



De journalistieke toets der kritiek

- *Meer ongelukken bij mooi weer*
- *Tranen dempen mannenlust*
- *Nooit meer rood vlees*
- *Gemiste penalty kost levens*



Meer ongelukken bij mooi weer

Door onze redactie wetenschap
ROTTERDAM, 17 NOV. Bij mooi weer belanden er meer mensen op de spoedeisende hulp van het ziekenhuis dan bij slecht weer. En bij volle maan zijn het er minder dan bij nieuwe maan. Dat schrijven onderzoekers van het UMC Groningen deze week in *The Journal of Trauma*. Zij koppelden gegevens van ruim 350.000 mensen die in de afgelopen 36 jaar de Groningse eerste hulp bezochten, aan de dagelijkse gegevens van het KNMI voor het vliegveld Eelde. De onderzoekers vermoeden dat mensen bij mooi weer vaker buiten actief zijn en daarmee meer risico lopen op ongevallen. Bij volle maan zouden er 's nachts minder ongelukken gebeuren dankzij het extra licht.



De journalistieke toets

De onderzoekers
vonden 'ruim 350 000'
ongevallen in 36 jaar.
Kan dat ongeveer kloppen?

Relation of the Weather and the Lunar Cycle With the Incidence of Trauma in the Groningen Region Over a 36-Year Period

Wouter Stomp, MD, Vaclav Fidler, PhD, Henk-Jan ten Duis, MD, PhD, and Maarten W. N. Nijsten, MD, PhD

exclusion of special days. The mean number of daily admissions was 26.9 (SD 8.2) with a range of 2 to 78. The mean age

Methods: We extracted the daily number of trauma patients treated at the emergency department over 36 years (1970–2005) from the trauma database of our regional hospital. For each patient, age, sex, cause of injury, and severity of injury were recorded. This was combined with daily meteorological data including temperature, precipitation, sunshine, humidity, air pressure, and wind as well as the lunar phase. We also related the rate of change of these parameters with the incidence of injuries. A qualitative weather variable derived from temperature, sunshine duration, and precipitation was defined as bad, normal, or good. Periodicities were adjusted for with Poisson regression spline fitting analysis.

Results: Several weather variables were related with the number of injuries. For most of these, better weather conditions were associated with an increase in trauma incidence. Good weather, which was present on 16.5% of the days, resulted in 10.1% (9.3–11.4 95% CI) more traumas compared with normal weather. Full moon was associated with a 2.1% (1.1–3.0 95% CI) lower trauma incidence than new moon.

ment. For this purpose, all patients referred to our regional trauma service over a period spanning several decades were studied. We hypothesized that aside from obvious patterns related to the calendar, the quality of weather might have a significant impact on the number of trauma patients.

PATIENTS AND METHODS

Patients

The University Medical Center Groningen is situated in the northern part of the Netherlands. It is a Level I trauma center and is 1 of the 10 recognized trauma centers in the Netherlands and 1 of the 4 trauma centers that have a helicopter service available. Our catchment area covers the Northern part of the Netherlands with a population of approx-



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The wind direction had a small but significant influence with a lower trauma incidence with an east wind. Increases in the amount and duration of precipitation, cloud coverage, and relative humidity were associated with a slight decrease in the number of patients.

Relation of the Weather and the Lunar Cycle With the Incidence of Trauma in the Groningen Region Over a 36-Year Period: Erratum

In the article that appeared on pages 1103–1108, in volume 67, number 5, the authors stated that there was a lower trauma incidence with east wind. This should have been a lower trauma incidence with west wind.

Accuracy of Data in Abstracts of Published Research Articles

Roy M. Pitkin, MD

Mary Ann Branagan

Leon F. Burmeister, PhD

THE ABSTRACT ACCOMPANYING A research article, because it is often the only part of the article that will be read, should reflect fully and accurately the work reported. We observed in 1 medical specialty journal that a quarter or more of manuscripts re-

Context The section of a research article most likely to be read is the abstract, and therefore it is particularly important that the abstract reflect the article faithfully.

Objective To assess abstracts accompanying research articles published in 6 medical journals with respect to whether data in the abstract could be verified in the article itself.

Design Analysis of simple random samples of 44 articles and their accompanying abstracts published during 1 year (July 1, 1996-June 30, 1997) in each of 5 major general medical journals (*Annals of Internal Medicine*, *BMJ*, *JAMA*, *Lancet*, and *New England Journal of Medicine*) and a consecutive sample of 44 articles published during 15 months (July 1, 1996-August 15, 1997) in the *CMAJ*.

Main Outcome Measure Abstracts were considered deficient if they contained data

Conclusions Data in the abstract that are inconsistent with or absent from the article's body are common, even in large-circulation general medical journals.

Articles studied included simple random samples of reports of original research (including meta-analyses but not other types of reviews) appearing in 5 medical journals between July 1, 1996, and June 30, 1997 (*Annals of Internal Medicine*, *BMJ*, *JAMA*, *Lancet*, and *New England Journal of Medicine*); all articles appearing in a sixth journal *CMAJ* (*Canadian Medical Association Journal*), between July 1, 1996, and August 15, 1997, were also studied. Additional inclusion criteria were (1) the article was accompanied by an abstract and (2) the article occupied at least 2 full journal pages.

To estimate the sample sizes, we used some preliminary observations¹ that 25%

of the data in the abstracts studied and that α was .05 and power was 0.8, yielding a projected sample size of 44 from each journal. From each of the 5 journals that published more than 44 research articles in the 2 volumes studied (July 1, 1996-June 30, 1997), we selected a computer-generated simple random sample of 44. From the *CMAJ*, we analyzed a consecutive cohort of all 44 articles published from July 1, 1996, through August 15, 1997.

For each selected article, the abstract was scrutinized by 1 of 3 examiners who identified each datum or other piece of information in the abstract and then sought to relate it to its source in the body of the article, including tables and figures. Two types of discrepancies were sought: (1) data given differently in the abstract and the body and (2) data given

in the abstracts as long as the rounding was done appropriately, and the rounded value appeared in the abstract and the more detailed value in the body.

The proportions of articles containing deficiencies were compared across journals by χ^2 analysis. On the basis of normal approximation, 95% confidence intervals (CIs) were calculated for each proportion. We also performed a validation study by randomly selecting (using another computer-generated random number sequence) 7 of each set of 44 articles and having these examined by a second (and different) examiner.

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For editorial comment see p 1129.

Misrepresentation of Randomized Controlled Trials in Press Releases and News Coverage: A Cohort Study

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Abstract

Background: Previous studies indicate that in published reports, trial results can be distorted by the use of “spin” (specific reporting strategies, intentional or unintentional, emphasizing the beneficial effect of the experimental treatment). We aimed to (1) evaluate the presence of “spin” in press releases and associated media coverage; and (2) evaluate whether findings of randomized controlled trials (RCTs) based on press releases and media coverage are misinterpreted.

Methods and Findings: We systematically searched for all press releases indexed in the EurekaAlert! database between December 2009 and March 2010. Of the 498 press releases retrieved and screened, we included press releases for all two-arm, parallel-group RCTs ($n=70$). We obtained a copy of the scientific article to which the press release related and we systematically searched for related news items using Lexis Nexis. “Spin,” defined as specific reporting strategies (intentional or unintentional) emphasizing the beneficial effect of the experimental treatment, was identified in 28 (40%) scientific article abstract conclusions and in 33 (47%) press releases. From bivariate and multivariable analysis assessing the journal type, funding source, sample size, type of treatment (drug or other), results of the primary outcomes (all nonstatistically significant versus other), author of the press release, and the presence of “spin” in the abstract conclusion, the only factor associated with “spin” in the press release was “spin” in the article abstract conclusions (relative risk [RR] 5.6, [95% CI 2.8–11.1], $p<0.001$). Findings of RCTs based on press releases were overestimated for 19 (27%) reports. News items were identified for 41 RCTs; 21 (51%) were reported with “spin,” mainly the same type of “spin” as those identified in the press release and article abstract conclusion. Findings of RCTs based on the news item was overestimated for ten (24%) reports.

Conclusion: “Spin” was identified in about half of press releases and media coverage. In multivariable analysis, the main factor associated with “spin” in press releases was the presence of “spin” in the article abstract conclusion.

Please see later in the article for the Editors' Summary.

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* Isabelle Boutron is an academic editor for PLoS Medicine. She was not involved in the study design, data collection, analysis, decision to publish, or preparation of the manuscript.

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Modelliiden troost en seks

TRANEN IN EEN BAKJE remmen de mannelijke lust. Want er zitten feromonen in tranen. Dat bleek donderdag uit een artikel in *Science*. Veel wetenschappers bogen zich al over de raadselachtige mensentranen, maar seksualiteit was in dat onderzoek nooit belangrijk.

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we meestal van zeer dichtbij aan tranen blootgesteld'

NRC Handelsblad, 8 januari 2011



Human Tears Contain a Chemosignal

Shani Gelstein,^{1*} Yaara Yeshurun,^{1*} Liron Rozenkrantz,¹ Sagit Shushan,^{1,2} Idan Frumin,¹ Yehudah Roth,² Noam Sobel^{1†}

Emotional tearing is a poorly understood behavior that is considered uniquely human. In mice, tears serve as a chemosignal. We therefore hypothesized that human tears may similarly serve a chemosignaling function. We found that merely sniffing negative-emotion–related odorless tears obtained from women donors induced reductions in sexual appeal attributed by men to pictures of women’s faces. Moreover, after sniffing such tears, men experienced reduced self-rated sexual arousal, reduced physiological measures of arousal, and reduced levels of testosterone. Finally, functional magnetic resonance imaging revealed that sniffing women’s tears selectively reduced activity in brain substrates of sexual arousal in men.

Charles Darwin suggested that expressive behaviors initially served emotion-relevant functions, before evolving to serve as emotion-signals alone (1, 2). Thus, the behavior of emotional tearing, considered uniquely human

(3), is a paradox: Whereas tears clearly serve as an emotional signal (4), tears were not related to any emotionally relevant function. Despite psychological theories on the meaning of tears (5, 6) and biological theories describing tears as an adaptation related to their eye-protective nature (3) or a mechanism for expelling toxic substances (7), the functional significance of emotional tears remains unknown (8).

Tears are drops of liquid produced by the lacrimal, accessory lacrimal, and Meibomian glands, which contain proteins, enzymes, lipids, metabo-


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Science,
8 januari 2011





2.29, $P < 0.03$] (Fig. 3, E and F). Finally, and critically, levels of salivary testosterone were progressively lower after sniffing tears as compared to the baseline period [baseline testosterone = 151.96 ± 76 pg/ml, last testosterone = 132.66 ± 63.1 pg/ml, $t(49) = 3.3$, $P < 0.001$] (Fig. 3G), an effect not evident for saline [baseline testosterone = 154.8 ± 74.4 pg/ml, last testosterone = 154.34 ± 101.8 pg/ml, $t(49) = 0.81$, $P = 0.42$] (Fig. 3H). Reductions in testosterone are a significant indicator of reductions in sexual arousal in men (21).

Research article

Open Access

Incongruence between test statistics and *P* values in medical papers

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Results: 11.6% and 11.1% of the statistical results published in *Nature* and *BMJ* respectively during 2001 were incongruent, probably mostly due

BMJ, respectively. In 12% of the cases, the significance level might change one or more orders of magnitude. The frequencies of the last digit of statistics deviated from the uniform distribution and suggested digit preference in rounding and reporting.

Conclusions: This incongruence of test statistics and *P* values is another example that statistical practice is generally poor, even in the most renowned scientific journals, and that quality of papers should be more controlled and valued.

Background

Statistics is a difficult topic to teach and learn and there is ample evidence that its application is often faulty in medicine [1-6] as well as in many other scientific disciplines. Errors include aspects of design, analysis, and reporting and interpretation. Although there has recently been considerable effort to improve and standardise the reporting of medical research (e.g., the CONSORT statement for randomised controlled trials [7]), there is almost no literature demonstrating the incorrect computation or reporting of results beyond general deficiencies of computer packages [8,9] or some well-scrutinized data such as Benford's original data [10]. Beyond deficiencies of software,

such numerical errors may later originate in the transcription of results from computer outputs to reports and manuscripts, wrong rounding of results, or uncorrected typesetting errors. We investigated this question by checking the statistical results reported in all the papers of volumes 409–412 of *Nature* (2001) and some papers in vol. 322–323 of *BMJ* (2001). We show that the occurrence of errors is very high and we review ways to improve current practice.

Methods

Given an observed test statistic and its degrees of freedom (df), one may compute the observed *P* value or



**Voor
de film**

**Na
de film**

Tranen

152

133

Zout

155

154

*Gemiddelde testosteronspiegels van 50 mannen
voor en na het zien van een treurige film*



De journalistieke toets

Zou dit verschil
statistisch significant zijn?

Erroneous analyses of interactions in neuroscience: a problem of significance

Sander Nieuwenhuis^{1,2}, Birte U Forstmann³ & Eric-Jan Wagenmakers³

In theory, a comparison of two experimental effects requires a statistical test on their difference. In practice, this comparison is often based on an incorrect procedure involving two separate tests in which researchers conclude that effects differ when one effect is significant ($P < 0.05$) but the other is not ($P > 0.05$). We reviewed 513 behavioral, systems and cognitive neuroscience articles in five top-ranking journals (*Science*, *Nature*, *Nature Neuroscience*, *Neuron* and *The Journal of Neuroscience*) and found that 78 used the correct procedure and 79 used the incorrect procedure. An additional analysis suggests that incorrect analyses of interactions are even more common in cellular and molecular neuroscience. We discuss scenarios in which the erroneous procedure is particularly beguiling.

That is, as famously noted by Rosnow and Rosenthal², “surely, God loves the 0.06 nearly as much as the 0.05”. Thus, when making a comparison between two effects, researchers should report the statistical significance of their difference rather than the difference between their significance levels.

Our impression was that this error of comparing significance levels is widespread in the neuroscience literature, but until now there were no aggregate data to support this impression. We therefore examined all of the behavioral, systems and cognitive neuroscience studies published in four prestigious journals (*Nature*, *Science*, *Nature Neuroscience* and *Neuron*) in 2009 and 2010 and in every fourth issue of the 2009 and 2010 volumes of *The Journal of Neuroscience*. In 157 of these 513 articles (31%), the authors describe at least one situation in which they might be tempted to make the error. In 50% of these

(*Science*, *Nature*, *Nature Neuroscience*, *Neuron* and *The Journal of Neuroscience*) and found that 78 used the correct procedure and 79 used the incorrect procedure. An additional

ter type of statistical reasoning is erroneous because the difference between significant and not significant need not itself be statistically significant¹. Consider an extreme scenario in which training-induced activity barely reaches significance in mutant mice (for example, $P = 0.049$) and barely fails to reach significance for control mice (for example, $P = 0.051$). Despite the fact that these two P values lie on opposite sides of 0.05, one cannot conclude that the training effect for mutant mice differs statistically from that for control mice.

(consistent with the researchers' claim), either because there was an enormous difference between the two effect sizes or because the reported methodological information allowed us to determine the approximate significance level. Nonetheless, in roughly two thirds of the error cases, the error may have had serious consequences. In all of these cases, the nonsignificant difference, although smaller in size, was in the same direction as the significant difference. In addition, the methodological information did not allow us to determine the significance level of the missing interaction test. We have no way of assessing the severity of these cases. Most of the errors may not have severe implications. In some cases, however, the error may contribute substantially to the article's main conclusions.

Because of our background expertise, our main analysis focused on behavioral, systems and cognitive neuroscience. However, it is

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Published online 26 August 2011; doi:10.1038/nn.2886

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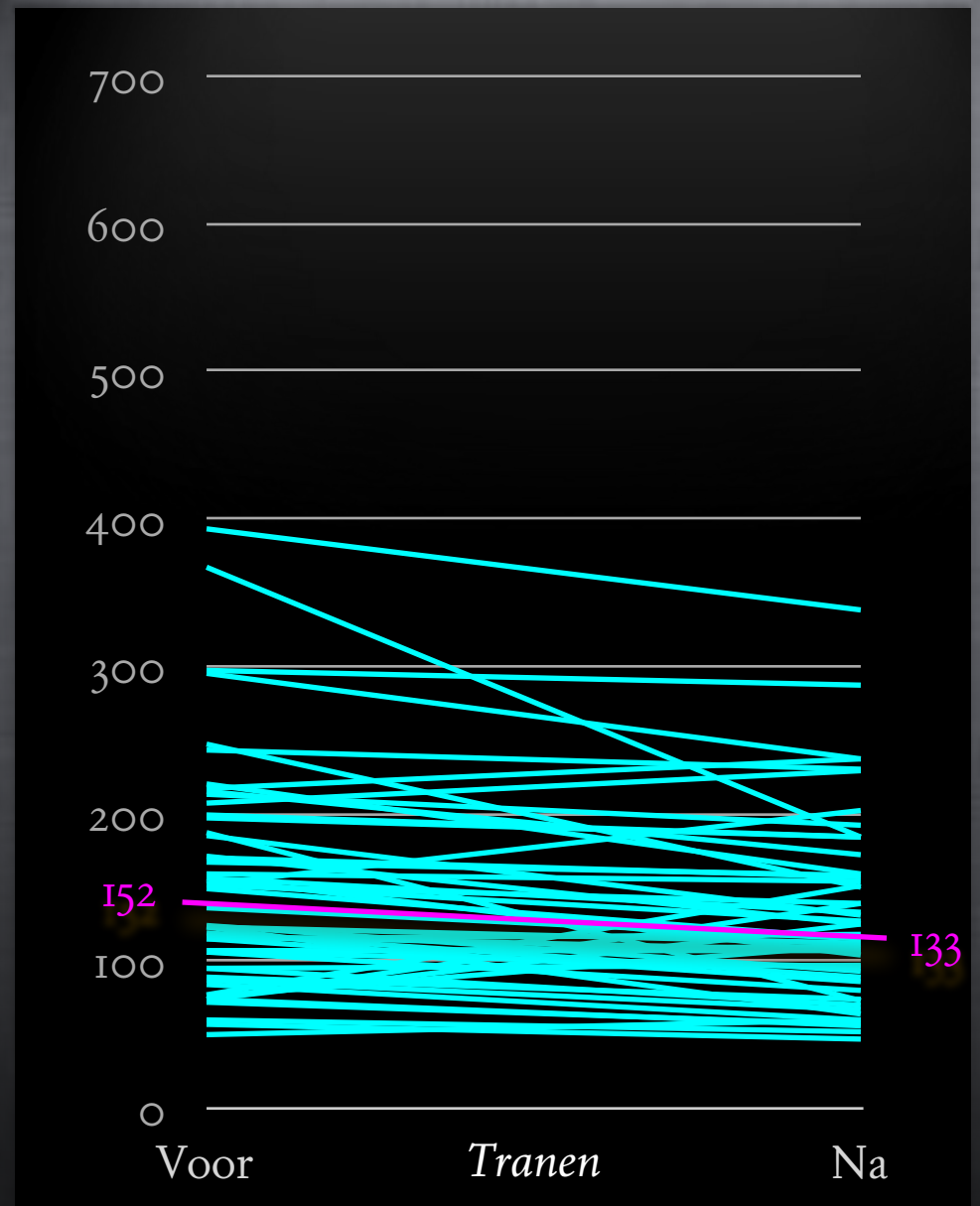
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Zout	155	154





Voor de film

152

155

Na de film

133

154





Medelijden, troost en seks

Door vrouwensmart vergaat mannen de zin in seks. **Hester van Santen**



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het niet aantrekkelijk, niet herkenbaar – net zoutoplossing. Maar intussen hadden die mannen wel minder zin in seks gekregen, bleek in een reeks experimenten die in totaal drie jaar in beslag nam. Ze vonden vrouwengezichten minder seksueel aantrekkelijk. En van een verdrietige film,

over het hoofd gezien. “Ik heb twee dagen zitten *shaken* toen ik het stuk las”, zo vreemd vond de Tilburgse psychologiehoogleraar Ad Vingerhoets, die al twintig jaar onderzoek naar huilen



Het effect lijkt op iets wat onderzoekers van de

in de Nederlandse film
we meestal van zeer dichtbij aan
tranen blootgesteld'

NRC Handelsblad, 8 januari 2011

Red meat raises red flags

School of Public Health study links regular consumption to higher mortality



By TomOka

Harvard School of Public Health Communications

Monday, March 12, 2012

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Revelation found to increase brain size

20 people recommended this.

contributes substantially to premature death,” said senior author Frank Hu, professor

“This study provides clear evidence that regular consumption of red meat, especially processed meats, contributes substantially to premature death,” said senior author Frank Hu, professor of nutrition and epidemiology at the Harvard School of Public Health.

A new study by Harvard School of Public Health (HSPH) researchers has found that red meat consumption is associated with an increased risk of total, cardiovascular, and cancer mortality. The results also showed that substituting other healthy protein sources, such as fish, poultry, nuts, and legumes, was associated with a lower risk of



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Discuss: Defense of the American Psychiatric

'Rood vlees verhoogt kans op vroege dood'

Wet, 14 Mar 2012 22:48:08 +0100



'Rood vlees verhoogt kans op vroege dood'

liefst 13 procent.

Iedere dag biefstuk, rosbief of worst is zeer ongezond. Mensen die veel rood vlees eten, verlagen hun levensverwachting aanzienlijk.

and Medical School

rood vlees: een extra portie onverwerkt rood vlees verhoogt het risico op overlijden met meer

meer 13 procent. Het risico op overlijden is het maximum, en neemt af naarmate er wordt opgelet met het eten.

Slacht voor het hart

Wetters lopen 18 procent meer kans op dodelijke harte- en vaatziekten. De kans dat zij kanker krijgen is ook tien procent hoger.

Onder rood vlees wordt vlees verstaan dat afkomstig is van koe, varken en schape. Kip, kalkoen en ander pluimvee vallen er buiten. Vooral verzadigde vetten en zout maken vlees en vleeswaren ongezond.

Eet niet te veel

Als vleeseters zich zouden beperken tot 42 gram vlees per dag of één biefstuk per week zouden, dan zouden ze daarmee 10 dagen extra levensduur kunnen winnen.

LEES OOK

Om naar de dieren raken op

Nieuw: kweekvijver (video)

Tandembroeksteden welke is het beste?

Stuvia

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- 9 mei 2012 Mysterieuze reizen gefilmd in een klein (video)
- 8 mei 2012 'Mormonen hebben Drages gediapt'
- 7 mei 2012 Is dit schiederg 87 miljoen waard?
- 6 mei 2012 Echte Navy Seals hebben bloed in dat of vader
- 5 mei 2012 Zilverkinderen worden jong (video)
- 4 mei 2012 'De walf moet terug'
- 3 mei 2012 De verkwetsende 'sagelofte': hoe en wat?
- 2 mei 2012 Wat wordt jouw rekeningnummer?
- 1 mei 2012 'Tropisch noodweer' op komst

ONLINE FIRST

Red Meat Consumption and Mortality

Results From 2 Prospective Cohort Studies

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JoAnn E. Manson, MD, DrPH; Meir J. Stampfer, MD, DrPH; Walter C. Willett, MD, DrPH; Frank B. Hu, MD, PhD

Background: Red meat consumption has been associated with an increased risk of chronic diseases. However, its relationship with mortality remains uncertain.

Methods: We prospectively observed 37 698 men from the Health Professionals Follow-up Study (1986-2008) and 83 644 women from the Nurses' Health Study (1980-2008) who were free of cardiovascular disease (CVD) and cancer at baseline. Diet was assessed by validated food

1.23) and 1.21 (1.13-1.31) for CVD mortality and 1.10 (1.06-1.14) and 1.16 (1.09-1.23) for cancer mortality. We estimated that substitutions of 1 serving per day of other foods (including fish, poultry, nuts, legumes, low-fat dairy, and whole grains) for 1 serving per day of red meat were associated with a 7% to 19% lower mortality risk. We also estimated that 9.3% of deaths in men and 7.6% in women in these cohorts could be prevented at the end of follow-up if all the individuals consumed fewer than 0.5

for lifestyle and dietary risk factors, the pooled hazard ratio (HR) (95% CI) of total mortality for a 1-serving-per-day increase was 1.13 (1.07-1.20) for unprocessed red meat and 1.20 (1.15-1.24) for processed red meat.

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of diabetes,² cardiovascular disease (CVD),³ and certain cancers.⁴ Several studies also suggest an elevated risk of mortality associated with red meat intake. However, most of these studies have been performed in populations with a particularly high proportion of vegetarians (such as Seventh-Day Adventists in

See Invited Commentary at end of article

the United States⁴ and several studies in Europe⁵). A recent large cohort study⁶ with 10 years of follow-up found that a higher intake of total red meat and total processed meat was associated with an increased risk of mortality. However, this study did not differentiate unprocessed from processed red meat, and diet and other covariates were assessed at baseline only. Furthermore, to our knowl-

doms with repeated measures of diet and up to 28 years of follow-up: the Health Professionals Follow-up Study (HPFS) and the Nurses' Health Study (NHS). We also estimated the associations of substituting other healthy protein sources for red meat with total and cause-specific mortality.

METHODS

STUDY POPULATION

We analyzed data from 2 prospective cohort studies: the HPFS (initiated in 1986, n=51 529 men aged 40-75 years) and the NHS (started in 1976, n=121 700 women aged 30-55 years). Detailed descriptions of the cohorts are provided elsewhere.^{7,8} Questionnaires were administered biennially to collect and update medical, lifestyle, and other health-related information, and the follow-up rates exceeded 90% in each 2-year cycle for both cohorts.

Ratio measures in leading medical journals: structured review of accessibility of underlying absolute risks

Lisa M Schwartz, Steven Woloshin, Evan L Dvorin, H Gilbert Welch

Conclusion Absolute risks are often not easily accessible in articles reporting ratio measures and sometimes are missing altogether—this lack of accessibility can easily exaggerate readers' perceptions of benefit or harm.

cohort studies (62% v 21%; relative risk 3.0, 95% confidence interval 2.1 to 4.2) and for studies reporting crude compared with adjusted ratio measures (62% v 21%; relative risk 3.0, 2.1 to 4.3).

Conclusion Absolute risks are often not easily accessible in articles reporting ratio measures and sometimes are missing altogether—this lack of accessibility can easily exaggerate readers' perceptions of benefit or harm.

Introduction

For good reasons, ratio measures, such as relative risks and odds ratios, have become a common way to compare outcomes in two groups. For observational studies they serve as the central metric of the strength of association between exposure and outcome, a key criterion for establishing causality in classic epidemiology. For both observational and experimental studies they serve as a convenient mechanism to express the magnitude of an effect on baseline risk—a relative change. Furthermore, the ratio is often believed to be transportable—that is, the relative change may be applied to different populations with different baseline risks. Finally, they have the appealing feature of summarising two numbers (the risk in one group and the risk in the other) into one, which in turn facilitates comparisons of the effect of various exposures. But this feature of ratio measures also represents their major weakness, that the underlying absolute risks are concealed.

numbers when feasible.⁸ A more recent initiative organised in 2003, strengthening the reporting of observational studies in epidemiology (STROBE), does as well.⁹ We systematically determined how frequently the absolute risks comprising ratio measures are reported in the medical literature.

Methods

Search strategy

We searched Medline using the search terms rate ratio*, relative ratio*, relative risk*, risk ratio*, or odds ratio* (the * ensures that any suffix such as "s" is included), and identified 320 articles with ratio measures in the abstract published between 1 June 2003 and 1 May 2004 in six leading medical journals: *Annals of Internal Medicine*, *BMJ*, *Journal of the American Medical Association*, *Journal of the National Cancer Institute*, *Lancet*, and *New England Journal of Medicine*. We excluded 98 articles with study designs in which absolute risks might not be directly calculable (52 case-control studies, 46 meta-analyses). Thus the final sample consisted of 222 articles with study designs where absolute risks were directly calculable: 61 randomised trials, 161 cohort studies.

Article review process

We reviewed each article using a standardised data extraction form (see fig A on bmj.com). The coder began by recording the


 The data extraction form and calculations carried out by coders are on bmj.com

Table 2. All-Cause Mortality According to Red Meat Intake in the Health Professionals Follow-up Study and the Nurses' Health Study

Variable	Frequency of Consumption Quintiles ^a					P Value for Trend	HR (95% CI) for a 1-Serving-per-Day Increase
	Q1	Q2	Q3	Q4	Q5		
Health Professionals Follow-up Study							
Total red meat, servings per day ^b	0.25 (0.13-0.37)	0.61 (0.53-0.70)	0.95 (0.87-1.04)	1.36 (1.24-1.49)	2.07 (1.83-2.47)	NA	NA
Cases/person-years, No.	1713/151 212	1610/152 120	1679/151 558	1794/152 318	2130/151 315	NA	NA
Age-adjusted model	1 [Reference]	1.06 (0.99-1.14)	1.14 (1.06-1.21)	1.21 (1.14-1.30)	1.45 (1.36-1.54)	<.001	1.19 (1.16-1.23)
Multivariate model ^c	1 [Reference]	1.12 (1.05-1.20)	1.21 (1.13-1.30)	1.25 (1.16-1.34)	1.37 (1.27-1.47)	<.001	1.14 (1.10-1.17)
Unprocessed red meat, servings per day ^b	0.17 (0.07-0.24)	0.43 (0.37-0.47)	0.66 (0.58-0.73)	0.95 (0.87-1.04)	1.46 (1.29-1.67)	NA	NA
Cases/person-years, No.	1855/150 676	1722/149 097	1535/154 352	1819/150 925	1995/153 474	NA	NA
Age-adjusted model	1 [Reference]	1.06 (0.99-1.13)	1.00 (0.94-1.07)	1.15 (1.08-1.23)	1.34 (1.25-1.42)	<.001	1.22 (1.18-1.27)
Multivariate model ^c	1 [Reference]	1.11 (1.04-1.18)	1.14 (1.06-1.22)	1.20 (1.12-1.28)	1.29 (1.20-1.38)	<.001	1.17 (1.12-1.21)
Processed red meat, servings per day ^b	0.02 (0-0.07)	0.13 (0.10-0.14)	0.21 (0.20-0.26)	0.39 (0.34-0.46)	0.74 (0.64-1.00)	NA	NA
Cases/person-years, No.	1917/171 619	1395/131 069	1661/152 481	1717/152 128	2236/151 227	NA	NA
Age-adjusted model	1 [Reference]	0.99 (0.93-1.06)	1.13 (1.05-1.20)	1.14 (1.07-1.22)	1.38 (1.30-1.47)	<.001	1.34 (1.28-1.40)
Multivariate model ^c	1 [Reference]	1.06 (0.99-1.14)	1.15 (1.07-1.23)	1.18 (1.10-1.27)	1.27 (1.19-1.36)	<.001	1.18 (1.12-1.24)
Nurses' Health Study							
Total red meat, servings per day ^b	0.51 (0.37-0.61)	0.85 (0.76-0.96)	1.14 (1.03-1.32)	1.49 (1.33-1.71)	2.17 (1.85-2.66)	NA	NA
Cases/person-years, No.	2946/438 326	2759/442 134	2658/439 712	2872/440 329	3765/439 391	NA	NA
Age-adjusted model	1 [Reference]	1.07 (1.01-1.12)	1.09 (1.04-1.15)	1.24 (1.18-1.30)	1.61 (1.53-1.69)	<.001	1.30 (1.28-1.33)
Multivariate model ^c	1 [Reference]	1.08 (1.02-1.14)	1.11 (1.05-1.17)	1.18 (1.12-1.24)	1.24 (1.17-1.30)	<.001	1.11 (1.08-1.13)
Unprocessed red meat, servings per day ^b	0.37 (0.28-0.46)	0.61 (0.56-0.68)	0.86 (0.77-1.00)	1.13 (1.01-1.28)	1.64 (1.43-2.05)	NA	NA
Cases/person-years, No.	3079/441 041	2885/441 207	2545/439 306	2709/431 097	3782/447 240	NA	NA
Age-adjusted model	1 [Reference]	1.05 (1.00-1.11)	0.98 (0.93-1.03)	1.09 (1.03-1.14)	1.48 (1.41-1.55)	<.001	1.31 (1.28-1.35)
Multivariate model ^c	1 [Reference]	1.07 (1.01-1.12)	1.07 (1.01-1.12)	1.10 (1.05-1.16)	1.19 (1.13-1.25)	<.001	1.10 (1.06-1.13)
Processed red meat, servings, per day ^b	0.05 (0-0.11)	0.14 (0.13-0.16)	0.23 (0.21-0.28)	0.36 (0.33-0.42)	0.64 (0.56-0.87)	NA	NA
Cases/person-years, No.	3076/442 594	2799/420 403	2778/455 365	2814/441 369	3533/440 161	NA	NA
Age-adjusted model	1 [Reference]	1.06 (1.01-1.12)	1.10 (1.04-1.16)	1.18 (1.12-1.24)	1.49 (1.42-1.56)	<.001	1.61 (1.54-1.69)
Multivariate model ^c	1 [Reference]	1.04 (0.99-1.10)	1.08 (1.03-1.14)	1.14 (1.08-1.20)	1.20 (1.14-1.27)	<.001	1.21 (1.15-1.27)
Pooled Results ^d							
Total red meat	1 [Reference]	1.10 (1.05-1.14)	1.15 (1.06-1.26)	1.21 (1.14-1.28)	1.30 (1.18-1.43)	<.001	1.12 (1.09-1.15)
Unprocessed red meat	1 [Reference]	1.08 (1.05-1.12)	1.10 (1.03-1.17)	1.15 (1.05-1.25)	1.23 (1.14-1.34)	<.001	1.13 (1.07-1.20)
Processed red meat	1 [Reference]	1.05 (1.00-1.09)	1.11 (1.04-1.18)	1.15 (1.11-1.20)	1.23 (1.16-1.30)	<.001	1.20 (1.15-1.24)



Porties
per dag

Sterfte-
risico

Sterfte
per 1000
mannen

0,3

I

231

0,6

I,12

258

I,0

I,21

279

I,4

I,25

288

2,I

I,37

316

Sterfte onder mannen na 22 jaar



De journalistieke toets

Met hoeveel procent
verhoogt een roker zijn
kans op longkanker?



Porties
per dag

Sterfte-
risico

Sterfte
per 1000
per jaar

0,3

I

II

0,6

I,12

I2

I,0

I,2I

I3

I,4

I,25

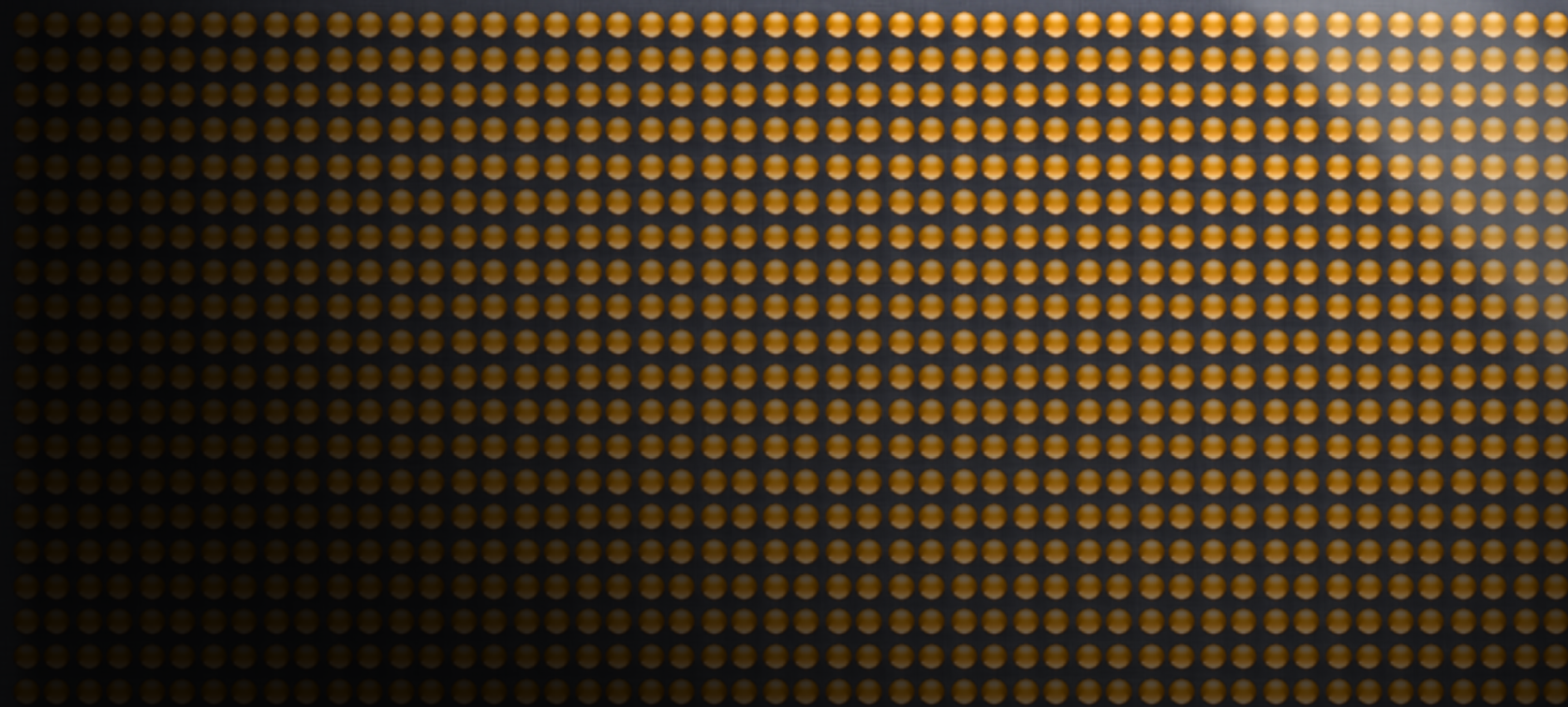
I3

2,I

I,37

I4

Sterfte onder mannen na 1 jaar



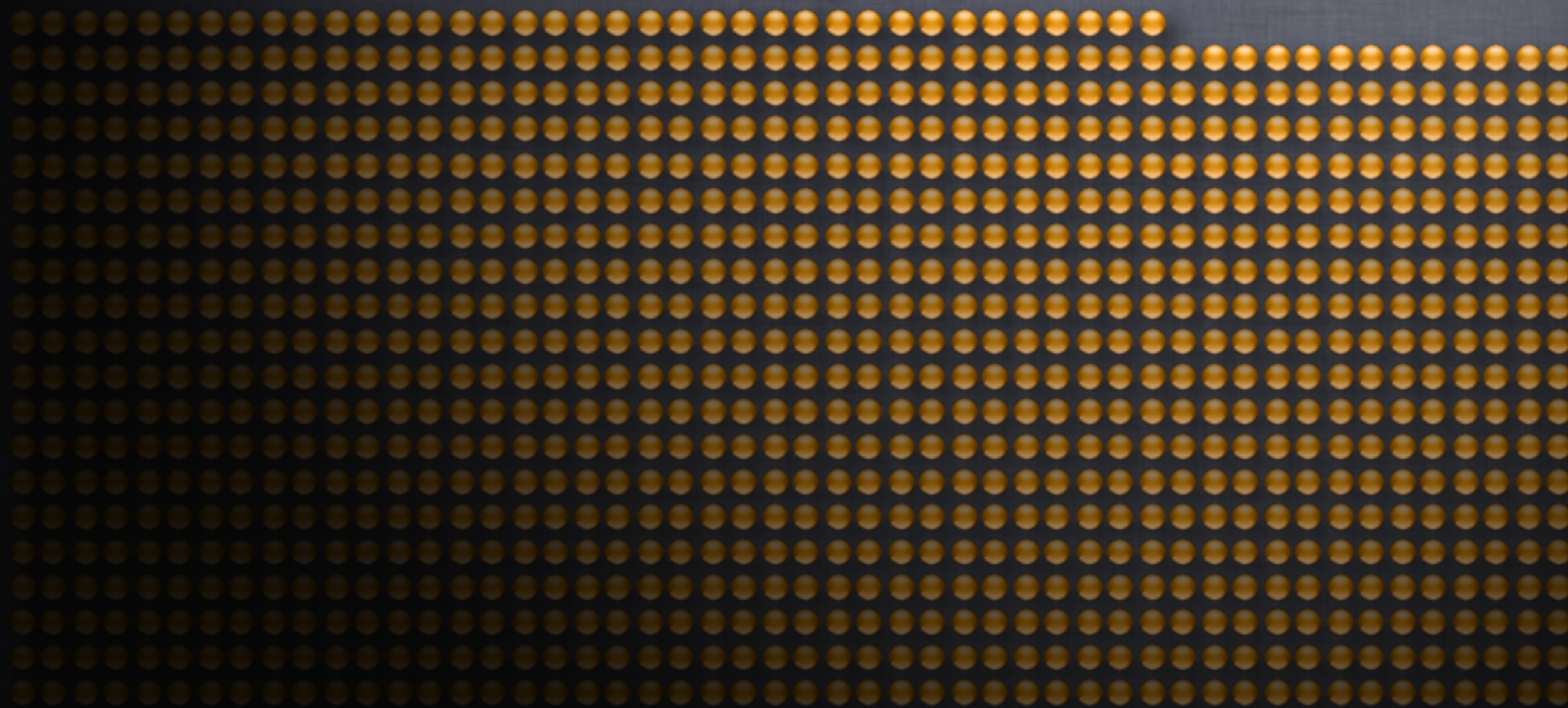


Duizend vegetariërs





Duizend hufters



Cardiovascular mortality in Dutch men during 1996 European football championships: longitudinal population study

David C Ware, Michael J. Kelly, Anne W. Teas, Elizabeth J. Goudier

Abstract
Objective To investigate whether an important football event increases rates in death due to heart disease, myocardial infarction and stroke.
Design Longitudinal study of mortality around 27 June 1996 the day the Dutch football team was eliminated from the European football championship. Mortality on 27 June was compared with the five days before and after the match and to the same period in 1995 and 1997.
Setting Netherlands.
Subjects Dutch population aged 45 years or over in June 1996.
Main outcome measures All cause mortality and mortality due to coronary heart disease and stroke.
Results Mortality from coronary heart disease and stroke was increased in men on the day of the match (relative risk 1.74, 95% confidence interval 1.01 to 2.96). No change was in mortality was observed in women (1.0, 95% CI 0.80 to 1.20). Having seen about 24 more cardiovascular deaths occurred on the day of the match.
Conclusions Important sporting events may provide a sufficient level of stress to trigger symptomatic cardiovascular disease. The different between men and women require further investigation.

Introduction

The role of major life events in acute mortality events such as myocardial infarction and stroke has received increased attention in recent years. When physical loads, emotional stress or emotional stress, acute heart disease, and increasing heart stress, progress to a point triggering factors for myocardial infarction and stroke.¹ These factors probably act on the level

of a sequence of events including the gradual development of atherosclerotic lesions.

A few reports have suggested that events that induce stress in large numbers of people by indirect means, such as earthquakes and war, may increase the incidence of heart and vascular associated infections in the population level.²⁻⁷ The importance that a situation which constitutes a stressor of the population trigger factors at one point in time for a large population could lead to a sufficient number of cases to result in a detectable increase in national cardiovascular mortality. Events, in a country like the Netherlands, an important football match of the national team could cause a combination of increased overall and emotional stress, alcohol intake and possibly increasing and decreasing smoking in a population level.

Between 6 June and 30 June 1996 the European football championship was played in England. The Netherlands advanced to the quarter-finals and played France on 26 June. The match resulted in a 2-1 defeat, even after extra time, and France went on to win the title. According to the ratings published by the Dutch Broadcasting Foundation⁸ about 90 million people watched the match, the exposure was 30% of the Dutch population of 17.5 million in 1996.

Methods

We studied mortality data from the Dutch central bureau for statistics for June 1995, June 1996, and June 1997. The data comprised age and sex specific number of deaths and death from acute coronary infarction and stroke (ICD-10 codes I21, I25, and I60-I69).

We compared the number of deaths with acute mortality and death from cardiovascular infarction on the day of the football match (27 June 1996) with the same number of deaths on the preceding and following days, for men and women separately. While the only with 40% confidence intervals were calculated for deaths, we compared the data with those from corresponding periods in 1995 and 1997.

Results

The figure shows the number of deaths from all causes and myocardial infarction or stroke during 27-27 June 1996 for men and women separately. Mortality from all causes was increased in men on 27 June (173 v 156) cases relative risk 1.13, 95% confidence interval 1.01 to 1.25 and from acute coronary infarction and stroke (144 v 116) relative risk 1.24, 95% confidence interval 1.01 to 1.53. In women mortality from coronary heart infarction or stroke was significantly increased relative risk 1.74, 95% CI 1.01 to 2.96 on the day of the football match and acute myocardial infarction and stroke on the day of the match (27 June 1996) relative risk 1.74, 95% confidence interval 1.01 to 2.96. Mortality from myocardial infarction and stroke in men was lower



Fig 1 The photograph on top of the first figure. The Netherlands have made significant cardiac and vascular mortality on the day of the match.



BMJ
25-31 december 2000

Cardiovascular mortality in Dutch men during 1996 European football championship: longitudinal population study

David A Ware, Michael L Bell, Anne W Teas, Elizabeth F Cardiac

Cardiovascular
mortality
European
football
championship
1996
Dutch men
longitudinal
population
study
Cardiovascular
mortality
European
football
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Dutch men
longitudinal
population
study

Abstract

Objective To investigate whether an important football event increases stress in such as event that triggers acute myocardial infarction and stroke. **Design** Longitudinal study of mortality around 17 June 1996 the day the Dutch football team was eliminated from the European football championship. Mortality on 17 June was compared with the five days before and after the match and in the same period in 1995 and 1997.

Setting

Subjects Dutch population aged 45 years or over in June 1996.

Main outcome measures All cause mortality and mortality due to coronary heart disease and stroke.

Results Mortality from coronary heart disease and stroke was increased in men on the day of the match (relative risk 1.51, 95% confidence interval 1.08 to 2.08). For days one to five mortality was significantly increased in men aged 45-54 years (relative risk 1.51, 95% confidence interval 1.08 to 2.08). Mortality from stroke was increased on the day of the match.

Conclusion Important sporting events can provide a

day in a sequence of events including the gradual development of atherosclerotic lesions.

A few reports have suggested that events that induce stress in large numbers of people by indirect means, such as earthquakes and wars, may increase the incidence of heart and vascular associated infections in the population level.¹⁻³ The importance of a stressor which causes stress at the population level has been at one point in time the a large population could lead to a sufficient number of cases to result in a detectable increase in national cardiovascular mortality. Events, in a country like the Netherlands, an important football match of the national team could cause a combination of increased overall and coronary heart, stroke and stroke and possibly increasing and decreasing mortality on a population level.

Between 6 June and 16 June 1996 the European football championship was played in England. The Netherlands advanced to the quarter-finals and played France on 17 June. The match resulted in a 1-0 defeat, even after extra time, and France was eventually beaten. According to the ratings published by the Dutch Broadcasting Foundation⁴ about 100 million people watched the match, the exposure was 10% of the

Results Mortality from coronary heart disease and stroke was increased in men on the day of the match (relative risk 1.51, 95% confidence interval 1.08 to



This is the stadium on the day of the match. The Netherlands team made regular appearances in the stadium, and the match was held.

Results

The figure shows the number of deaths from all causes and myocardial infarction or stroke during 17-17 June 1996 the day of the match and in the same period in 1995 and 1997. All cause mortality was increased in men on 17 June (1996 = 1995 = 1997 = 1.51, 95% confidence interval 1.08 to 2.08). For days one to five mortality was significantly increased in men aged 45-54 years (relative risk 1.51, 95% confidence interval 1.08 to 2.08). Mortality from stroke was increased on the day of the match (relative risk 1.51, 95% confidence interval 1.08 to 2.08). Mortality from stroke was increased on the day of the match (relative risk 1.51, 95% confidence interval 1.08 to 2.08).

BMJ
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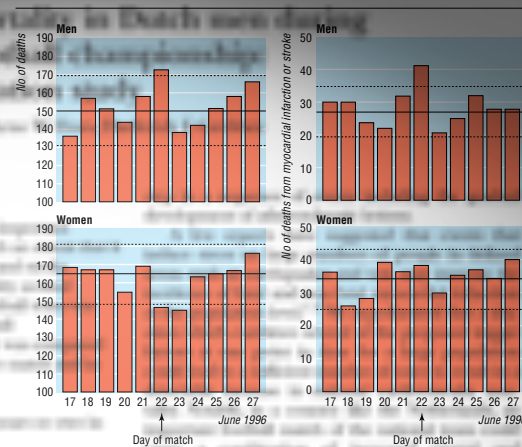
(21 cases) on the day after the match, but not below the lower bound of the 95% confidence interval.

In women, no clear difference in numbers of deaths from myocardial infarction and stroke was observed (38 v 34.1 cases; relative risk 1.11, 0.8 to 1.56). Analyses of the same periods in 1995 and 1997 showed no significant increases in cardiovascular mortality on 22 June compared with the respective previous and following five days.

Discussion

Mortality from acute myocardial infarction and stroke was increased in Dutch men on the day of an important football match compared with the preceding and following days. Compared with the average mortality in the preceding and following days, about 14 additional fatal events occurred; this is an increase of around 50%. Our findings indicate that watching an important football match may be stressful. It further supports the view that the mental and other stressors of such an event may trigger acute myocardial infarction or stroke.

No corresponding increase in mortality occurred in women. This could mean that fewer women were exposed to the triggers (for example, because of less interest in football or lower alcohol consumption) or that they are less vulnerable to their effect. Less exposure seems the more likely explanation, although Toller et al found that men were more likely to report triggers before myocardial infarction than women.⁶ The exact mechanism behind this difference is still unclear.



Numbers of deaths from all causes and from myocardial infarction or stroke in men and women aged ≥ 45 years, 17 June-27 June 1996. The quarter final match of the European championship between Netherlands and France was played on 22 June. Horizontal lines represent the mean and 95% confidence intervals for the five days preceding and five days after 22 June

role of emotional or mental stress, physical activity, and heavy alcohol ingestion has been established mainly by retrospective questioning of people who have had non-fatal cardiovascular events. The finding of increased risks of cardiovascular events during

Results Mortality from coronary heart disease and stroke was increased in men on the day of the match (relative risk 1.51, 95% confidence interval 1.08 to



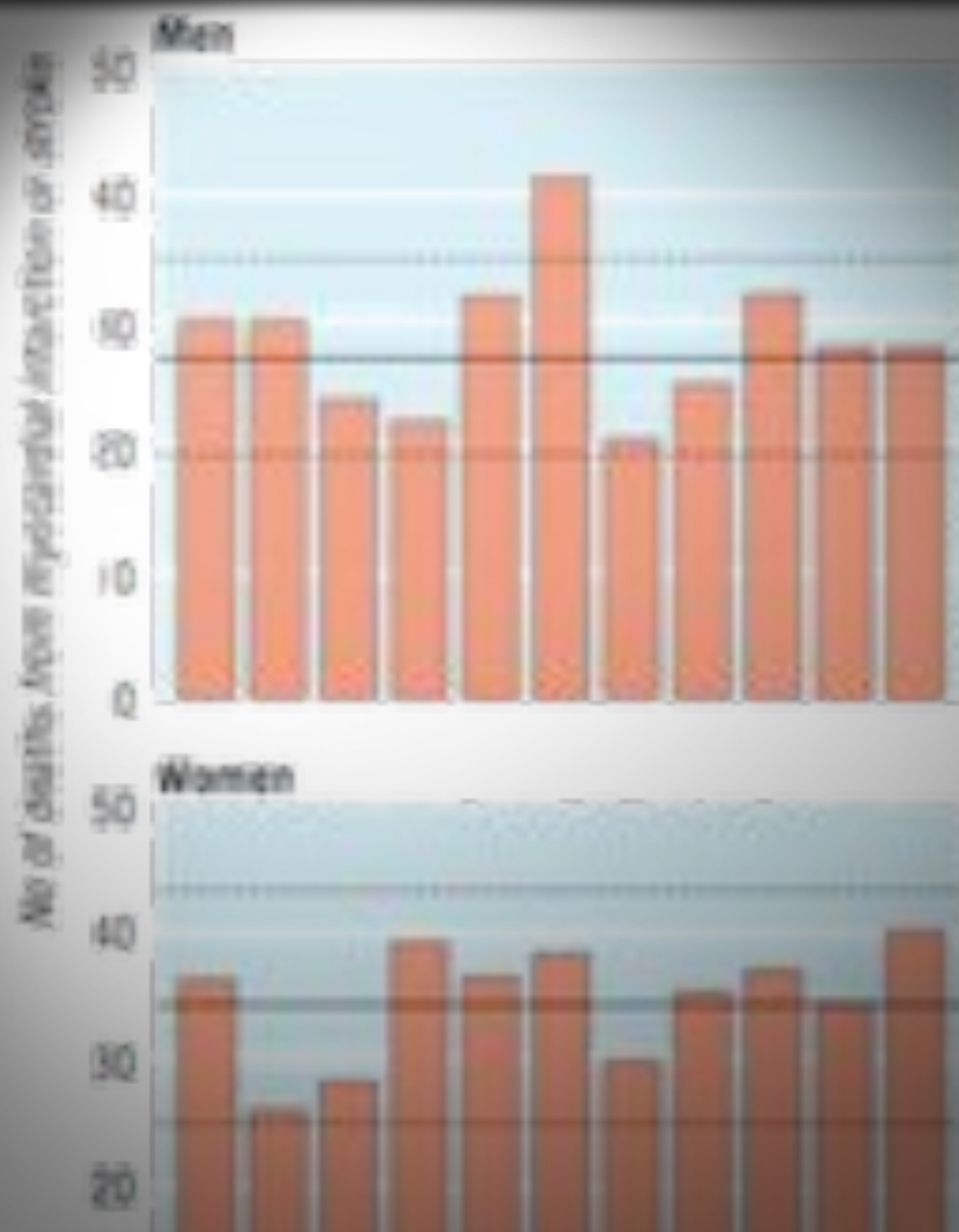
induce stress on a large number of people in a defined area. Large earthquakes and war, have been reported to increase the risk of fatal and non-fatal myocardial infarction

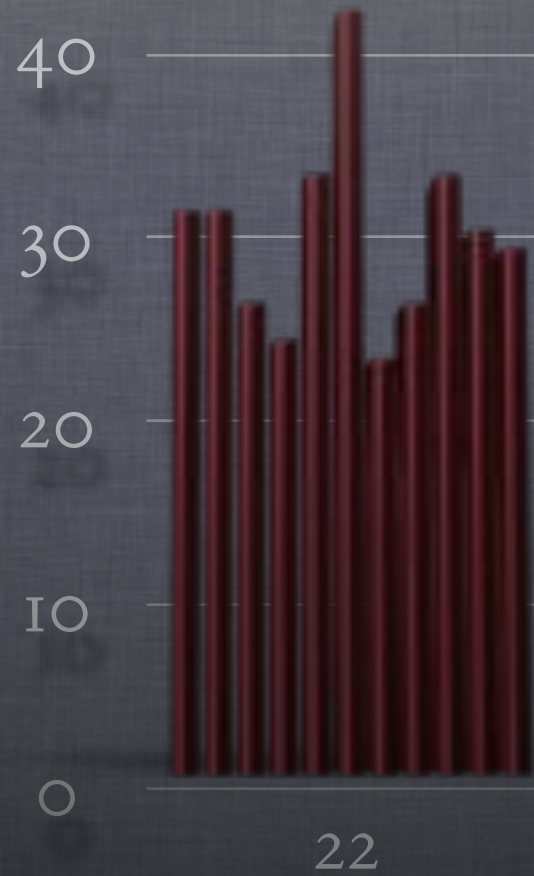
study adds

Mortality from myocardial infarction and stroke was increased on the day of an important football match of the Dutch national team, suggesting a cause of increased stress

but women was unaffected

The effect of a single match is detectable in national mortality data



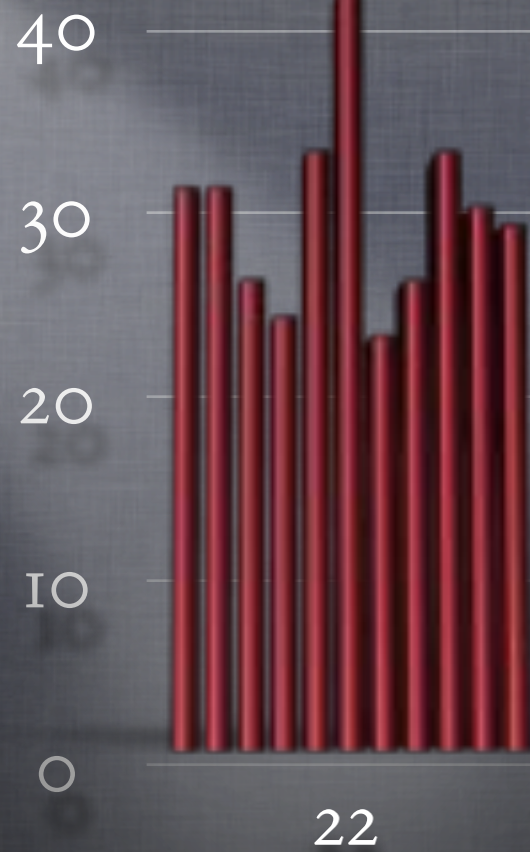


Hartdoden Nederlandse middelbare mannen, juni 1996

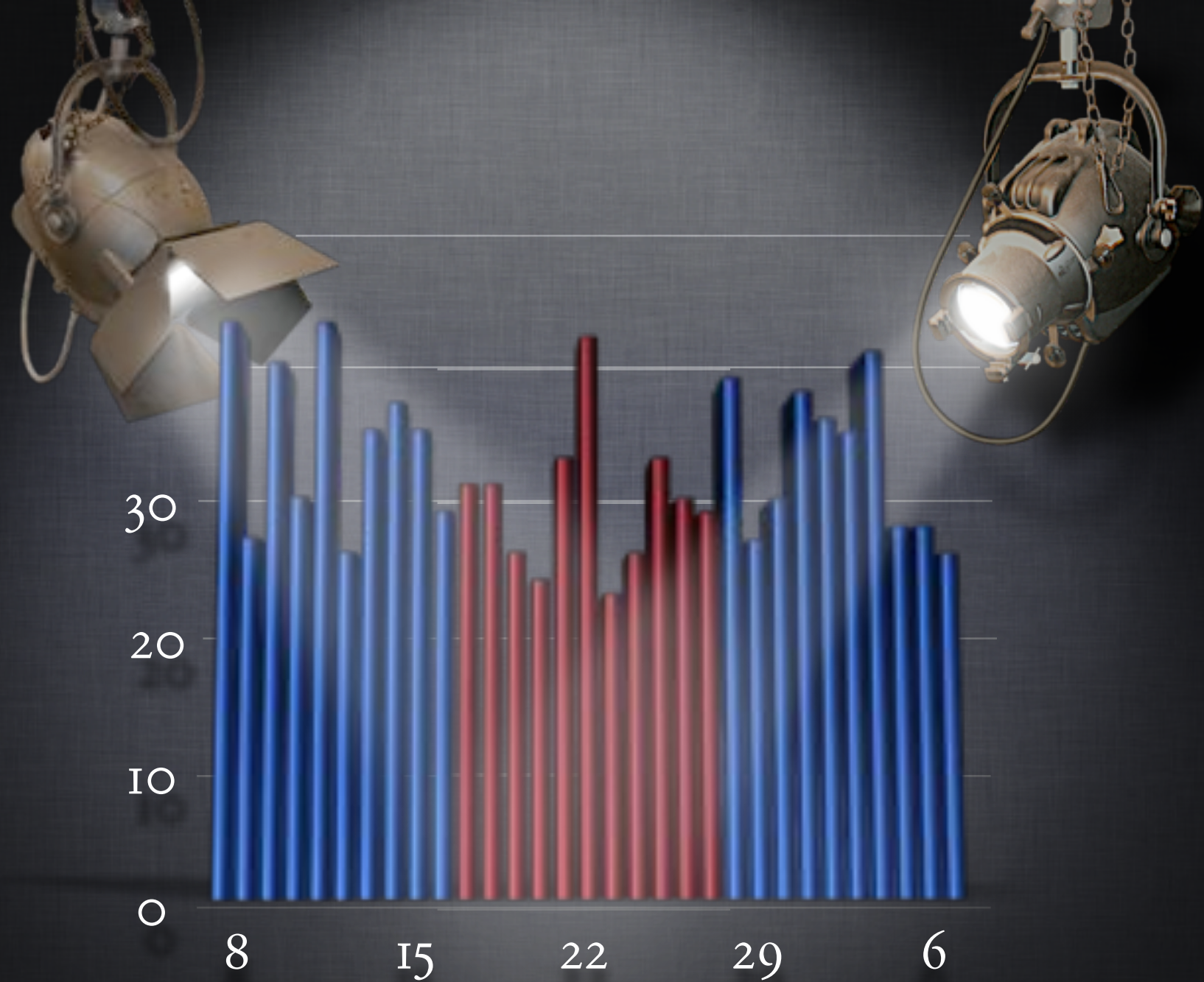
De Journalistieke toets



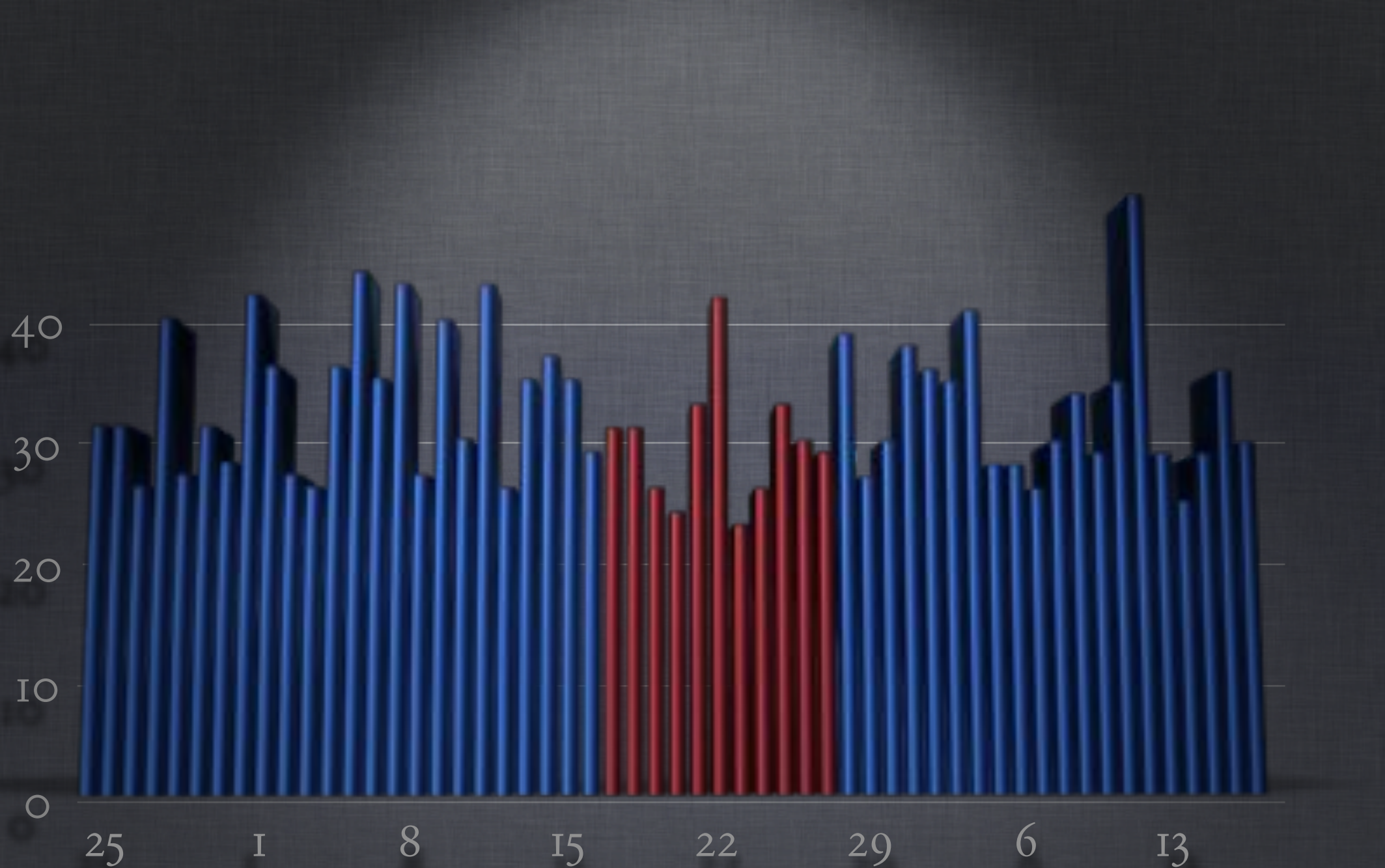
Bedenk ten minste
drie bezwaren
tegen deze conclusie



Hartdoden Nederlandse middelbare mannen, juni 1996



Hartdoden Nederlandse middelbare mannen, zomer 1996



Hartdoden Nederlandse middelbare mannen, zomer 1996

De journalistieke toet



- *Kan het kloppen?*
- *Waarom deze cijfers, en alleen deze cijfers?*
- *Hoe hebben ze dat gemeten — en zo precies gemeten?*

De journalistieke toet



- *Hoe moet ik me dit voorstellen?*
- *Zijn er geen andere verklaringen te bedenken?*
- *Wat zegt het gezond verstand?*