


Mass media guidelines for sports concussion: a scoping review protocol

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ABSTRACT

Sports concussion is a common and costly injury, and increased public injury awareness could help reduce costs. Many factors, including public messages about sports concussion by the sports media, shape public injury awareness. Empirical analyses show that this messaging can be poor. The proposed solutions include providing media guidance, but little is known about this topic. This scoping review will enable a systematic search and synthesis of guidance materials for improved health messaging of sports concussion by the mass media. The five review stages are (1) determining the research question, (2) identifying relevant materials, (3) selecting relevant information, (4) data extraction and (5) analysis and presentation of the results. A brief protocol will be registered on a recommended platform (Open Science Framework). The search strategy will access 20 databases, as well as Google and Google Scholar, and include hand searching. Selected materials must describe or provide mass media guidance for sports concussion by a health-affiliated authority. Eligibility will be confirmed via a two-stage screening process, including independent assessment. Data from eligible materials will be extracted and collated in tables. If sufficient or appropriate materials are identified, the synthesis will draw on key evaluative resources related to injury management and guideline development methodologies. The knowledge synthesis will use descriptive and narrative methods to determine what is known on this topic, including documenting existing guidance (content and properties) and using the extracted data to inform recommendations for future guidance.

INTRODUCTION

Sports concussion (or mild traumatic brain injury) is well recognised by health professionals as a significant health issue. This injury leads to immediate health problems (eg, dizziness, headache). In some individuals, these problems persist for weeks, months or even years.¹ Collision or contact sport players can accumulate a significant repeat injury history.^{2 3} In some individuals, repeat injury may increase the risk for significant late-onset chronic neurodegeneration, known as chronic traumatic encephalopathy.⁴ Reducing sports concussion, including repeat injuries, will require improved public injury awareness.⁵

WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ It is widely accepted that the mass media can positively affect public health messaging.
- ⇒ Formal analyses of mass media messaging about sports concussion, for example, in sports news reporting and sports commentary, show that this messaging may not serve public health interests and instead may contribute to misconceptions.
- ⇒ A proposed solution is to improve sports concussion media messaging through media guidance (eg, recommending injury terminology). Still, little is known on this topic, including the nature and extent of such guidance.

WHAT THIS STUDY ADDS

- ⇒ This scoping review will search for and extract data from mass media guidance about sports concussion produced to facilitate accurate and responsible health messages.
- ⇒ Systematic and replicable methods will be used to ensure a high-quality review.
- ⇒ This review will add to the field by scoping indexed and non-indexed (ie, grey) resources.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ This review aims to document mass media guidance for sports concussion, including content and process aspects, to support consideration of its capacity to improve health messaging.
- ⇒ This review will lead to recommendations for mass media sports concussion guidance through its synthesis of extracted data, especially the identified strengths, limitations and implementation details.
- ⇒ This review could support a future systematic review of the effectiveness of guidance in enhancing public awareness about sports concussion.

Sports concussion occurs in public, for example, during spectator sports, with events often captured and relayed in the mass media. This coverage extends public access to written and audio descriptions of sports concussion and vision of injury events. These events are filmed, commented on and replayed via highly accessible means such as television and the internet. Sports news reporting may discuss game- or player-implication of sports concussion, and sports culture.^{6 7} While the



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primary purpose of the mass media coverage of sport (and sports concussion) is arguably entertainment and not public health, several authors see a role for the mass media in improving public injury awareness.^{3,8}

Unfortunately, several formal analyses of the mass media coverage of sports concussion have revealed inaccuracies in the reported information (sometimes termed ‘misconceptions’),⁸ inappropriate/irresponsible elements (eg, treating the injury as humorous)⁹ and instances of downplaying or deflecting from the injury (eg, suggesting it arises from skill deficits).¹⁰ These studies show that the media reporting of sports concussion must improve to benefit public injury awareness.

Importantly, when the media conveys *correct* information about sports concussion, it improves public injury awareness. An empirical study published in 2020 showed that accurate mass media reporting improved sports concussion identification (whereas inaccurate reporting decreased it).¹¹ In a simulated mass media communication, the public was more likely to correctly recognise a sports concussion when they saw it in footage overlaid with correct injury management information (ie, text explaining removal from play).¹¹ This early evidence suggests that accurate and responsible sports concussion messaging can improve public sports concussion awareness.

The need for improved mass media coverage of sports concussion has led to several proposed solutions; however, relatively little is known about them. The proposed solutions include providing journalists with concussion education, and journalists working in partnership with health professionals (eg, concussion consultants).⁸ However, some suggest that these approaches could be considered too resource- or time-intensive and unlikely to be widely adopted.⁸ Another suggestion is to formulate health advice (or guidelines) for the accurate and responsible reporting of sports concussion and promote this guidance to journalists and others, such as sports commentators or callers.⁸ This solution is arguably the most cost-effective of the proposed options, and it is used in other areas (eg, to guide media communications about suicide)¹²; therefore, it was adopted as the focus of this review.

To our knowledge, the earliest attempt by health professionals to formalise accurate and responsible sports concussion media guidance appeared in an academic paper published in 2017.⁸ However, it is unclear if this is the only such advice. Before this paper, there were isolated suggestions about health messaging and sports concussion, including for social media, but this advice was not comprehensive nor formalised as ‘guidance’ per se. In 2023, a new consensus statement on concussion in sport was published, including recommendations for injury assessment and return to play.¹³ The release of this statement raises questions such as whether the media guidance for past sports concussion requires adjustment. Furthermore, other advice with the same aim may exist in formats that may be more accessible to journalists and/

or mass media affiliates (eg, non-journalist commentators), such as on organisational websites. Given that scoping reviews are recommended when the evidence is emerging, heterogeneous, widely dispersed or insufficient to answer questions of effectiveness,^{14,15} this methodology was chosen to build an understanding of existing health-oriented sports concussion mass media reporting guidance. Furthermore, this methodology is recommended when the review aims to ‘bring together and report upon ... (materials)... across disciplines within and beyond health,¹⁵’ This applies to this review topic, which spans health, sport and journalism.

METHODS AND ANALYSIS

Published guidance on the media reporting of sports concussion is likely to appear in various sources and formats and derived using different methodologies. To account for this variability and ensure a rigorous process, this scoping review will adopt the methods outlined in the Joanna Briggs Institute (JBI) manual for knowledge synthesis¹⁶ and report findings according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews (PRISMA-ScR) guidelines.¹⁷ This protocol will also be registered on the Open Science Framework (OSF)¹⁸ in a brief format aligning with the PRISMA-ScR framework.

This review has five stages: (1) determining the research question, (2) identifying relevant information (search strategy), (3) selecting relevant studies (eligibility criteria), (4) data extraction and (5) analysis and presentation of the results. It will systematically search relevant materials, including databases and grey literature, and employ rigorous data extraction procedures (eg, independent extraction by at least two authors). These processes are adopted to deliver a high-quality, narrative knowledge synthesis with quantification (eg, counts) of key extracted data (eg, how many materials exist). This study does not require approvals (eg, ethical clearance), and the review stages will occur over 2 years (2024 and 2025).

Determining the research question

Several review team members have conducted sports concussion research, including in relation to mass media. The research question was informed by their experience and discussions with consulting experts, including a medical doctor with sports concussion expertise, a journalism academic, a former professional player of a collision sport and a current sports science and exercise academic. The need for a scoping review on the topic of mass media reporting of sports concussion was refined through this process.

Initial registry (Prospero, OSF) and database (Scopus) checks were performed to determine if this topic was already being addressed. This check located *proposed* and *completed* sports concussion and mild traumatic brain injury scoping reviews (eg, injury management).¹⁹ While none was found on our topic, we used the identification of

sports concussion scoping reviews to frame our research question (eg, cross-checking search terms).

A preliminary Google search was performed for mass media guidelines for reporting sports concussion or other health events or injuries. This search located relevant guidance by the Concussion Legacy Foundation,²⁰ guidance for suicide reporting¹² and other statements (eg, a government statement about media reporting and venue access for sports news reporting, as opposed to health). The latter information was used to establish search limits (exclusions); for example, ruling out guidance by non-health authorities or where its intent was not to improve concussion messaging. The identification of media advice for reporting suicide was considered in the framing of our research question (eg, selecting mass media terms). Furthermore, we located an in-progress systematic review on suicide and the effect of media guidelines²¹ and we considered that, in future, our review might serve the role of a 'helpful precursor'¹⁴ for a future systematic review on sports concussion and the effect of media guidance.

It was determined that the current scoping review would answer the following research question: *What guidance exists for the mass media reporting of sports concussion to ensure the accuracy of health information, and what are its characteristics?*

Based on the review materials, the specific objectives were:

1. To locate existing media guidance by a health-affiliated authority for the mass media reporting of sports concussion
2. To document content characteristics (eg, purpose and target (such as particular sports, countries, media type), format, scope, etc) and identify key aspects (eg, commonalities, currency with respect to health advice)
3. To document process characteristics (eg, ownership, contributors, construction methods, etc)
4. To determine how guidance proponents discuss the key strengths/weaknesses and adoption/implementation of their guidance and use the synthesis to make recommendations about this guidance.

Identification of relevant information (search strategy)

The team will construct the search strategy for this scoping review. The proposed terms and process will be developed from the following sources: (a) advice from an experienced librarian (CH), (b) published guidance on performing scoping reviews^{14 15} and grey literature searching²² and (c) consideration of terms used in related reviews (eg, media guidance for suicide).¹²

The search strategy has three stages. First, *database and Google Scholar* searches will be run to retrieve scholarly articles. Database Subject Headings (such as MESH) and exploratory searches were run by CH to identify relevant terms for the search. The following peer-reviewed databases with a focus on health, sport and business (journalism) were identified as relevant for the review:

- Embase, Scopus and Web of Science.

- On EBSCO, Sports Discus, Medline, APA PsycINFO, Academic Search Elite and Business Source Elite.
- On ProQuest, ABI/Inform, Australia & New Zealand Database, Health & Medical Collection, Psychology Database, Public Health Database, Research Library, Social Science Database, Sociology Database (1985—current), ProQuest Dissertations and Theses Global and Sociological Abstracts.
- Google Scholar.

The proposed search is provided in online supplemental appendix 1.

The second stage will search for grey literature (using ProQuest Dissertation and Theses Global database) and guidelines (using Advanced Google).

The third stage will use citation tracking, reference checking of the included papers and consultation with experts, including guidance authors.

CH will conduct the final database and grey literature searches. The identified materials will be amalgamated for further processing, including via the application of specialist software (eg, Covidence).

Eligibility (inclusion criteria)

The inclusion criteria were chosen to support collecting and extracting information related to the review aim and research questions. These criteria were systematically framed using JBI constructs: population, concept and context. An abbreviated version of the selection criteria was used for the registry document.¹⁸

Population

The target population for this review is the mass media and their affiliates. This includes people such as journalists and expert commentators/callers (both professional and ex-player) engaged in sports reporting (including the production of sports news and/or live commentary) under the banner of a mass media organisation.

A Prospero systematic review of mass media communications and their effect on suicide explored definitions of the mass media as communication channels with a large audience volume independent of person-to-person contact.²¹ With this in mind, the current review will adopt a mass media definition based on Potter's critical evaluation of 23 mass media definitions.²³ Potter's evaluation identified 'accepted elements' in three overarching domains (ie, sender, receiver and distribution channel), as summarised in online supplemental appendix 2. Adopting this definition will ensure that the present review is focused on targeted entities and will exclude guidance for other communications, such as guidance for reporting sports concussion in a private communication between two individuals (eg, a doctor-patient dyad) or for non-mass media-affiliated individuals (eg, an individual's social media post).

Concept

The central review concept is the mass media messaging about sports concussion, specifically if there is guidance

supporting practices that facilitate public understanding of health-related aspects of sports concussion and minimise misconceptions.

This review is focused on sports concussion events or incidents. This review adopted Sojka's²⁴ definition of 'sports concussion' as a concussion that occurs during organised sports as opposed to during a fall or while at work ('non-sports concussion').²⁴ While a concussed professional sportsperson could be considered injured at work, for this review, such events will count as sports concussion. Furthermore, a sports concussion is also medically known as a *mild traumatic brain injury*. Moderate and severe traumatic brain injuries can also occur during sport but are much less common. This review will not consider the media reporting of moderate or severe traumatic brain injuries. This review is aimed at the reporting of sports concussion incidents, as opposed to potential long-term correlates (such as chronic traumatic encephalopathy). It will canvas sports in general, focusing on collision sports that attract media coverage (eg, professional sports) with a high concussion incidence, such as football.

This review aims to identify guidance produced by a health-affiliated source for use by mass media affiliates to address actual (as opposed to fictional) sports concussions (as in a movie). Prior studies have shown that the depiction of concussion in fictional media (eg, movies) can downplay or misinform audiences about this injury. However, guidance for such depictions will not be addressed in this review.

The terminology, *reporting sports concussion*, can be used in the literature to refer to the actions of a symptomatic athlete who presents for injury assessment. Athletes can be reluctant to report sports concussions, for example, if it could mean that they are removed from a game. This review does not address this kind of sports concussion reporting, although the mass media guidance may refer to related processes, such as on-field or off-field injury assessments. As such, sports concussion guidance for other purposes (eg, for concussion assessment), other audiences (eg, treating professionals; non-mass media-affiliated individuals) or that are not health-focused/by a health authority are outside the scope of this review.

This review is focused on identifying guidance relevant to the review question, with the term guidance chosen to capture materials that could have different formats or labels (eg, guidelines, recommendations, checklists or advice/advisories/advisory statements). All such materials will be considered in this review if they offer consolidated (not isolated) points relevant to the review aims. However, this review will exclude general guidance about injury reporting as might appear in journalism codes of ethics or statements about sports concussion by sports-affiliated groups, as this information could serve multiple or more general purposes.

Context

Guidance produced by health-affiliated individual/s or organisation/s for mass media affiliates will be eligible for inclusion. Geographical restrictions will not be applied. However, sources will be limited to those published in English for feasibility.

Guidance packaged within other materials will be excluded (eg, in media training programmes or modules). However, if such material is identified, it will be tagged and may be commented on. We will investigate such materials as much as possible to determine if they refer to supporting materials that should be included in the review; however, it is beyond the scope of this review to consider broader media training programmes.

Similarly, suppose a relevant but isolated statement about media messaging of sports concussion is identified, for example, as a general point of discussion in a paper. Such statements may be tagged and discussed, but coverage at this level is highly likely to be 'insufficient' to address the review aims and therefore is out of scope.

Date range

The search will not be date limited. However, sports concussion health advice, including injury identification and management protocols, is rapidly changing. Thus, identified guidance will be considered considering the most recent injury management advice (eg, consensus statement on sports concussion).

Types of evidence to be included

Published and unpublished guidance as identified from searches and expert consultation. Information will be sought through a 'snowball' technique²⁵ and personal communication with other researchers/authors of identified sources. This review will accept materials produced using quantitative, qualitative, mixed or multimethods strategies. Study methods can be comparative (eg, randomised, controlled, cohort, quasi-experimental) or non-comparative (eg, survey, narrative, audit, Delphi). Eligible sources are journal articles, book chapters, theses, non-commercial websites (eg, government or organisation), and government or third-sector reports. Reference lists of eligible materials will be searched for other sources. Guidance from the grey literature will include unpublished research or materials, information available through organisational or governmental websites (eg, PDFs or reports) and conference proceedings.

The screening stage will commence with duplicate removal. First, automated deduplication with human oversight will be performed. This task will be performed with Endnote and Covidence (a knowledge synthesis management platform). One author will screen all duplicates found via automated processes before removal. A manual deduplication process will then be deployed to identify missed duplicates. This manual process will run concurrently with source screening against the selection criteria based on source title and abstract/synopsis. This

process will result in an initial pool of selected materials entering full-text screening. The hand search (snowball) strategy will be deployed concurrently with full-text screening, ensuring that potentially relevant materials (eg, those cited in full-text screened materials) can also be entered for full-text screening.

Discrepancies in the selection of materials will be minimised through the use of pilot-tested selection criteria. The pilot test will involve the application of the criteria to a randomly selected set of materials (hereafter, *random set*). If adjustments are needed, they will be incorporated into the final selection criteria. The final selection criteria will be retested on a second random set, and inter-rater agreement will be calculated (Kappa coefficient). This process will be repeated until a satisfactory Kappa coefficient (ie, ≥ 0.80 , strong-to-perfect agreement).²⁶ The Kappa coefficient will be periodically recalculated using additional random sets to ensure satisfactory agreement.

Two authors will each serve as independent evaluators responsible for conducting and supporting source selection. These evaluators will perform title and abstract screening of all potentially eligible materials. Using the selection criteria, the evaluators will categorise materials as meeting the review selection/eligibility criteria ('Yes'), not meeting criteria ('No') or indeterminate ('Maybe'); all 'Yes' and 'Maybe' coded articles will be retained for full-text screening. Suppose a discrepancy occurs (ie, a 'No' code and a 'Maybe' code for the same material). The discrepancy will be reviewed and resolved by the senior research team members and/or consulting experts in that case. If the discrepancy remains unresolved, the materials will be retained for full-text screening.

Data extraction

Eligible articles/documents will be sourced in full, reviewed and charted by two research team members. The data extraction process will be informed by Arksey and O'Malley.²⁷ Data extraction will be independently performed by two team members per source, with a third team member supporting this process, as required. The data extraction tool will be pilot-tested before use. During pilot testing, extraction criteria may be modified to ensure complete extraction. Discrepancies identified in extracted information will be reviewed and resolved by a senior member of the research team and/or consulting experts. Online supplemental appendix 3 outlines the proposed fields for data extraction. Screening and extraction of the resulting information will be performed in Excel and Covidence, with extracted information contained in separate forms (or worksheets) and organised according to the review objectives (eg, guidance content, process, etc). Microsoft Word will be used to write the review and associated documents and to produce tables for publication.

Critical appraisal of sources

The critical appraisal of information in knowledge synthesis products requires careful selection, including

consideration of the available tools for supporting this process.²⁸ This review will draw on information from different source types (ie, with different attributes, methodologies, presentations, etc) to provide a comprehensive overview of this topic. This approach is necessary for this review topic and is typical for scoping reviews. However, it results in source heterogeneity that can preclude meaningful quality appraisal.¹⁵ Critical appraisal tools are more common in systematic than scoping reviews, especially when targeting evidence from a particular study type (such as randomised controlled trials) or when the review purpose is supporting clinical decisions.¹⁵ Given these factors, this scoping review will not routinely include a quality appraisal.

Despite this, if sufficient or appropriate material exists, this review will attempt to evaluate the guidance (a) against a clinical guideline evaluation tool (AGREE). The AGREE tool aims to evaluate *clinical decision-making* guidelines.²⁸ While such guidelines are not the focus of this scoping review, it is anticipated that the AGREE tool could support the evaluation of the guidance (eg, process elements, such as stakeholder involvement).

Analysis and presentation of results

The reporting of research and reviews must be carefully planned, including consideration of recommended frameworks.²⁸ This review does not anticipate data transformation. This review will present and report results via the following strategies: (a) use of the PRISMA-SR checklist,¹⁷ a recommended framework for ensuring adequate detail in the reporting of scoping reviews, (b) a descriptive (numerical) analysis of sources (eg, number, nature, etc), (c) a narrative analysis of the guidance reporting key data (eg, commonalities in the process and content characteristics of the guidance and, (d) if sufficient information exists, consideration of the guidance against sports concussion health advice (eg, consensus statement)¹³ and an AGREE tool. The reporting of results will include a compilation of key recommendations from the guidance authors on guidance strengths, weaknesses and application/implementation. The knowledge synthesis will include recommendations for guidance development. Taken together, these strategies will ensure that high-quality review conventions are followed and formally documented (strategy (a)), and strategies (b) through (d) will address review objectives 1 through 4.

Knowledge translation

Knowledge translation is a key component of the research process and is often overlooked, multilayered and complex.²⁹ A component of knowledge translation is the accessibility of findings, including physically (ie, where research products are housed and disseminated, and if the target audience accesses them) and conceptually (how the findings are presented and if this follows disciplinary norms and/or is framed for end users).²⁹ A risk for this review is the low accessibility of the findings for both reasons. To address this risk, this review

will include consultation with an expert panel to frame results appropriately (meaningful to a cross-disciplinary audience). However, for feasibility, this panel is likely to be relatively small and sought via convenience. It will not involve the wider public or patients, but we will seek end-user involvement (eg, journalists). To further support the translation and accessibility of our review findings, we will seek additional input from guidance authors. The partnership between the authors and the expert panel will be established early in the project until its conclusion. This panel is expected to contribute (a) insights to the review process and feedback on its findings (b) and may extend to assistance with disseminating findings via panel member networks. Traditional academic dissemination methods, such as peer-reviewed publications and academic presentations at local, national and international conferences, are planned. Furthermore, traditional academic publications are important as they must undergo independent peer review, and accessibility can be improved via inclusion in open-access repositories as we propose to use (subject to embargos and copyright restrictions). Other project resources, such as the data extraction tools, will be available on reasonable request.

DISCUSSION

This scoping review will identify and detail existing resources for guiding the media reporting of sports concussion for accurate and responsible public health messaging. Analysing the strengths, weaknesses and application of guidance can support its evolution. This knowledge synthesis may identify avenues for promoting this guidance in mass media communications about sports concussion, which could improve public injury awareness. Although the media coverage of sports concussion is no longer confined to the entities in this review, other entities could use our findings to inform their commentary. Importantly, this scoping review will inform researchers about implementation parameters that could be further investigated in a systematic review. The synthesis of knowledge on existing mass media sports concussion guidance will spur future studies, including how to harness this guidance for improved public identification of sports concussion and its correct management, which in turn, could reduce our sports concussion burden.

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Contributors KS: conceived the initial idea, designed the review and drafted the manuscript. CH: provided input into review methodology including the search strategy. KSJ, KL, CH: provided study protocol and manuscript input. All authors approved the final manuscript. KS is the guarantor.

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Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval Scoping reviews generate new knowledge from the synthesis of published and publicly available materials and they do not involve human participants. Therefore, research ethics approvals are not required to conduct this research. This project will engage an expert panel to support the research process. Planned dissemination activities include peer-reviewed publications and academic presentations at local, national and international conferences. Where possible, publications will be posted on an open-access platform (institutional repository).

Provenance and peer review Not commissioned; externally peer-reviewed.

Data availability statement Data sharing is not applicable as no datasets generated and/or analysed for this study.

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