Reporting and interpretation of effects in nutritional and environmental epidemiology: a methods study

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Abstract

Background

The presentation of absolute effects, in addition to relative effects, is critical to the optimal interpretation of effect estimates. Failure to present and interpret absolute effects may obscure the magnitude of the effect of an intervention or exposure and mislead evidence users.

Objective

In this study, we estimate the proportion of systematic reviews and meta-analyses (SRMAs) addressing the health effects of nutritional and environmental exposures that report absolute effects.

Methods

We searched MEDLINE and EMBASE from 2019 through 2021 for SRMAs addressing the health effects of nutritional and environmental exposures and patient-important health outcomes. We included a sample of 200 SRMAs. Pairs of reviewers, working independently and in duplicate, reviewed search records for eligibility and collected data from SRMAs.

Results

More than two-thirds (153/200; 76.5%) of eligible systematic reviews reported on one or more dichotomous outcomes that could be translated to absolute effects. Only a handful of these reviews (8/153; 5.2%), however, reported absolute effects. A similar proportion of reviews published in high-impact journals and in other journals reported absolute effects (4/131; 3.1% vs. 4/69; 5.9%). Among reviews that reported absolute effects, six reviews (6/8; 75%) reported absolute risk differences as fractions (e.g., 2 fewer cases per 1,000 people) and two reviews (2/8; 25%) presented the number of cases prevented by modifying the exposure (e.g., 2,000 cases prevented in United States annually).

Conclusion

Reviews addressing the effects of nutritional and environmental exposures on health outcomes rarely report absolute effects, which precludes effective interpretation of magnitudes of effects and their importance. We present guidance for review authors, editors, peer reviewers, and evidence users to calculate and interpret absolute effects.

Background

Evidence users, including healthcare providers, the public, and policymakers, are influenced not only by the results of studies but also by how authors present the results (1–3). Systematic reviews and meta-analyses most often meta-analyze relative effects (i.e., relative risks, odds ratios, and hazard ratios) due to their statistical properties and because they are most consistent across populations (4, 5).

However, the presentation of absolute effects—the effect of an exposure expressed as the rates of an outcome rather than the ratio of these measures—is critical to effective decision-making (1–3). Relative effects may obscure the magnitude of the effect of an intervention or exposure and may mislead evidence users.

For example, investigators may claim that a certain exposure doubles the risk of an outcome. The exposure, however, may increase the absolute risk of the outcome from 0.001–0.002%—an effect that may be considered trivial—or it may increase the absolute risk of the outcome from 20–40%—an effect that may be considered important. In both scenarios, however, the exposure yields identical relative effects.

The presentation of absolute effects is even more important in epidemiology because epidemiologic studies typically enroll thousands of participants, and thus carry greater potential for even small, trivial effects to be statistically significant.

Previous research has addressed the reporting of absolute effects in systematic reviews and meta-analyses of randomized trials but studies to date have not addressed the reporting of absolute effects in systematic reviews and meta-analyses of non-randomized studies—in epidemiology or elsewhere (6). We present a methods study addressing the extent to which systematic reviews in nutritional and environmental epidemiology present absolute effects.

Methods

We registered our protocol on Open Science Framework (osf.io/7c2sa) on April 15, 2022. Supplement 1 presents our protocol.

Search strategy

In consultation with an experienced research librarian, we searched MEDLINE and EMBASE for systematic reviews and meta-analyses of non-randomized studies published between 2019 and 2021 that addressed the health effects of nutritional and environmental exposures. Supplement 2 presents our search strategy.

Study selection and eligibility criteria

Pairs of reviewers, following training and calibration exercises to ensure sufficient agreement, worked independently and in duplicate to screen titles and abstracts of search records and subsequently full-text reviews of eligible records from title and abstract screening stage.

Systematic reviews were eligible if they included one or more meta-analyses, investigated the relationship between one or more nutritional or environmental exposures and one or more patient-important health outcomes and if they include one or more non-randomized studies. We define systematic reviews as studies that explicitly describe a search strategy (including at minimum the databases searched) and eligibility criteria (including at minimum the exposures and health outcomes of interest) (7). We define nutritional exposures as foods or food chemicals that are typically consumed through the diet or measures of dietary patterns and environmental exposures as chemicals and compounds, or combinations thereof, encountered in the environment or environmental conditions (e.g., noise, temperature). We define patient-important health outcomes as measures of mortality, morbidity, and quality of life.

We excluded reviews without any eligible studies, reviews that did not perform meta-analyses, scoping reviews, umbrella reviews, and narrative reviews because such reviews may not yield a single pooled estimate to translate to absolute effects. We also excluded reviews of Mendelian randomization studies, individual participant data meta-analyses, and ecological studies.

We calculated that a sample size of 200 reviews would allow estimation of the prevalence of even uncommon review characteristics (i.e., prevalence in ~5% of studies) with acceptable precision (i.e., ± 3%) (8). We hypothesized that systematic reviews from higher impact journals may be more likely to report and interpret absolute effects. We aimed to select, at minimum, 50 eligible systematic reviews and meta-analyses from the five highest impact general medicine, nutrition, and epidemiology journals that publish systematic reviews and meta-analyses, using Google Scholar reports data, and 150 eligible systematic reviews and meta-analyses at random (9, 10).

To obtain a representative sample of reviews in high-impact journals, using H-5 index data retrieved from Google Scholar reports data, we selected the five highest impact general medicine, five highest impact nutrition, and five highest impact general epidemiology journals (9, 10). The H-5 index represents the number of articles (*h*) published in a journal in the past five years with at minimum *h* number of citations. We sampled a maximum of 20 reviews from each category of journal (i.e., general medicine, nutrition, general epidemiology) and a maximum of five reviews from each journal. When we did not identify at minimum 16 reviews for each category of journal, we selected more than five reviews from each journal in that category. We first screened for reviews starting from 2021 and proceeded to screen from years 2020 and 2019 since we did not identify enough eligible reviews from 2021. Supplement 3 presents more details on our sampling strategy.

Data collection

Pairs of reviewers, following training and calibration exercises to ensure sufficient agreement, worked independently and in duplicate to extract information on review characteristics (i.e., country of senior author, funding, registration, exposure and outcomes of interest, number of studies included), methods of the review (i.e., type of meta-analysis, system for assessing the certainty (quality) of evidence), reporting of results (i.e., relative effects, absolute effects, type of absolute effect), and the authors' interpretation of

the magnitude of effect in their study abstract, discussion, and conclusions sections of the manuscript. Reviewers resolved discrepancies by discussion, or when necessary, by adjudication by a third party.

Data synthesis and analysis

We present frequencies and percentages for categorical variables and medians and IQRs for continuous variables. We report the counts and percentage of reviews that present absolute effects, ways in which reviews report absolute effects, and ways in which interpret reviews interpreted the magnitudes of effects.

We anticipated that reviews from higher impact journals, reviews with statistically significant results, and reviews that use a system to assess the certainty (quality) of evidence may be more likely to report absolute effects and so we present results stratified by journal H-5 index, statistical significance, and reviews that assess the certainty of evidence.

All data collected from reviews are available on OSF (osf.io/7c2sa).

Results

Search results

We retrieved a total of 27,358 unique records and screened a random sample of 3,784 titles and abstracts and 231 full-text articles to identify a sample of 200 eligible systematic reviews and meta-analyses. Supplement 4 presents additional details on study selection.

Characteristics of systematic reviews and meta-analyses

Table 1 presents the characteristics of SRMAs. Our sample was comprised of a total of 200 reviews, 69 of which were from high-impact journals. Our sample of high-impact reviews exceeded our target of 50 systematic reviews because our random sample of 150 systematic reviews also included reviews from high-impact journals. Systematic reviews primarily came from general nutritional generals (e.g., *American Journal of Clinical Nutrition)*, specialized medical journals (e.g., *Current Eye Research)*, and general epidemiology journals (e.g., *European Journal of Epidemiology).*

Half of all systematic reviews had publicly accessible protocols either as registrations or as publications. Reviews were primarily funded by government or institutional funds. Nearly all reviews included longitudinal cohort studies and a third included case-control studies and a third cross sectional studies. Reviews commonly addressed the relationship between foods, dietary patterns, and pollutants and all-cause mortality, cardiovascular mortality, and cardiovascular events.

Reporting of absolute effects

More than two-thirds of eligible systematic reviews reported on one or more dichotomous outcomes that could be translated to absolute effects. Only eight (5.2%) of these reviews, however, reported absolute effects.

A similar proportion of reviews published in high-impact journals and in other journals reported absolute effects. Reviews that presented absolute effects all had statistically significant findings. Forty reviews assessed the certainty (quality) of evidence, of which six presented absolute effects. Of these, five used the GRADE system and one used the Navigation Guide system (11–13).

Among reviews that reported absolute effects, six reviews reported absolute risk differences as fractions and two reviews presented cases prevented by reducing exposure. Box 1 presents examples of the ways in which reviews reported absolute effects.

Box 1: Examples of how reviews reported absolute effects

Absolute risk difference as fraction with assumed risk

A meta-analysis by Naghshi and colleagues (2021) reported a 5% reduction in risk of all-cause mortality (RR 0.95, 95% CI 0.91 to 0.99) for each 1 g/day increase in alpha linolenic acid intake (14). The authors use an assumed baseline risk from the Emerging Risk Factors Collaboration—a consortium of 102 international cohorts, primarily from North America and western Europe—to calculate an absolute risk difference (15).

Using an assumed baseline risk of 1,130 deaths per 10,000 person-years, the review reports 57 fewer deaths per 10,000 person-years (95% CI 102 fewer to 11 fewer) for a 1 g/day increase in alpha linolenic acid intake.

$$\frac{1{,}130}{10{,}000} \times 0.95 = \frac{1{,}073.5}{10{,}000}$$

$$\frac{1{,}130}{10{,}000} - \frac{1{,}073.5}{10{,}000}$$

Number of cases prevented

A meta-analysis by Lam and colleagues (2021) reported a 10-µg/m^3 increase in formaldehyde exposure to be associated with a 20% increase in the odds for a diagnosis of childhood asthma (OR = 1.20, 95% CI 1.02, 1.41) (16). The review calculates the total number of asthma diagnoses that would be avoided for a 1 parts per billion reduction in formaldehyde in the United States using data on indoor formaldehyde exposure for homes of various ages, the estimated number of children in each type of home, and the assumed baseline risk of asthma.

The review reports that a reduction in formaldehyde would result in 2,805 fewer asthma cases annually in the United States.

All but one of the reviews that reported absolute effects also presented confidence intervals accompanying the absolute effects.

Among reviews that reported absolute effects, nearly all reviews reported them in tables. Few reviews included absolute effects in their abstract or in their interpretation of results in the discussion. Of the two

reviews that reported absolute effects in the supplement, one review exclusively reported absolute effects in the supplement and did not include them in the main manuscript (17).

Interpretation of effect size

Fewer than one in ten reviews commented on or described the magnitude of the effect of the exposure(s) of interest on health outcomes. Instead, most reviews based their interpretation and conclusions based on whether the results were statistically significant. Among the few reviews that interpreted the magnitude of effect, the magnitude was often based on the relative effect rather than absolute effect measures. Box 2 presents examples of ways in which reviews described the magnitude of the effect of the exposure(s) on health outcome(s).

Box 2: Description of the magnitudes of the effects in systematic reviews and meta-analyses

Reviews that do not describe the magnitude of effect

Most reviews did not provide a description of the magnitude of effect. Reviews would most often describe whether there was an association between the exposure of interest and the outcome of interest.

For example, Qian and colleagues (2019) present a meta-analysis addressing the effects of plant-based dietary patterns on the risk of type 2 diabetes without an interpretation or discussion of the magnitude of effect (17). Instead, the review only describes that “greater adherence to plant-based dietary patterns, especially those rich in healthful plant-based foods, is associated with lower risk of type 2 diabetes”.

Reviews that describe the magnitude of effect

Reviews that did describe the magnitude of effect often interpreted the magnitude of the relative, rather than the absolute effect.

For example, Kazemi and colleagues (2021) present a dose-response meta-analysis addressing the effects of different foods and food groups on the risk of breast cancer (18). They report that “each additional 100 g/d increase of total meat was associated with a small increase in the risk of breast cancer (RR, 1.07; 95% CI, 1.01–1.13)”. Since the review does not present absolute effects, we can deduce that this description pertains to the relative effect.

Discussion

Main findings

Our study provides an overview of the reporting and interpretation of results in systematic reviews and meta-analyses that address the health effects of nutritional and environmental exposures. We show that reviews addressing nutritional and environmental exposures and health outcomes rarely report or interpret absolute effects. Among reviews that do report absolute effects, absolute effects are often not included in conspicuous sections of the manuscript, such as in tables or in the abstract.

Undue reliance on relative effects may be misleading to evidence users. For example, an exposure that increases the absolute risk of an outcome from 0.001–0.002% and another exposure that increases the absolute risk of the outcome from 30–60% will yield identical relative risks but the effects vary in magnitude and importance for clinical and public health decision-making.

Absolute effects are especially important in nutritional and environmental epidemiology where studies recruit thousands of participants, by virtue of which even small, trial effects may appear statistically significant (19). When investigators do not report absolute effects, even trivial and unimportant findings may be misconstrued and sensationalized by readers. The reporting and interpretation of absolute effects may mitigate this issue.

Implications

Our results have implications for future reviews of nutritional and environmental exposures and the interpretation of these reviews by evidence users.

For review authors, we present guidance describing the calculation, reporting, and interpretation of absolute effects (Box 3). This guidance will also be useful for evidence users who are interpreting the results of reviews that do not report absolute effects and for journal editors and peer reviewers who may direct review authors to report and interpret absolute effects.

Box 3: Calculating, reporting, and interpreting absolute effects

Review authors may present absolute effects in several ways, examples of which include risk differences, numbers needed to treat/harm, or attributable risk. Of these methods, evidence suggests that risk differences are most straightforward for evidence users to interpret (20).

Risk differences represent the difference in risk between two groups (usually the difference between a group with or without an exposure or groups with higher vs lower exposure).

Review authors may calculate the absolute risk difference using the formula below with an assumed risk (AR) (21). The assumed risk represents the assumed baseline risk of the outcome in a group with a defined level of exposure. This assumed risk may be retrieved from the eligible studies in a review or from a representative observational study. When review authors anticipate variation or uncertainty about the assumed risk, review authors may present risk differences corresponding to a range of plausible assumed baseline risks. For example, review authors may choose to present risk differences for a group with low risk, intermediate risk, and high risk of the outcome of interest.

$$Risk difference = AR - AR \times RR$$

Authors may also calculate risk differences using ORs or HRs using the formulae below (21, 22).

$$Risk difference = AR - \frac{AR \times OR}{1 - AR + (OR \times AR)}$$

$$Risk difference = AR - 1 - \exp(\ln(1 - AR) \times HR$$

To calculate confidence intervals around the risk difference, review authors may apply the formula for risk difference to the lower and upper bounds of the confidence intervals of the relative effect (21). This method, however, does not account for the variance of the assumed risk. Review authors may use more complex methods like Propagating Imprecision (PropImp), MOVER, or MOVER-R to account for both the variance of the relative effect and the variance of the assumed risk (23–25).

To improve interpretability, we recommend review authors to translate risk difference in percentage to the risk difference per 100 or 1,000 people (20).

$$Risk difference per 1{,}000 people = RD \times 1{,}000$$

The clinical importance of a risk difference may depend on the underlying risk of events in the population. For example, a risk difference of 0.02 (or 2%) may represent a trivial change if the risk increases from 58–60% or a more important change if the risk increases 0–2%. Hence, we encourage review authors to present the assumed baseline risk, the corresponding risk at different levels of exposure, and the risk difference.

The number needed to treat (NNT) is a common alternative way of presenting absolute risk—most commonly for studies of interventions. The NNT is defined as the expected number of people who need to receive the experimental intervention rather than the comparator intervention for one additional person to either incur or avoid an event (depending on the direction of the result) in a given time frame (26). The NNT, however, has some important limitations (27, 28). NNTs, for example, are often presented without confidence intervals, their confidence intervals are difficult to interpret when results are not statistically significant, and they may be misinterpreted if not reported without an accompanying baseline risk and duration. For these reasons, we encourage review authors to present risk differences.

Box 3: Calculating, reporting, and interpreting absolute effects

Reviews of nutritional and environmental exposures often inform public health decisions and policies for which the effects of exposures over large populations are important. To improve interpretability of reviews for public health, authors may present absolute effects for a population of interest. Such an approach is, however, more complicated because it needs to account for variations in risk and exposure across the population of interest and may necessitate more complex statistical modelling.

For example, Gabet and colleagues (2021) present a systematic review and meta-analysis addressing the association between nitric oxide and breast cancer cases (29). They used results of the meta-analysis to estimate the proportion of breast cancer cases in France that could be attributed to nitric oxide using data on atmospheric concentration of nitric oxide in France, population density by age and gender. The review estimates that a reduction in concentration of nitric oxide to the lowest potential level would prevent 1,667 (95% CI 374 to 2,914) new cases of breast cancer in France per year.

Authors of reviews that address surrogate outcomes (i.e., an outcome that is only important due to its correlation with another outcome), such as LDL cholesterol or blood pressure, instead of outcomes that are of direct importance to patients and the public, such as cardiovascular events or cardiovascular mortality, will need to translate the change in the surrogate outcome to a patient important outcome to optimize interpretability (30). We refer review authors to other sources that describe methods to translate effects of surrogate outcomes to outcomes that are of direct importance (30).

Finally, we caution evidence users to avoid calculating absolute effects by summing the number of participants analyzed and number of events across studies. The most credible effect estimates come from meta-analyses of estimates adjusted for potential confounding factors and absolute effects calculated based on raw event rates will not account for confounders. In fact, adjusted and unadjusted estimates may indicate opposite directions of effect.

Leading authorities in systematic review methods can facilitate increased reporting of absolute effects. In addition to increased awareness of the utility of absolute effects by review authors, journal editors, and reviewers, the revision of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) and the Meta-analyses Of Observational Studies in Epidemiology (MOOSE) to include absolute effects as a criterion may improve the proportion of reviews that report and interpret absolute effects (7, 31).

Strengths and limitations

Strengths of this study include duplicate screening and extraction of data to minimize the potential for errors and the review of a representative sample of recently published SRMAs addressing the effects of nutritional and environmental exposures on health outcomes.

Our study only includes recently published reviews, which may not be representative of all reviews. We anticipate, however, older reviews to be of lower quality than newer reviews and fewer older reviews to report absolute effects (32, 33).

We limited eligibility to reviews that reported on patient-important outcomes because the presentation of absolute effects for surrogate outcomes may be complicated by the need to translate effects for surrogate outcomes to effects for patient-important outcomes for optimal interpretability. For example,

the effect of an exposure on LDL cholesterol will need to be translated to the effect on patient-important outcomes such as risk of cardiovascular events for optimal interpretability.

While we attempted to limit the eligibility of systematic reviews to those with patient-important outcomes, there is subjectivity involved in classifying outcomes as patient-important or subjective and some outcomes may lie on a spectrum.

Conclusion

Our study shows that systematic reviews and meta-analyses addressing the effects of nutritional and environmental exposures on health outcomes rarely report absolute effects, which precludes effective interpretation of magnitudes of effects and their importance and may be misleading to evidence users. We present guidance for review authors and evidence users to calculate and interpret absolute effects.

Declarations

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Authors' Contributions: TSP, DZ, and RdS conceived the study. TSP, TJ, LP, and DZ collected data. TSP and DZ analyzed the data. TSP and DZ wrote the first draft of the manuscript. All authors agreed to the final version of the manuscript.

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Tables

Table 1
Characteristics of systematic reviews and meta-analyses

	All reviews (N = 200)	Reviews from high-impact journals (N = 69)	Reviews from other journals (N = 131)
Journal			
General nutrition journal (e.g., American Journal of Clinical Nutrition)	73 (36.5%)	43 (62.3%)	30 (22.9%)
Specialized nutrition journal (e.g.,Nutrition and Cancer)	4 (2%)	0 (0%)	4 (3.1%)
General medicine journal (BMJ)	23 (11.5%)	8 (11.6%)	15 (11.5%)
Specialized medicine journal (e.g., Current Eye Research)	40 (20%)	0 (0%)	40 (30.5%)
General epidemiology journal (e.g., European Journal of Epidemiology)	48 (24%)	18 (26.1%)	30 (22.9%)
Specialized epidemiology jouranl (e.g., Epidemiology and Psychiatric Sciences)	7 (3.5%)	0 (0%)	7 (5.3%)
Protocol			
Registered or published	113 (56.5%)	37 (53.6%)	76 (58%)
Not reported	87 (43.5%)	32 (46.4%)	55 (42%)
Funding			
Government	81 (40.5%)	25 (36.2%)	56 (42.7%)
Not-for-profit	15 (7.5%)	6 (8.7%)	9 (6.9%)
Industry	2 (1%)	0 (0%)	2 (1.5%)
Institutional	48 (24%)	17 (24.6%)	31 (23.7%)
None	63 (31.5%)	25 (36.2%)	38 (29%)
Not reported	26 (13%)	5 (7.2%)	21 (16%)
Study designs			
Longitudinal (i.e., prospective or retrospective cohort)	185 (92.5%)	66 (95.7%)	119 (90.8%)
Case-control	74 (37%)	19 (27.5%)	55 (42%)

	All reviews (N = 200)	Reviews from high-impact journals (N = 69)	Reviews from other journals (N = 131)
Cross-sectional	57 (28.5%)	12 (17.4%)	45 (34.4%)
Exposures			
Micronutrient (e.g., zinc)	13 (6.5%)	7 (10.1%)	6 (4.6%)
Macronutrient (e.g., carbohydrates)	23 (11.5%)	14 (20.3%)	9 (6.9%)
Food type (e.g., apple)	32 (16%)	17 (24.6%)	15 (11.5%)
Food group (e.g., fruits and vegetables)	20 (10%)	9 (13%)	11 (8.4%)
Dietary pattern	35 (17.5%)	15 (21.7%)	20 (15.3%)
Caffeinated or alcoholic drinks	25 (12.5%)	4 (5.8%)	21 (16%)
Pollutants (e.g., SO2)	35 (17.5%)	3 (4.3%)	32 (24.4%)
Occupational and manufacturing exposures (e.g., asbestos)	6 (3%)	1 (1.4%)	5 (3.8%)
Characteristics of environment (e.g., noise)	9 (4.5%)	3 (4.3%)	6 (4.6%)
Perinatal exposures	3 (1.5%)	0 (0%)	3 (2.3%)
Other	25 (12.5%)	7 (10.1%)	18 (13.7%)
Outcomes			
All-cause mortality	28 (14%)	22 (31.9%)	6 (4.6%)
Cardiovascular mortality	28 (14%)	19 (27.5%)	9 (6.9%)
Cancer mortality	20 (10%)	14 (20.3%)	6 (4.6%)
Cancer incidence	60 (30%)	18 (26.1%)	42 (32.1%)
Cardiovascular events	35 (17.5%)	18 (26.1%)	17 (13%)
Diabetes	26 (13%)	16 (23.2%)	10 (7.6%)
Weight/BMI	9 (4.5%)	4 (5.8%)	5 (3.8%)
Cognition/dementia	7 (3.5%)	0 (0%)	7 (5.3%)

	All reviews (N = 200)	Reviews from high-impact journals (N = 69)	Reviews from other journals (N = 131)
Other chronic conditions	23 (11.5%)	3 (4.3%)	20 (15.3%)
Perinatal outcomes	6 (3%)	2 (2.9%)	4 (3.1%)
Other	37 (18.5%)	9 (13%)	28 (21.4%)
Studies median [IQR]	19 [12 to 34]	19 [12 to 34]	19 [12 to 34)
Participants median [IQR]	429,351 [97,157 to 1,013,273]	658,191 [246,254 to 1,117,564]	246,004 [71,787 to 980,008]
Reviews with statistically significant results	187 (93.5%)	66 (95.7%)	121 (92.4%)
System for assessing quality (certainty) of evidence			
GRADE	25 (12.5%)	9 (13%)	16 (12.2%)
NutriGRADE	13 (6.5%)	9 (13%)	4 (3.1%)
Other	3 (1.5%)	0 (0%)	3 (2.3%)
None	159 (79.5%)	48 (69.6%)	111 (84.7%)
Type of meta-analysis			
Comparison of extreme categories (i.e., highest category vs lowest category of exposure)	159 (79.5%)	61 (88.4%)	98 (74.8%)
Comparison of specific dose categories (i.e., moderate drinkers vs heavy drinkers)	12 (6%)	4 (5.8%)	8 (6.1%)
Dose-response meta-analysis	118 (59%)	48 (69.6%)	70 (53.4%)

Table 2
Reporting of absolute effects in systematic reviews and meta-analyses

	All reviews with dichotomous outcomes (N = 153)	**Reviews from high-impact journals with dichotomous outcomes (N = 68)**	**Reviews from other journals with dichotomous outcomes (N = 85)**
Reviews that report absolute effects	8 (5.2%)	4 (5.9%)	4 (4.7%)
Type of absolute effect			
Absolute risk difference as fraction with assumed risk	6 (75%)	4 (100%)	2 (50%)
Cases prevented	2 (25%)	0 (0%)	2 (50%)
Reviews that report absolute effects with confidence intervals	7 (87.5%)	4 (100%)	3 (75%)
Section(s) in which absolute effects are reported			
Abstract	2 (25%)	0 (0%)	2 (50%)
Results - text	3 (37.5%)	1 (25%)	2 (50%)
Results - table	6 (75%)	3 (75%)	3 (75%)
Discussion/conclusion	2 (25%)	1 (25%)	1 (25%)
Supplement	2 (25%)	1 (25%)	1 (25%)
Source of assumed baseline risk			
Literature/other study	6 (75%)	4 (100%)	2 (50%)
Not reported	2 (25%)	0 (0%)	2 (50%)

Table 3
Interpretation of the magnitudes of effect in systematic reviews and meta-analyses

	All reviews (N = 200)	**Reviews from high-impact journals (N = 69)**	**Reviews from other journals (N = 131)**
Reviews that described the magnitude of effect	18 (9%)	8 (11.6%)	10 (7.6%)
Interpretation of effect size among reviews with dichotomous outcomes based on:			
Absolute effects	3 (2%)	3 (4.4%)	0 (0%)
Relative effects	12 (7.8%)	4 (5.9%)	8 (9.4%)
Unclear	3 (2%)	1 (1.5%)	2 (2.4%)

Supplements

Supplements 1-4 are not available with this version