contain an active verb. Titles including the

Results of Medline search for 12 active verbs in titles of clinical trials and other papers. Verbs grouped as absolute, relative, or nounal (see text for details)

| Year of publication | Total No of papers | No (%) of papers that are clinical trials | No (%) of clinical trials with active verb in title | | | | No (%) of non-clinical trials with active verb in title |
|---------------------|--------------------|-------------------------------------------|-----------------------------------------------------|---------------|-------------|------------|---------------------------------------------------------|
| | | | Absolute verb | Relative verb | Nounal verb | All verbs | |
| 1970 | 216 457 | 2 033 (0.94) | 0 | 0 | 0 | 0.00 | 311 (0.15) |
| 1975 | 265 040 | 3 701 (1.40) | 0 | 1 (0.03) | 0 | 1 (0.03) | 410 (0.16) |
| 1980 | 308 314 | 4 251 (1.38) | 0 | 3 (0.07) | 5 (0.12) | 8 (0.19) | 771 (0.25) |
| 1985 | 318 473 | 6 740 (2.12) | 3 (0.04) | 22 (0.33) | 11 (0.16) | 36 (0.53) | 1173 (0.38) |
| 1990 | 399 121 | 11 983 (3.00) | 18 (0.15) | 56 (0.47) | 42 (0.35) | 116 (0.97) | 2188 (0.57) |
| 1995 | 427 616 | 20 632 (4.82) | 23 (0.11) | 172 (0.83) | 116 (0.56) | 311 (1.51) | 3153 (0.77) |
| 1997 | 426 014 | 20 381 (4.78) | 26 (0.13) | 225 (1.10) | 125 (0.61) | 376 (1.84) | 3645 (0.90) |

active verb “prevents” are often not an accurate description of the findings of clinical studies. A Medline search on 12 active verbs in titles showed that informative titles are becoming more common. There was a post hoc relation between occurrence of searched active verbs and year: the percentage is increasing with the square of the year, such that 4.5%

(95%CI: 3.8%-5.8%) of all titles of clinical reports published in the year 2010 will contain one. There may be arguments for reviews and editorials carrying informative titles, but they are too often wrong to have any place in the reporting of research. Journals should ask for indicative titles, or alter investigators’ informative titles during sub-editing.

Informative titles in the BMJ

Richard Smith

I have failed to find any solid evidence on the readability of declarative titles including active verbs. But journalists, who know a thing or two about getting people to read what they write, believe strongly in the use of declarative titles and the inclusion of active verbs. “Freddie Starr ate my hamster” is one of the great titles of our time. “Freddie Starr and my hamster: a personal account” would have long been forgotten. (Thanks to Tim Albert, who runs courses on medical writing, for this example.)

We at the *BMJ* are poised, sometimes uncomfortably, between academia and journalism. As true popperians, we support Neville Goodman’s doubts about declarative titles, and we avoid them in original studies. We aim, however, always to use a declarative title in what we call TWIBs (the paragraph at the front of the *BMJ* headed “This week in the *BMJ*”), and for many years our news stories have always had titles that include active verbs. It may not be coincidence that the

pages that use declarative titles with active verbs are better read than the pages that don’t.

We try to cater for both practitioners and researchers. Practitioners, we know, have limited time and want “take home messages.” The *BMJ* is thus designed that most of the messages it contains can be extracted within 15 minutes—with subheadings in editorials, TWIBs, active verbs in news stories, boxes on what original studies add, summary boxes in review articles, and declarative titles in all letters.

For now, we do not plan to introduce declarative titles to original studies, but we might. The journal *Evidence Based Medicine* uses them, whereas its older sister, *ACP Journal Club*, does not. The trend is undoubtedly for journals to become more like newspapers and for newspapers to become more tabloid. It’s about readability and trying to grab people’s attention in an ever more crowded world.

BMJ
Richard Smith
editor

A memorable patient Not wanted anywhere

Mr A, a 37 year old man with learning disability, autism, epilepsy, diabetes mellitus, and manic depressive illness, was admitted from home to an acute admission unit for assessment and treatment when his mental state deteriorated. At the end of the episode of treatment it became clear that his elderly mother could no longer care for him at home. He was therefore discharged to an independent care home in the Black Country, though the health authority and the social services department of the district of his origin paid for his care package. His care was handed over to the psychiatrist and community learning disability team of the host district. As the staff of the nursing home could not meet his needs, he was admitted several times to the admissions unit of the host district. Each admission led to heated discussions between the health purchasers of the two districts about who should pay for Mr A’s care. During an episode of depression, Mr A fell and sustained a fracture of his femur, resulting in his admission to the orthopaedic ward in the local district general hospital. When I visited Mr A, a delegation of patients and their relatives greeted me and demanded that he should be taken away at once as he was “mental,” “disturbing the other patients,” and had “no right to be here.”

His placement in the care home was clearly untenable, but the owners were reluctant to admit this for fear of losing funding. Meanwhile, he could not return to his mother’s home, as she could not look after him. While he was in his orthopaedic bed she had a difficult journey every day to see him. Under these circumstances I felt compelled to transfer him to the admission unit to “have his mental state stabilised” again.

I thought that I was being told that I was stigmatising Mr A by “medicalising” his needs and should have let his general practitioner look after him. Members of the public were not really welcoming and wanted him taken away from the general hospital. While the two purchasers argued about who was responsible for him, I had no option but to take him back into the admissions unit. The new NHS—“modern and dependable”—is supposed to provide Mr A with a seamless service. As a learning disability psychiatrist, I could manage his epilepsy, manic depressive illness, and autism. I also had to act as his advocate with other medical professionals so that he would be treated as a human being. However, certain professionals do not welcome my involvement in this. Our general adult psychiatric colleagues believe that more public funds are spent on people with learning disabilities than the general population with mental illnesses. I wholeheartedly support increased spending on health so that everyone’s health needs are better met. But this should not be at the expense of a vulnerable group of people who cannot act for themselves.

Meera Roy *learning disability psychiatrist, West Midlands*

We welcome articles of up to 600 words on topics such as *A memorable patient*, *A paper that changed my practice*, *My most unfortunate mistake*, or any other piece conveying instruction, pathos, or humour. If possible the article should be supplied on a disk. Permission is needed from the patient or a relative if an identifiable patient is referred to.