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# SCOPING REVIEWS: METHODS, PROTOCOL AND LESSONS LEARNT

## Scoping Reviews and Structured Research Synthesis in Sport: Methods, Protocol and Lessons Learnt

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### Abstract

Research synthesis is an essential part of the research process that we argue has been underutilized by sport policy/management researchers. This commentary seeks to advance the discussion surrounding research synthesis by introducing scoping reviews as a potentially useful approach to synthesizing research evidence. In doing so, we provide an overview of current methods and protocols of the scoping approach and critically reflect upon the value and utility of scoping reviews by highlighting the lessons learnt from two previous scoping studies within the field. More broadly, our aim is to generate further discussion and debate surrounding research synthesis within the sport policy/management domain and to encourage sport scholars to adopt more structured approaches to synthesize research evidence.

*Keywords:* research synthesis, scoping review, protocol, reviewing, methods

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### Scoping Reviews and Structured Research Synthesis in Sport: Methods, Protocol and Lessons Learnt

Research synthesis is an integral part of the research process that involves the integration of existing knowledge and research findings relevant to a particular topic. It is an important component of any research project. Despite this, we argue that the process of structured research synthesis remains underutilized by sport policy/management researchers. Weed (2005) recognized this issue nearly 15 years ago when he drew upon Forscher's (1963) analogy of 'Chaos in Brickyard,' to argue that structured research synthesis had not been embraced by sport policy/ management researchers. The inherent danger forewarned by Forscher (and indeed Weed) was that builders and bricklayers (researchers) might continue to produce studies (bricks) that would be thrown onto a pile of research without any consideration of how they contribute to a body of knowledge (edifices). Weed's review identified the most common employed methods in structured research synthesis (systematic review, meta-analysis, and meta-interpretation) in social sciences at that time and discussed their utility and benefit to sport policy/management. Despite Weed's challenge to the sport policy/management enterprise, there are many reasons for why it is necessary to revisit the importance and the value of structured research synthesis within the field.

First, there have been a number of attempts to conduct structured reviews within the field (e.g. Ciomaga, 2013; Filo, 2015; Tacon & Vainker, 2017). While these studies and dedicated journal space collectively serve to demonstrate an increasing awareness of, and interest in, the potential value of structured reviews, utilization of structured reviewing within the field still remains limited, especially when compared to other disciplines (Cooper, Hedges, & Valentine, 2019). Second, there have been a number of advancements in structured review protocol and

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methodology over the past two decades. Not only has structured reviewing become increasingly more important and prevalent across many scientific disciplines in general (Chalmers & Fox, 2016), but considerable advancements have been made in terms of developing standardized protocols for structured reviewing (PRISMA statements/protocols and the Cochrane Database). Third, although wider debates and discussions regarding research synthesis protocol and methodology continue, there seems to be a broader acceptance by many scholars of other types of structured reviews beyond the traditional systematic review (Grant & Booth, 2009). These include, but are not limited to: bibliometric reviews, state-of-the-art reviews, overview reviews, integrative reviews, mapping reviews, rapid reviews, realist reviews, meta-analysis, meta-synthesis, and umbrella reviews; some of which have yet to be employed by sport policy/management scholars. One recent advancement, of which this article focuses, is the increasing use and protocol establishment of *scoping reviews* (Peters et al., 2015; Pham et al., 2014; Tricco et al., 2016). Fourth, and linked to the above, as the sport policy/management field continues to grow and mature, the importance of research synthesis is only likely to become more pronounced as scholars continue to make sense of what is increasingly becoming a larger body of knowledge spanning across a wider range of research domains. This issue is particularly pronounced for applied and multi-disciplinary fields like sport policy/management. The use of research synthesis is therefore an important step in ensuring we continue to build edifices (i.e. good theory) within the field rather than a pile of bricks and to be able to effectively demonstrate the contribution of the sport policy/management domain to other fields.

In recognition of the above, the purpose of this commentary is to extend the discussion surrounding research synthesis within the field by introducing scoping reviews as a potentially useful approach to synthesizing research evidence and to critically reflect upon its potential value

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and utility for synthesizing research within the sport policy/management domain through highlighting the lessons learnt from two previous scoping studies within sport.

Our commentary is structured as follows: we begin by distinguishing between structured and unstructured reviews and discussing the benefits of conducting structured reviews. Next, we provide an overview of scoping review protocol and method and discuss how it might be applied to the sport policy/management domain. We then critically reflect upon the potential value and utility of scoping reviews through highlighting the benefits and challenges and general lessons learnt from two recent scoping review studies within sport. We conclude with a discussion regarding the potential next steps for encouraging further research synthesis within the field.

### **Structured versus Unstructured Reviewing**

It is necessary at this juncture to clarify what is meant by structured reviewing. Structured reviewing refers to any review of the literature that employs systematic search strategy protocol to gather evidence (Booth et al., 2013; Grant & Booth, 2009). Structured reviewing can be contrasted with unstructured reviewing or the more traditional ‘narrative review’ which involves a deliberate selection of previous studies utilizing a non-systematic approach (Fink, 2019). We recognize, however, that this distinction is somewhat artificial. Fink (2019), for example, defines a literature review as “a systematic, explicit, and reproducible method for identifying, evaluating and synthesizing the existing body of work produced by researchers, scholars and practitioners” (p. 6). This definition suggests that all reviews, whether narrative or structured, should employ a systematic, explicit and reproducible methods to synthesize previous research. Hammersely (2013) argues:

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who would want reviews to be unsystematic, if by ‘systematic’ we mean no more than properly carried out, taking account of all the relevant evidence, and making reliable judgements about its validity and implication? On this definition, to produce a systematic review is simply to do the job of reviewing well. (p. 110)

A further compounding issue is that structured reviewing is also sometimes referred as systematic reviewing, which not to be confused by, but often conflated with, systematic reviews as a specific type of review. We therefore prefer the term ‘structured,’ as opposed to ‘systematic’ reviewing, as an umbrella term to describe all structured review types that employ a systematic search strategy protocol including systematic reviews as one of many sub-types (Booth et al., 2013; Grant & Booth, 2009).

**\*\*\*insert Figure 1 (structured vs. unstructured reviewing) about here\*\*\***

The distinction between structured and unstructured reviewing is illustrated in Figure 1. Figure 1 highlights the most common structured based reviews. Distinguishing between different structured review types is also a challenging task, as they share many characteristics but have different aims and employ a range of protocols. For example, systematic reviews provide a saturated review of the existing literature and to make observations on what is known with a focus on a comprehensive coverage of the literature. In contrast, scoping reviews are typically employed as a preliminary assessment of the field, whereby the boundaries of a particular domain are unclear (see Table 1 for a distinction between scoping and systematic reviews). Ultimately, the decision of which structured review type to employ should be “based on the nature of your research question and the purpose of your research, as well as the time and

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resources available to you” (Booth et al., 2013, p. 2). Like Grant and Booth (2009), we recognize:

only a handful of review types possess prescribed and explicit methodologies and many labels used fall short of being mutually exclusive ... [we recognise] that there is a lack of unique distinguishing features for most common review types, whilst highlighting that some common features do exist. (p. 106)

The overlap of features and characteristics, along with the continually expanding portfolio of review types and evolving protocol of structured reviewing has led to some scholars confusing (or at least conflating) the different review types. Nonetheless, we view this increasing plurality and proliferation of structured approaches to synthesizing research as further evidence of the increasing importance and need to synthesize research evidence.

**\*\*\*insert table 1 (key differences between systematic and scoping reviews) about here\*\*\***

### **Scoping Reviews - Protocol and Method**

One increasingly prominent structured approach for synthesizing research evidence is the adoption of scoping review protocol and methodology (Tricco et al. 2016). Scoping reviews have emerged as an increasingly popular form of knowledge synthesis (cf. Colquhoun et al. 2014; Tricco et al. 2016) that can be influential to policy and practice. A scoping review is a “preliminary assessment of potential size and scope of available research literature [that aims] to identify nature and extent of research” (p. 101). Recently, Tricco et al. (2018) have provided a more detailed description of the scoping review:



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They [researchers] may examine the extent (that is, size), range (variety), and nature (characteristics) of the evidence on a topic or question; determine the value of undertaking a systematic review; summarize findings from a body of knowledge that is heterogeneous in methods or discipline; or identify gaps in the literature to aid the planning and commissioning of future research. (p. 467)

Scoping reviews therefore have varying objectives. Moreover, they are rapidly increasing in popularity. In 2009, less than 10 scoping reviews were published in the scientific literature annually and since 2009 yearly increase have been observed with 85 scoping reviews published in 2013 alone (Colquhoun et al., 2014). With the burgeoning interest in the scoping review the method by which it is carried out should be consistent. There are established guidelines and protocol for carrying out scoping studies. For example, the Joanna Briggs Institute (JBI, 2015) published a guidance document for the conduct of scoping reviews (see also Peters et al., 2015). These protocols were developed based on earlier frameworks by Arksey and O'Malley (2005) and Levac et al. (2010), constituting six key steps: (a) identifying the research question, (b) sourcing relevant studies, (c) study selection, (d) charting the data, (e) collating, summarizing and reporting the results, and (f) consultation (see Table 2 for an overview of each step).

**\*\*\*insert table 2 (overview of scoping review protocols) about here\*\*\***

It is important to note that the adoption of these protocols is not straightforward and presents some challenges (Levac et al., 2010). For example, while Levac et al. (2010) suggested that the sixth step of their guidelines – consultation exercise – should be viewed as a required step (rather than an optional step based on Arksey and O'Malley's [2005] original framework),

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they also acknowledged that, in reality, the implementation of this step is time-consuming and requires substantial efforts because it involves primary data collection with stakeholders, many of whom are hard-to-reach (e.g., vulnerable residents affected by a new policy). Also, as we provide further details in the next section, the first five steps of the guidelines are likely to be an iterative process, where researchers engage in discussions and negotiations to refine their research questions and strategies for selecting, analyzing, and synthesizing the studies reviewed in their scoping review.

Additionally, the provision of reporting guidelines has been shown to increase methodological transparency and uptake of research findings (Simera et al., 2010). The PRISMA is an evidence-based minimum set of items for reporting in systematic reviews and meta-analyses. The aim of PRISMA is to assist authors to improve the reporting of systematic reviews and meta-analyses ([prisma-statement.org](http://prisma-statement.org)). Indeed, many peer-reviewed academic journals (approximately 174 in the health sciences) require the reporting of systematic reviews and meta-analyses to be in line with the PRISMA guidelines (Moher et al., 2015). PRISMA has been included as one of the tools for assessing the reporting of research within the EQUATOR Network (Enhancing the Quality and Transparency of Health Care Research), an international initiative that seeks to enhance reliability and value of medical research literature by promoting transparent and accurate reporting of research studies ([equator-network.org](http://equator-network.org)). A PRISMA protocol checklist for the reporting of scoping reviews (PRISMA-ScR) was produced in 2018 (Tricco et al., 2018). See Table 3 for an outline of the PRISMA-SCR checklist.

**\*\*\*insert table 3 (PRISMA-ScR Checklist) about here\*\*\***

### **Scoping Reviews in Sport: Strengths, Weaknesses, and Lessons Learnt**

This section draws from the insights of leading scholars in the scoping review methodology (e.g., Arskey & O'Malley, 2005; Levac et al., 2010), as well as our personal experiences of conducting some of the first scoping reviews in the sport policy/management domain (Author1 et al., 2018; Author4 et al., 2015) to identify and reflect upon the key strengths, weaknesses, and potential challenges of scoping reviews as a form of research synthesis.

The first strength of a scoping review is that its broad and inclusive nature enables researchers to assess the extent and breadth of existing literature within a relatively short time period (Arksey & O'Malley, 2005). For this reason, scoping reviews are commonly carried out prior to full syntheses of evidence when feasibility of the research is considered to be a challenge, either because the relevant literature is believed to be vast and diverse (varying by methods, theoretical orientations and disciplines) and/or it is thought that limited research exists. Grant and Booth (2009) also highlighted that the use of scoping reviews can inform policymakers as to whether a full systematic review is needed. Taken together, the scoping review constitutes an appropriate strategy for both researchers and policymakers who seek to collate preliminary scientific evidence in an efficient manner.

Another major strength is that scoping review protocols are designed to allow researchers to include a range of study designs in both published and grey literature, which would be particularly useful for those in disciplines with emerging evidence (Tricco et al., 2018). For example, over 40% ( $n = 99$ ) of the 243 articles analyzed for Author1 et al.'s (2018) scoping review of the sport governance literature were non-empirical, including case studies, review and theoretical articles, and research notes. Similarly, Author4 et al.'s (2015) scoping review of studies regarding spectator sport's effects on population health included eight studies from non-

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peer reviewed sources (e.g., technical research reports), in addition to peer-reviewed academic journal articles. The diversity in the types of studies and publication sources that can be included for a scoping review will ensure that researchers consider a wide array of relevant information, including sources often overlooked by other types of structured reviewing, in synthesizing the literature and mapping central concepts, theories, and empirical findings related to the literature.

This strength, however, is associated with a major weakness of a scoping review: its protocols do not include a quality assessment of the studies reviewed or how the reviewed research has been disseminated (Arskey & O'Malley, 2005; JBI, 2015; Levac et al., 2010; Tricco et al., 2018). Scoping reviews serve as a call to action for a field of study or those involved in a research area by identifying what previous authors investigated or discussed in relation to the area. However, given the absence of quality assessment in the literature review process (Arskey & O'Malley, 2005), researchers using a scoping review would be unable to judge whether the extant evidence is supported by high-quality research or the evidence needs to be revisited because of its reliance on low-quality research. Relatedly, when a rich body of reliable evidence is already available in the literature, or when the purpose of a synthesis is to critically analyze the current state of relevant research, the use of scoping studies is unlikely to yield meaningful insights. Finally, scoping review protocols do not include a step where researchers evaluate the outlet distribution of extant research (Arskey & O'Malley, 2005; Levac et al., 2010). While researchers may use scoping studies as a call to action within an academic discipline, it is possible that the reviewed topic may still have widespread practical challenges in which the body of evidence has not been applied to the field.

Considering both the strengths and weaknesses of a scoping review, the first challenge we highlight for future sport policy and management researchers is to recognize whether there is

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a specific need for conducting scoping reviews. This is the most critical stage of research because, as we noted above, scoping reviews are useful for some, but not all, areas of research. Specifically, scoping studies are beneficial for non-comprehensively reviewed, heterogeneous areas of research that are not well-suited to a narrower or more detailed systematic review (Khalil et al., 2016; Pham et al., 2014). To this end, it is essential that sport researchers survey a wide range of literature beyond their home field of study to fully understand the state of knowledge regarding an area of research, a concept, or a theory for which they intend to conduct a scoping review. For example, before fully implementing a scoping review of spectator sport's effects on population health, Author4 et al. (2015) analyzed relevant review articles previously published in the broader health and social science fields. This preliminary stage allowed Author4 and colleagues to conclude that the previous reviews only partially considered the multiple pathways through which spectator sport may influence population health thereby confirming the need for a more inclusive scoping review. When a specific need exists, the broad nature of scoping reviews presents an opportunity, as Chalip (2006) described, for researchers to demonstrate the distinctiveness of sport policy/management research or its connection to research from other disciplines. Given how sport policy/management is still relatively young compared to other disciplines and the research needs of the field will continue to evolve for various reasons (e.g., exhaustively researched topics, the changing needs of practitioners, overlooked research opportunities in the past), sport policy/management researchers can utilize scoping reviews as a tool for efficiently understanding the current state of research on a topic that has emerging relevance.

Another challenge in conducting scoping reviews, which we noted earlier, is the non-linear nature of the research process. Although this challenge may be common across different

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types of structured reviews, it is particularly relevant to scoping reviews as they involve the navigation of multiple disciplines and a substantial number of studies given their broad and inclusive nature (Arskey & O'Malley, 2005; Levac et al., 2010). The breadth of disciplines and studies included, in turn, requires the research team to adopt a flexible, iterative approach in all stages of the scoping review process, including the establishment of research questions and inclusion/exclusion criteria, selection of studies to be reviewed, identification of key information from each reviewed study, and collection of the information to synthesize the literature (Arskey & O'Malley, 2005; Author1 et al., 2018; Author4 et al., 2015; Levac et al., 2010; see Table 2). This approach welcomes unexpected findings during the research process, often leading to adjustments of search terms, research questions, and variables under consideration. Such adjustments correspond to Arksey and O'Malley's (2005) suggestion that their scoping review protocols (see Table 2) should not be viewed as a rigid framework that must be consistently adopted by subsequent researchers; rather the protocols serve as a starting point that – with appropriate refinements and modifications (as well as clear justifications for the deviations) – can enhance the rigor of a scoping review (JBI, 2015). Our own experiences also suggest the negotiation of differing interpretations among the research team is an unavoidable and necessary part of the research process. It is for this reason that we recommend that individual researchers do not carry out scoping reviews on their own; instead, at least two researchers should be assigned to every stage of the approach.

A final challenge we highlight for future researchers in employing a scoping review is the importance of clearly communicating the purpose and scope of this structured review approach to the reader, including the editor and reviewers of a journal where researchers seek to publish their work. We hope that the current article represents an initial step for addressing this challenge

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and thus advances the employment of scoping reviews within the sport policy/management domain. It is also our hope that this article will encourage other researchers who have conducted (or intend to adopt) a scoping review to engage in collaborative efforts to inform the field of the distinctive value this review approach can bring as well as specific protocols that must be followed, through various platforms including publications, conference presentations, and workshops. Scoping reviews will not be the only instrument needed by future researchers due to the limitations noted but will nonetheless help advance the field.

### **Concluding Comments – Revisiting the Brickyard**

Cooper et al. (2019) described those that carry out research synthesis as “the bricklayers and hodcarriers of the science guild” (p. 4). The inherent danger forewarned by Forscher (1963) of conducting research without consideration of its implications or impact to the broader enterprise is perhaps even more pertinent today than it was nearly half a century ago. As our knowledge and understanding of sport continues to grow and evolve, there will also be an increasing need to synthesize research within and across the field more effectively. As characterized by most structured reviews, the benefit of the scoping approach as a form of research synthesis lies in its ability to identify relevant research gaps, avoid duplication of effort, demonstrate the contribution of the field to broader disciplines, and help translate research into practice more efficiently and effectively. It is the latter two of these contributions that we see particular merit given the current evolution of the sport policy and management scholarship. It is through the utilization of research synthesis that we can ensure that we are building useful edifices in order to move the sport policy/management research forward.

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