

Evaluating Introductions

An introduction should:

1. Introduce the topic of the research by placing it in context
2. Explain why the current research is important
3. State the purpose of research question



RESEARCH

CHRISTMAS 2014: GOING TO EXTREMES

The Darwin Awards: sex differences in idiotic behaviour OPEN ACCESS

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Abstract

Sex differences in risk seeking behaviour, emergency hospital admissions, and mortality are well documented. However, little is known about sex differences in idiotic risk taking behaviour. This paper reviews the data on winners of the Darwin Award over a 20 year period (1995–2014). Winners of the Darwin Award must eliminate themselves from the gene pool in such an idiotic manner that their action ensures one less idiot will survive. This paper reports a marked sex difference in Darwin Award winners: males are significantly more likely to receive the award than females ($P<0.0001$). We discuss some of the reasons for this difference.

According to “male idiot theory” (MIT) many of the differences in risk seeking behaviour, emergency department admissions, and mortality may be explained by the observation that men are idiots and idiots do stupid things.¹⁶ There are anecdotal data supporting MIT, but to date there has been no systematic analysis of sex differences in idiotic risk taking behaviour. In this paper we present evidence in support of this hypothesis using data on idiotic behaviours demonstrated by winners of the Darwin Award.¹⁷⁻²¹

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- Common structure – BUT...
- ...depends on specific field
- Refer to reporting guidelines

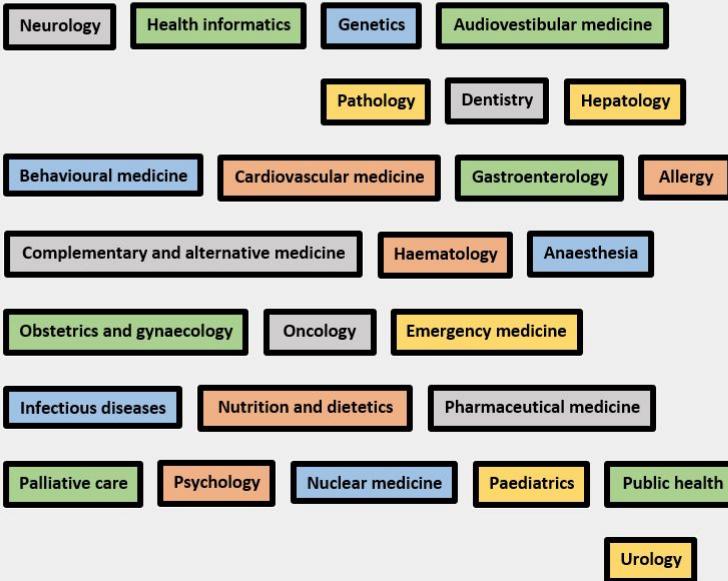




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Randomised trials	CONSORT	Extensions
Observational studies	STROBE	Extensions
Systematic reviews	PRISMA	Extensions
Case reports	CARE	Extensions
Qualitative research	SRQR	COREQ
Diagnostic / prognostic studies	STARD	TRIPOD
Quality improvement studies	SQUIRE	
Economic evaluations	CHEERS	
Animal pre-clinical studies	ARRIVE	
Study protocols	SPIRIT	PRISMA-P
Clinical practice guidelines	AGREE	RIGHT





1. The Three Key Goals

1. Background
2. Importance
3. Research goals

- Context for the present study
- Adequate literature review contains...



1. Background
2. Importance
3. Research goals

- Context for the present study
- Adequate literature review contains...
 - Logical progression from current knowledge
 - Enough detail to understand the research



1. Background
2. Importance
3. Research goals

- Recent relevant studies
- Do you know any others?
- Could a review replace several references?



The screenshot shows the homepage of the Cochrane Library. At the top left is the Cochrane Library logo with the tagline "Trusted evidence. Informed decisions. Better health.". To the right is a search bar with the placeholder "Search title, abstract, keyword" and a magnifying glass icon. Below the search bar are links for "Browse" and "Advanced Search". The main navigation menu includes "Cochrane Reviews", "Trials", "More Resources", "About", and "Help". A prominent banner in the center features a photograph of a hand holding a document and the text "Nutritional labelling for healthier eating Energy information for reducing calorie intake" with a "Read the review" link. To the right of this banner are two smaller boxes: one for "Best of Cochrane Library: 2017" and another for "Yoga for health and well-being". Below these are three tabs: "Highlighted Reviews", "Editorials", and "Special Collections". Under "Highlighted Reviews", there are two entries: "Percutaneous vertebroplasty for osteoporotic vertebral compression fracture" by Rachelle Buchbinder et al., published on 5 April 2018; and "Cognitive-behavioural interventions for attention deficit hyperactivity disorder (ADHD) in adults" by Pablo Luis Lopez et al., published on 23 March 2018. To the right of the reviews is a graphic for "Cochrane Interactive Learning" showing a hand watering a small plant.

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Highlighted Reviews Editorials Special Collections

Percutaneous vertebroplasty for osteoporotic vertebral compression fracture
Rachelle Buchbinder, Renea V Johnston, Kobi J Rischin, Joanne Homik, C Allyson Jones, Kamran Golmohammadi, David F Kallmes
5 April 2018

Cognitive-behavioural interventions for attention deficit hyperactivity disorder (ADHD) in adults
Pablo Luis Lopez, Fernando Manuel Torrente, Agustín Ciapponi, Alicia Graciela Lischinsky, Marcelo Cetkovich-Bakmas, Juan Ignacio Rojas, Marina Romano, Facundo F Manes
23 March 2018

Cochrane Interactive Learning



The screenshot shows the top navigation bar of the Cochrane Library website. It includes the Cochrane Library logo, a tagline "Trusted evidence. Informed decisions. Better health.", and a search bar with a magnifying glass icon. Below the header are menu options: "Cochrane Reviews ▾", "Trials ▾", "More Resources ▾", "About ▾", and "Help ▾". A prominent message in the center says "Preview the new Cochrane Library website" with an information icon.

About Cochrane Reviews

What is a systematic review?

A systematic review attempts to identify, appraise and synthesize all the empirical evidence that meets pre-specified eligibility criteria to answer a given research question. Researchers conducting systematic reviews use explicit methods aimed at minimizing bias, in order to produce more reliable findings that can be used to inform decision making. (See Section 1.2 in the *Cochrane Handbook for Systematic Reviews of Interventions*.)

What is a Cochrane Review?

Cochrane Reviews are systematic reviews of research in healthcare and health policy that are published in the *Cochrane Database of Systematic Reviews*. There are six types of Cochrane Review:

1. **Intervention reviews** assess the benefits and harms of interventions used in healthcare and health policy.
2. **Diagnostic test accuracy reviews** assess how well a diagnostic test performs in diagnosing and detecting a particular disease.
3. **Methodology reviews** address issues relevant to how systematic reviews and clinical trials are conducted and reported.
4. **Qualitative reviews** synthesize qualitative evidence to address questions on aspects other than effectiveness.
5. **Prognosis reviews** address the probable course or future outcome(s) of people with a health problem.
6. **Overviews** summarize multiple intervention reviews addressing the effects of two or more potential interventions for a single condition or health problem.

Cochrane Reviews base their findings on the results of studies that meet certain quality criteria, since the most reliable studies will provide the best evidence for making decisions about health care. Authors of Cochrane Reviews apply methods which reduce the impact of bias across different parts of the review process, including:



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- Current Issue

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- Dx Diagnostic
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- Pg Prognosis
- Qu Qualitative
- Cc Conclusions changed
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Online Publication Date: February 2014

[Review](#)

- Interventions to manage dual practice among **health** workers
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Online Publication Date: July 2011

[Review](#)

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- The WHO **Health** Promoting School framework for improving the **health** and well-being of students and their academic achievement
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RESEARCH ARTICLE

Epidemiology and Reporting Characteristics of Systematic Reviews of Biomedical Research: A Cross-Sectional Study

Matthew J. Page, Larissa Shamseer, Douglas G. Altman, Jennifer Tetzlaff, Margaret Sampson, Andrea C. Tricco,

Ferrán Catalá-López, Lun Li, Emma K. Reid, Rafael Sarkis-Onofre, David Moher Published: May 24, 2016 • <https://doi.org/10.1371/journal.pmed.1002028>

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Page MJ, Shamseer L, Altman DG, Tetzlaff J, Sampson M, Tricco AC, et al. (2016) Epidemiology and Reporting Characteristics of Systematic Reviews of Biomedical Research: A Cross-Sectional Study. PLoS Med 13(5): e1002028. <https://doi.org/10.1371/journal.pmed.1002028>



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We thank Wendy Northcutt and the Darwin Awards Committee for permission to use their data. BL thanks The King Edward VI School, Morpeth, for its support and declares that the study did not get in the way of homework.

Contributors: BADL conceived the study, designed the data collection tools, and cleaned and analysed the data. All authors were involved in interpreting the results and drafting and revising the paper.

- 1 Archer J. Sex differences in aggression in real-world settings: a meta-analytic review. *Rev Gen Psychol* 2004;8:291.
- 2 Galdas PM, Cheater F, Marshall P. Men and health help-seeking behaviour: literature review. *J Adv Nurs* 2005;49:616-23.
- 3 Fehr-Duda H, De Gennaro M, Schubert R. Gender, financial risk, and probability weights. *Theor Decis* 2006;60:283-313.
- 4 Harris CR, Jenkins M, Glaser D. Gender differences in risk assessment: why do women take fewer risks than men? *Judgm Decis Mak* 2006;1(1): p. 48-63.



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According to “male idiot theory” (MIT) many of the differences in risk seeking behaviour, emergency department admissions, and mortality may be explained by the observation that men are idiots and idiots do stupid things.¹⁶ There are anecdotal data supporting MIT, but to date there has been no systematic analysis of sex differences in idiotic risk taking behaviour. In this paper we present evidence in support of this hypothesis using data on idiotic behaviours demonstrated by winners of the Darwin Award.¹⁷⁻²¹

Winners of the Darwin Award must die in such an idiotic manner that “their action ensures the long-term survival of the species, by selectively allowing one less idiot to survive.”²⁰ The Darwin Awards Committee attempts to make a clear distinction between idiotic deaths and accidental deaths. For instance, Darwin Awards are unlikely to be awarded to individuals who shoot themselves in the head while demonstrating that a gun is unloaded. This occurs too often and is classed as an accident. In contrast, candidates shooting themselves in the head to demonstrate that a gun is loaded may be eligible for a Darwin Award—such as the man who shot himself in the head with a “spy pen” weapon to show his friend that it was real.¹⁸ To qualify, nominees must improve the gene pool by eliminating themselves from the human race using astonishingly stupid methods. Northcute cites a number of worthy candidates.¹⁷⁻²¹ These include the thief attempting to purloin a steel hawser from a lift shaft, who unbolted the hawser while standing in the lift, which then plummeted to the ground, killing its occupant; the man stealing a ride home by hitching a shopping trolley to the back of a train, only to be dragged two miles to his death before the train was able to stop; and the terrorist who posted a letter bomb with insufficient postage stamps and who, on its return, unthinkingly opened his own letter.



1. Background
2. Importance
3. Research goals

- Definition of specialized terms
- Acronyms written in full



Abstract

Sex differences in risk seeking behaviour, emergency hospital admissions, and mortality are well documented. However, little is known about sex differences in idiotic risk taking behaviour. This paper reviews the data on winners of the Darwin Award over a 20 year period (1995-2014). Winners of the Darwin Award must eliminate themselves from the gene pool in such an idiotic manner that their action ensures one less idiot will survive. This paper reports a marked sex difference in Darwin Award winners: males are significantly more likely to receive the award than females ($P<0.0001$). We discuss some of the reasons for this difference.

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1. Background
2. Importance
3. Research goals

- Statement of population
- Who is the research relevant to?



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1. Background
2. Importance
3. Research goals

- What value does the paper add?
- Why are we interested?
- Are the claims justified?





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META-RESEARCH ARTICLE

'Spin' in published biomedical literature: A methodological systematic review

Kelia Chiu, Quinn Grundy, Lisa Bero

Published: September 11, 2017 • <https://doi.org/10.1371/journal.pbio.2002173>

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Abstract

In the scientific literature, spin refers to reporting practices that distort the interpretation of results and mislead readers so that results are viewed in a more favourable light. The presence of spin in biomedical research can negatively impact the development of further studies, clinical practice, and health policies. This systematic review aims to explore the nature and prevalence of spin in the biomedical literature. We searched MEDLINE, PreMEDLINE, Embase, Scopus, and hand searched reference lists for all reports that included the measurement of spin in the biomedical literature for at least 1 outcome. Two independent coders extracted data on the characteristics of reports and their included studies and all spin-related outcomes. Results were grouped inductively into themes by spin-related outcome and are presented as a narrative synthesis. We used meta-analyses to analyse the association of spin with industry sponsorship of research. We included 35 reports, which investigated spin in clinical trials, observational studies, diagnostic accuracy studies, systematic reviews, and meta-analyses. The nature of spin varied according to study design. The highest (but also greatest) variability in the prevalence of spin was present in trials. Some of the common practices used to spin results included detracting from statistically nonsignificant results and inappropriately using causal language. Source of funding was hypothesised by a few authors to be a factor associated with spin; however, results were inconclusive, possibly due to the heterogeneity of the included papers. Further research is needed to assess the impact of spin on readers' decision-making. Editors and peer reviewers should be familiar with the prevalence and manifestations of spin in their area of research in order to ensure accurate interpretation and dissemination of research.

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Chiu K, Grundy Q, Bero L (2017)

'Spin' in published biomedical literature: A methodological systematic review. PLoS Biol 15(9): e2002173.

<https://doi.org/10.1371/journal.pbio.2002173>



What new knowledge will we gain?

1. Background
2. Importance
3. Research goals

- Is the research problem defined?
- Will it advance our understanding?
- Does it resolve confusion?



What practical benefits will it provide?

1. Background
2. Importance
3. Research goals

- Is it providing a solution?
- Does it create interventions?
- Will it have real-world benefits?



1. Background
2. Importance
- 3. Research goals**

- What is the purpose of the paper?
- Are clear objectives stated?



Abstract

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According to “male idiot theory” (MIT) many of the differences in risk seeking behaviour, emergency department admissions, and mortality may be explained by the observation that men are idiots and idiots do stupid things.¹⁶ There are anecdotal data supporting MIT, but to date there has been no systematic analysis of sex differences in idiotic risk taking behaviour. In this paper we present evidence in support of this hypothesis using data on idiotic behaviours demonstrated by winners of the Darwin Award.¹⁷⁻²¹

Winners of the Darwin Award must die in such an idiotic manner that “their action ensures the long-term survival of the species, by selectively allowing one less idiot to survive.”²⁰ The Darwin Awards Committee attempts to make a clear distinction between idiotic deaths and accidental deaths. For instance, Darwin Awards are unlikely to be awarded to individuals who shoot themselves in the head while demonstrating that a gun is unloaded. This occurs too often and is classed as an accident. In contrast, candidates shooting themselves in the head to demonstrate that a gun is loaded may be eligible for a Darwin Award—such as the man who shot himself in the head with a “spy pen” weapon to show his friend that it was real.¹⁸ To qualify, nominees must improve the gene pool by eliminating themselves from the human race using astonishingly stupid methods. Northcute cites a number of worthy candidates.¹⁷⁻²¹ These include the thief attempting to purloin a steel hawser from a lift shaft, who unbolted the hawser while standing in the lift, which then plummeted to the ground, killing its occupant; the man stealing a ride home by hitching a shopping trolley to the back of a train, only to be dragged two miles to his death before the train was able to stop; and the terrorist who posted a letter bomb with insufficient postage stamps and who, on its return, unthinkingly opened his own letter.



Abstract

Sex differences in risk seeking behaviour, emergency hospital admissions, and mortality are well documented. However, little is known about sex differences in idiotic risk taking behaviour. This paper reviews the data on winners of the Darwin Award over a 20 year period (1995-2014). Winners of the Darwin Award must eliminate themselves from the gene pool in such an idiotic manner that their action ensures one less idiot will survive. This paper reports a marked sex difference in Darwin Award winners: males are significantly more likely to receive the award than females ($P<0.0001$). We discuss some of the reasons for this difference.

Introduction

Sex differences in mortality and admissions to hospital emergency departments have been well documented,¹⁻⁷ and hypotheses put forward to account for these differences. These studies confirm that males are more at risk than females. Males are more likely to be admitted to an emergency department after accidental injuries, more likely to be admitted with a sporting injury, and more likely to be in a road traffic collision with a higher mortality rate.^{1-8,15} Some of these differences may be attributable to cultural and socioeconomic factors: males may be more likely to engage in contact and high risk sports, and males may be more likely to be employed in higher risk occupations. However, sex differences in risk seeking behaviour have been reported from an early age, raising questions about the extent to which these behaviours can be attributed purely to social and cultural differences.¹⁰⁻¹²

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1. Background
2. Importance
3. Research goals

- Is there logical progression?
- Is the gap in knowledge genuine?
- Is it important?
- Is the hypothesis appropriate?
- Is the subject group suitable?
- Is the structure of writing optimal?





2. Doubling Back

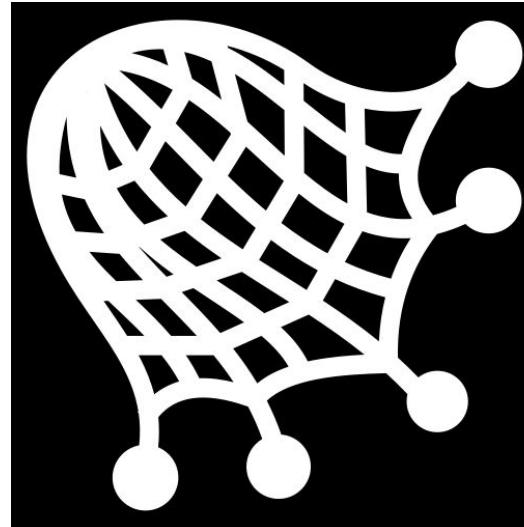
1. Relevance
2. Pre-specification
3. Consistency
4. Clarity

- Do the conclusions match the introduction?
- Operational Vs. Conceptual
- Is the method appropriate for the question?
- Is the conclusion related to the question?

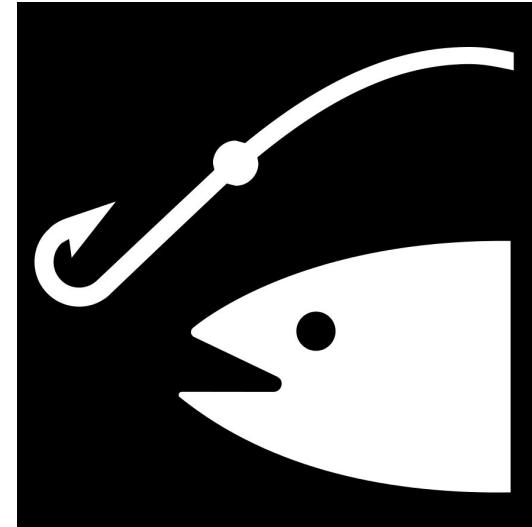


1. Relevance
2. **Pre-specification**
3. Consistency
4. Clarity

Data dredging



Fishing expeditions



1. Relevance
2. Pre-specification
- 3. Consistency**
4. Clarity

- Are all introduction references referred to?
- Does the discussion add new concepts?
- Are they relevant?



1. Relevance
2. Pre-specification
- 3. Consistency**
4. Clarity

- Do the authors use established methods?
- Do they adapt a method?
- Are the variations valid?
- Have the authors explained any changes?



1. Relevance
2. Pre-specification
3. Consistency
4. Clarity

- Is the introduction clear?
- Is it concise?
- Do you understand it?
- Could it be more effective?





p

3. Summary

Summary

- Three key elements to an article introduction:
 - Background – Importance – Goals
- Check that authors explain the importance
- Importance of stating a clear research question
- Problems with designing a question after data analysis
- Considered questions to ask as you read an introduction
- Benefits of re-reading the introduction to better inform your review

