



**Manchester  
Metropolitan  
University**

---

Inoue, Y and Berg, BK and Chelladurai, P (2015) Spectator sport and population health: A scoping study. *Journal of Sport Management*, 29 (6). pp. 705-725. ISSN 1543-270X

---

**Downloaded from:** <http://e-space.mmu.ac.uk/624283/>

**Version:** Accepted Version

**Publisher:** Human Kinetics

**DOI:** <https://doi.org/10.1123/JSM.2014-0283>

Please cite the published version

<https://e-space.mmu.ac.uk>

Spectator Sport and Population Health: A Scoping Study

Yuhei Inoue

University of Minnesota

Brennan K. Berg

The University of Memphis

Packianathan Chelladurai

Troy University

As accepted for publication in *Journal of Sport Management*, ©Human Kinetics

Author Note

Yuhei Inoue, School of Kinesiology, University of Minnesota; Brennan K. Berg, Health and Sport Sciences, The University of Memphis; Packianathan Chelladurai, School of Hospitality, Sport and Tourism Management, Troy University.

Correspondence concerning this article should be addressed to Yuhei Inoue, School of Kinesiology, University of Minnesota, Minneapolis, MN 55455.

Email: [yinoue@umn.edu](mailto:yinoue@umn.edu)

**Please cite this article as:** Inoue, Y., Berg, B.K., & Chelladurai, P. (2015). Spectator sport and population health: A scoping study. *Journal of Sport Management*, 29(6), 705-725. <http://dx.doi.org/10.1123/jsm.2014-0283>

### Abstract

This paper examines the current state of research regarding the effect of spectator sport on population health. We conducted a scoping study that involved a comprehensive search of published and grey literature between 1990 and 2014, and identified 135 studies empirically examining the effect of spectator sport on population health. A frequency analysis shows that there is a paucity of studies on this topic published in sport management journals. A thematic analysis further reveals that the reviewed studies can be classified into nine research themes depicting the relationships among certain categories of spectator sport and population health. Based on this scoping study, we develop a framework and identify several gaps in the literature that should be addressed to advance our understanding of the relationship between spectator sport and population health.

*Keywords:* spectatorship, sport events, sponsorship, social, public policy, health

### Spectator Sport and Population Health: A Scoping Study

Understanding what determines population health or the health of a population (Kindig, 2007; Kindig & Stoddart, 2003) requires the concerted efforts of multiple academic disciplines (Krieger et al., 2003). In sport management, scholars have increasingly recognized the role of participant sport in population health (Berg, Warner, & Das, 2015; Henderson, 2009; Rowe, Shilbury, Ferkins, & Hinckson, 2013). In contrast, with the exception of research on how sport fandom relates to psychological outcomes (e.g., Chien & Ross, 2012), less attention has been given to the positive and negative effects of spectator sport on population health. Spectator sport, however, can foster well-being by providing opportunities for communal interaction and a sense of affiliation (Melnick, 1993; Wann, 2006b). Health-related behaviors can also be influenced positively or negatively by the promotional messages communicated to audiences through sport events (Waddington, 2000). The potential contribution of high-profile sport organizations to population health is further evident from Fédération Internationale de Football Association's (FIFA) recent development of "11 for Health" (Dvorak, Fuller, & Junge, 2012). Using fandom as a hook, this youth health program integrates the learning of football skills into health promotion and has been implemented to enhance the health of children in African countries (Dvorak et al., 2012).

The above discussion leads to a critical question: What are the areas of research sport management scholars can fruitfully engage with to advance the positive linkages between spectator sport and population health and reduce its negative health effects? Rather than confining health-related studies to participant sport, researchers primarily examining spectator sport must also actively engage in understanding the effects of spectator sport on population health. Such an attempt should help unify the discipline by integrating the differentiated focuses of spectator sport and participant sport, and further address the need to encompass interdisciplinary collaborations with related academic fields (Chalip, 2006;

Doherty, 2013). As a first step, this review paper seeks to reveal the state of research on the effect of spectator sport on population health. Our review extends earlier reviews on the specific linkages between spectator sport and health conducted in other disciplines (e.g., Andriessen & Krysinaka, 2009; Kaufman, Spencer, & Ross, 2013; Murphy & Bauman, 2007) by (a) taking into account broader aspects of spectator sport and population health, (b) providing a comprehensive framework synthesizing an inclusive body of literature, and (c) identifying gaps in the literature that need to be addressed by future studies. To achieve these ends, we conduct a scoping study, a review strategy referring to “a process of summarizing a range of evidence in order to convey the breadth and depth of a field” (Levac, Colquhoun, & O’Brien, 2010, p. 1).

In the following section, we define the domains of spectator sport and population health to specify research areas relevant to this paper. Next, we explain the review strategy used (i.e., scoping study) for this paper. This is followed by a numerical summary of the findings and the development of a framework and themes that synthesize the reviewed studies. We conclude this paper by providing implications with a view to encourage sport management scholars to promote the integration of spectator sport into population health.

### **Domain of Spectator Sport**

Spectator sport refers to competitive athletic events providing consumers with entertainment in the form of organized competitions among elite teams and individuals (Chelladurai, 1992, 2014). It also entails organizations (e.g., professional sport organizations, national and international sport governing bodies, Division I intercollegiate athletics programs in the United States) and their members (e.g., athletes) engaging in the production and marketing of those events (Chelladurai, 1992, 2014). Based on Chelladurai’s (2014) conceptualization, we define the domain of spectator sport by focusing on three categories of

services offered within spectator sport: spectator services, sponsorship services, and service to social ideas.

First, spectator services refer to the provision of entertainment to the public through sport (Chelladurai, 1992, 2014). The entertainment value of spectator services is determined by three sources: a contest, spectacle, and third place experience (Chelladurai, 2014). A contest includes the excellence and unpredictability of competitive athletic events as well as “the loyalty or attachment of individuals (the fans) to a particular sport, team, or athlete” (Chelladurai, 2014, p. 36). Spectacles entail ancillary services provided during sport events, such as halftime shows and game-day promotions. The third place experience (as contrasted with home and workplace experiences) represents the uninhibited social interactions taking place at and beyond sport venues because of the consumption of contests (Chelladurai, 2014).

Second, spectator sport provides sponsorship services for corporations that aim to increase their access to consumers and/or build their image by associating with sport events, organizations, and athletes (Chelladurai, 2014). This type of sport service is important for the discussion of the link between spectator sport and population health because some companies promote potentially harmful products (e.g., alcohol) through sport sponsorship and advertising (Collin & MacKenzie, 2006). It should be noted that the health impact of sponsorship services is greatly influenced by what the sponsors do to promote their products. In this study, sponsorship services are defined broadly to include the promotional activities of the sponsors.

Third, a growing body of literature suggests that sport organizations have increasingly engaged in corporate social responsibility (CSR) programs for the local community (e.g., Babiak & Wolfe, 2009). Consistent with service to social ideas (hereafter named “social services”) identified by Chelladurai (2014), some CSR programs are intended to promote

health-related objectives (Dvorak et al., 2012). Therefore, this review includes social services especially in the form of health promotion programs within the domain of spectator sport.

### **Domain of Population Health**

We define population health as “the health outcomes of a group of individuals, including the distribution of such outcomes within the group” (Kindig & Stoddart, 2003, p. 380). Population health integrates the concepts of population and health, with each concept having its own significant meaning (Kindig, 2007). Populations refer to a group of people, defined by not only geographic regions (e.g., communities, nations) but also other group attributes such as spectators and residents (Kindig, 2007; Kindig & Stoddart, 2003). Health is an inclusive concept that entails three components—“a state of complete physical, mental and social well-being” (World Health Organization, 2003, para. 1). Physical well-being refers to a state of physical health based on the level of disability, chronic conditions, impairments, symptoms, and energy level (Breslow, 1972). Mental well-being is determined by the extent to which people experience positive (e.g., happiness) or negative (e.g., depression) mental states (Breslow, 1972). Social well-being represents the assessment of one’s effective functioning in society (Breslow, 1972; Keyes, 1998).

In this regard, it is important to distinguish between mental and social well-being (Keyes, 1998; Keyes & Lopez, 2001; Wann, 2006b). Mental well-being is a *personal* and *private* condition which can be operationalized through both psychological (e.g., life satisfaction) and clinical (e.g., anxiety) measures (Keyes, 1998; Keyes & Lopez, 2001). These measures, in turn, correlate with personal involvement in extreme actions such as violence (Valois, Zullig, Huebner, & Drane, 2001) and suicide (Koivumaa-Honkanen et al., 2001; Sareen, Houlihan, Cox, & Asmundson, 2005). On the other hand, social well-being is captured by “more *public* and *social* [emphasis added] criteria whereby people evaluate their life functioning” (Keyes & Lopez, 2001, p. 48). Social well-being has been operationalized

by social psychological health indicators including a sense of belonging, collective self-esteem, and social integration (Keyes, 1998; Keyes & Lopez, 2001; Wann, 2006b). In the context of spectator sport, social well-being has been primarily discussed at a local community level (Wann, 2006b). However, spectator sport may influence individuals' perceptions of functioning with respect to their nation as in the case of national pride (Hallmann, Breuer, & Kühnreich, 2013). Because national pride has been shown to predict well-being (Morrison, Tay, & Diener, 2011; Reeskens & Wright, 2011), this study includes it as an element of social well-being.

Priorities given to health issues at the population level have dramatically changed throughout the 20<sup>th</sup> and 21<sup>st</sup> centuries (Novick & Morrow, 2008). In the early 20<sup>th</sup> century, an emphasis was placed on infectious and environmentally related diseases such as pneumonia, tuberculosis, and diarrhea. Moving into the 21<sup>st</sup> century, although such diseases still represent an important health issue in developing countries, the focus of developed countries has shifted to chronic diseases and injuries, many of which are affected by personal engagement in health-related behaviors. For example, 2000 mortality data in the United States showed that almost half of all deaths in the nation were associated with preventable personal behaviors, such as tobacco use (18%), physical inactivity and poor diet (17%), alcohol consumption (4%), and motor vehicle crashes (2%; Mokdad, Marks, Stroup, & Gerberding, 2004). Because of the significant impact of personal engagement in health-related behaviors, in this study, such behaviors are also included within the domain of population health.

Health-related behaviors strongly correlate with personal and attitudinal variables, such as knowledge, beliefs, attitudes, and intentions (Godin & Kok, 1996; Montaña & Kasprzyk, 2008). Therefore, we broadly define health-related behaviors as “those personal attributes such as beliefs, expectations, motives, values, and other cognitive elements; personality characteristics, including affective and emotional states and traits; and overt



behavior patterns, actions, and habits” (Gochman, 1982, p. 169) that may affect health status. Examples of behavioral categories include eating habits, physical activity (e.g., exercise, sport participation), sexual behaviors (e.g., behaviors that may facilitate HIV/AIDS transmission), and addictive behaviors including tobacco, alcohol, drug use, and gambling (Glanz & Maddock, 2002; Godin & Kok, 1996; Korn & Shaffer, 1999; Shaffer & Korn, 2002).

In summary, this study defines the domain of population health as being concerned with a population’s physical, mental, and social well-being as well as specific health-related behaviors. Given our focus on spectator sport, the population, in this study, refers to individuals who directly or indirectly consume spectator sport, such as spectators, sport fans, and residents in the hosting community of sport events. The definitions and key indicators of the specific components of health are summarized in Table 1.

### **Purpose of the Present Review**

Based on the description of the domains of spectator sport and population health, the purpose of this review paper is to describe the state of research on the influence of spectator sport (including spectator, sponsorship, and social services) on a population’s physical, mental, and social well-being as well as engagement in specific health-related behaviors. Drawing upon prior empirical studies that have focused on a specific aspect of population health and spectator sport, we intend to contribute to the literature by providing a summary of research findings and propose a research agenda that should be of importance to the sport management field in deploying spectator sport as a tool for population health.

### **Methods**

We conducted a scoping study designed to examine the state of research on spectator sport and its effect on the health of a population. Scoping studies are useful for providing initial insight into topics with emerging evidence and are preferred over systematic reviews

especially when there is the paucity of experimental randomized controlled trials (Levac et al., 2010). The breadth of studies included for a scoping study restricts this methodology's ability to evaluate the quality of evidence from the included studies (Arksey & O'Malley, 2005). Despite this limitation, a scoping study was appropriate for our purpose because of a key strength of this review strategy: "It can provide a rigorous and transparent method for mapping areas of research" (Arksey & O'Malley, 2005, p. 30). Scoping studies are associated with four general objectives: (a) to examine the nature, extent, and range of existing research activity for a given topic, (b) to determine if a further full systematic review is necessary, (c) to summarize and disseminate the findings of the previous research, and (d) to draw conclusions from the literature with respect to the state of research activity and identify gaps in the previous research (Arksey & O'Malley, 2005). Of these, our focus was on the fourth objective—to draw conclusions regarding the state of knowledge on the relationship between spectator sport and population health and identify research gaps in the existing body of literature.

As a specific methodological guideline, we used Arksey and O'Malley's (2005) framework, which was elaborated by Levac et al. (2010). The following subsections describe the methods of this study based on five stages identified in this framework.

### **Stage 1: Identifying the Research Question**

This stage involves identifying a research question that guides search strategies used for scoping studies (Arksey & O'Malley, 2005). For this study, we developed the following research question to be consistent with the objective of the scoping study: What do we know from the extant literature about the effect of spectator sport on the health of a population?

### **Stage 2: Identifying Relevant Studies**

Arksey and O'Malley (2005) highlighted the importance of considering multiple sources to conduct a comprehensive review. For this study, two sources were examined to

identify studies for the scoping study: reference lists of previous review articles and electronic databases. First, we checked reference lists of the following four earlier reviews identified from a preliminary literature search conducted by the first author: Andriessen and Krysinska (2009), Kaufman et al. (2013), McCartney et al. (2010), and Murphy and Bauman (2007). The four reviews served as the basis of the subsequent literature search because they (a) used comprehensive review processes to identify relevant studies, (b) were published relatively recently, and (c) focused clearly on specific aspects of the relationship between spectator sport and population health, such as the effects of sport events on health indicators (McCartney et al., 2010), physical activity (Murphy and Bauman, 2007), and suicide (Andriessen & Krysinska, 2009) and the effects of social services implemented or supported by spectator sport on HIV/AIDS (Kaufman et al., 2013). From the reference lists of these reviews, we identified relevant empirical studies cited and further hand-searched the references of the identified empirical studies to locate more studies.

Second, we used three major electronic databases commonly used for the review of research on sport and health: SportDiscus, PsycINFO, and MEDLINE. Given budget and time constraints, we included only studies that were written in English and published between January 1990 and May 2014. Both peer reviewed journal articles and grey literature (e.g., technical research reports) were reviewed from these sources.

### **Stage 3: Study Selection**

Although Arksey and O'Malley (2005) did not explain the specific order in which different sources should be reviewed, they highlighted the importance of creating post hoc inclusion criteria "based on increasing familiarity with the literature" (p. 26). To enhance our familiarity with relevant studies and further establish a common understanding of the inclusion criteria, we began the study selection process by reviewing studies identified from the reference lists of the four earlier reviews. Specifically, all three authors collectively

reviewed the full articles of all studies identified from the initial process to determine inclusion. Through this procedure, 77 studies were selected for inclusion in the scoping study. Consistent with the research question and the domains of spectator sport and population health, studies included in our scoping study consisted of empirical studies (i.e., qualitative, quantitative, or mixed methods) designed to explicitly examine spectator sport's influence on a particular aspect of physical, mental, and social well-being as well as specific health-related behaviors of a population.

Next, based on terms that appeared on the 77 studies, search terms for the electronic databases were developed. In this process, the first author closely examined the titles and abstracts of those studies and identified exact and similar terms reflecting the domains of spectator sport and population health defined above. The search terms were finalized after being reviewed by the second and third authors. Full lists of the search terms used are presented in the Appendix. In line with the suggestion of Arksey and O'Malley (2005), our growing familiarity with the literature through identifying the 77 studies enabled us to create the comprehensive sets of search terms.

Using the search terms, we identified 2,275 abstracts from the aforementioned three databases. The first and second authors independently reviewed all abstracts and obtained the full articles of the studies that seemed to be highly relevant to this scoping study. Many of the 2,275 articles were excluded because they did not meet the inclusion criteria or had already been identified from our initial process. Examples of the excluded articles were reviews or commentaries, studies examining health variables only as the independent variables, studies on participant sport or sport activities, and studies on the health of elite athletes. Subsequently, the two authors independently reviewed 150 studies whose full articles were obtained by either of the authors to determine inclusion. When disagreements occurred between the authors, the third author reviewed articles to decide on final inclusion. This

procedure led to the selection of 58 articles in addition to the 77 articles selected before the database search. Altogether, 135 articles were retained for our scoping study (the full reference list of all studies is available upon request).

#### **Stage 4: Charting the Data**

To identify and synthesize key information from the 135 articles, we created a charting form by extracting data from the articles and entering the data onto an Excel file (Arksey & O'Malley, 2005). This form included information on the following variables for each article in addition to a summary of important results: (a) author(s), publication year, and source; (b) academic field in which the article was published; (c) study location; (d) type of study (i.e., quantitative, qualitative, or mixed methods) and specific research design used (e.g., cross-sectional survey); (e) study population; (f) type of sport examined (e.g., American football) and sport governing body involved (e.g., National Football League); (g) category of services provided by spectator sport (i.e., spectator services, sponsorship services, or social services) and specific aspect of the services (e.g., event) examined; (h) category of population health (i.e., physical well-being, mental well-being, social well-being, or health-related behavior) and specific health behavior (e.g., alcohol consumption) or health status (e.g., depression) examined; and (i) direction of effect (i.e., whether spectator sport was found to have positive, negative, mixed, or no effect on population health).

To facilitate the data charting process, we followed steps recommended by Levac et al. (2010). First, all authors made a collective decision on which variables should be coded based on the research question. Second, the first and second authors independently extracted data from the first 10 studies and then discussed the results to develop a common understanding of what data should be extracted. This was followed by the assignment of the remaining articles to either of the two authors for data extraction. Finally, after all articles were coded, all three authors collectively reviewed the data charting form and made

modifications on some data to ensure that appropriate information was identified from each article.

### **Stage 5: Collating, Summarizing and Reporting the Results**

Arksey and O'Malley (2005) suggested two analyses for scoping studies: frequency analysis and thematic analysis. The description of each analysis is described below.

**Frequency analysis.** The goal of a frequency analysis is to provide a numeric summary of the nature, extent, and distributions of the studies reviewed for a scoping study (Arksey & O'Malley, 2005; Levac et al., 2010). For this paper, we performed a frequency analysis for the following key variables coded to describe the characteristics of the research on the effect of spectator sport on population health: publication year, academic field, study location, type of study and study population, type of sport and sport governing body examined, category of services provided by spectator sport examined, category of population health examined, and direction of effect.

**Thematic analysis.** A thematic analysis is used to present a narrative synthesis by classifying reviewed studies into common categories based on certain aspects of the studies (Arksey & O'Malley, 2005; Levac et al., 2010). In this scoping study, we focused on two variables—category of service provided by spectator sport and category of population health (see Figure 2)—and organized research themes based on specific relationships between the two variables examined in the reviewed studies. Consistent with the suggestion of Levac et al. (2010), a qualitative content analytical technique was adopted for the thematic analysis. Specifically, using the approach of inductive category development (Mayring, 2000), the first author reviewed information included in the charting form for all 135 studies and identified an initial set of inductive themes. Next, the second and third authors checked the definitions of these themes as well as representative studies for each theme, and made revisions to create a final set of research themes. Subsequently, to ensure the reliability of the thematic analysis,

the first and second authors independently coded all studies by assigning one of the themes to each study. A comparison of the coding results between the first and second authors revealed that the two authors agreed on 128 of the 135 articles (94.8%). This inter-coder agreement is equivalent to a Cohen's kappa coefficient of .94, meeting a sufficient inter-coder reliability coefficient of over .70 (Mayring, 2000). The third author reviewed the seven studies that were in disagreement and determined which theme should be assigned to each study.

## Findings

### Findings from Frequency Analysis

**Publication year.** The first variable, publication year, helped reveal the gradual development of research on the effect of spectator sport on population health. From 1991 to 2000, there were four or less studies each year that focused on this topic across academic fields. While there were fluctuations in the numbers of research studies on an annual basis, a noticeable upsurge was observed in 2010 and again in 2013, as illustrated in Figure 1. However, there was a peculiar drop in 2012 with only six studies completed. The data revealed no clear cause for this sharp decline, which perhaps indicate that occasional declines in this research area may still occur. Across the 24-year period examined, there was an average of 5.6 studies each year with the most occurring in 2013 ( $n = 19$ ).

**Academic field.** Of the 135 studies reviewed, 127 studies (94%) were published in peer reviewed journals. Only 11 of the 127 articles (9%) were published in sport management journals while the rest were published in journals related to other fields including medicine, public health, social sciences, and psychology.

**Study location.** While research on the effect of spectator sport on population health has been conducted in 30 different countries, most of the studies were carried out in the United States ( $n = 51$ ; 38%), the United Kingdom ( $n = 24$ ; 18%), Australia ( $n = 16$ ; 12%),

France ( $n = 6$ ; 4%), Germany ( $n = 6$ ; 4%), and Canada ( $n = 5$ ; 4%). One or two studies were conducted in the remaining 24 countries.

**Study type and population.** A quantitative design was used by 120 studies (89%); a qualitative design by seven studies (5%); and a mixed methods design by eight studies (6%). In addition, five general categories emerged for the populations of the studies. Seven studies (5%) focused on elementary school aged children; nine (7%) examined health issues for adolescents in middle school and high school; 27 (20%) examined college students; six (4%) examined adult spectators; and 86 (64%) did not specify an age range, but examined a wide range of populations.

**Sport type and governing body.** While 37 studies (27%) did not focus on a specific type of spectator sport, the remaining 98 studies (73%) investigated the effects of spectating at 12 different sports on population health with 45 (33%) focusing on soccer, 21 (16%) on American football, and 20 (15%) on basketball. Similarly, while 25 different national and international sport governing bodies and their events were discussed in the research, most attention was paid to FIFA ( $n = 35$ ; 26%), the National College Athletic Association (NCAA;  $n = 25$ ; 19%), the International Olympic Committee ( $n = 17$ ; 13%), the National Football League ( $n = 10$ ; 7%), English Premier League ( $n = 7$ ; 5%), and the National Basketball Association (NBA;  $n = 5$ ; 4%).

**Categories of services provided by spectator sport.** Of the three categories of services provided by spectator sport (spectator services, sponsorship services, social services), spectator services comprised by far the largest block with 110 studies (81%). Consistent with the definition of spectator services (Chelladurai, 2014), these studies looked at such issues as the health effects of sport events and their outcomes as well as psychological attachment or identification people develop with particular teams or athletes. Eight studies (6%) were classified in the domain of sponsorship services because they examined issues



related to how alcohol, tobacco, and unhealthy food products were marketed or advertised through the sponsorship of spectator sport. Social services were examined by 17 studies (13%), which focused on how the involvement of sport organizations or athletes in health promotion programs might affect the adoption of health-related behaviors, such as healthy eating and physical activity.

**Categories of population health.** Regarding the four categories of the population health domain (i.e., health-related behavior, physical well-being, mental well-being, social well-being), the studies were not always exclusive to one category. The health-related behavior category included 64 studies (47%) that examined a range of behaviors that may eventually affect physical, mental, or social well-being, such as alcohol consumption, physical activity, and attitudes toward HIV/AIDS. Thirty-three studies (24.4%) assessed physical well-being, such as cardiac emergencies or deaths. The mental well-being category had 27 studies (20%) that measured such issues as emotional reactions or self-esteem through the spectating experience. Social well-being was examined by 20 studies (15%) that included such indicators as collective self-esteem, sense of belonging, and national pride.

**Direction of effect.** In regards to the direction of spectator sport's effect on population health, 41 studies (30%) found positive effects; 39 (29%) found negative effects; 38 (28%) showed mixed results; 13 (10%) found no effect; and four (3%) did not clearly state the direction of effect.

### **Findings from Thematic Analysis**

Figure 2 shows how the three categories of services constituting the domain of spectator sport (spectator services, sponsorship services, social services) affect the four categories of population health (health-related behavior, physical well-being, mental well-being, social well-being). As presented in this figure, the review of the data charting form led us to identify six different relationships (represented by solid arrows) between one of the

three spectator sport categories and one of the four population health categories that were examined in the reviewed studies. Based on our analysis, the spectator services offered by the sport organization are said to have a direct influence on health-related behaviors, physical well-being, mental well-being, and social well-being. The sponsorship services and the social services offered by the sport organization have a direct effect on health-related behaviors which, in turn, may influence physical, mental, and social well-being (Novick & Morrow, 2008).

Focusing on these six relationships in Figure 2, the thematic analysis led to developing nine research themes relating to any of these relationships. Table 2 presents the description and frequency of the nine themes and illustrates how each theme corresponds to a specific relationship between a certain category of spectator sport and population health identified in Figure 2. Each theme is explained in the order of frequencies below.

**Event's impact on physical impairment and mortality.** This theme which speaks to the relationship between spectator services and physical well-being consists of 29 studies (22%) that investigated the extent to which physical health conditions of a population are influenced by sport spectatorship. The reviewed studies are inconclusive about the direction of the effect of sport spectatorship on physical well-being. Three studies concluded that sport spectatorship has a positive effect on physical well-being, 10 studies provided evidence for its negative effect, and the remaining 16 studies found either mixed or no effect. As an example of the studies identifying the positive effect, Berthier and Boulay (2003) compared the number of deaths during the day of the final 1998 FIFA World Cup that the France national soccer team won with the average number of deaths five days before or after this day and found a significant decrease in the number of deaths from myocardial infarction among men on the day of the final. In contrast, Wilbert-Lampen et al. (2008) found that hospital admissions for cardiovascular events in Munich increased on the days the German national

team played during the 2006 FIFA World Cup. However, Niederseer et al. (2013) found no such increase in cardiovascular incidents in the State of Bavaria on the days when the German team played during the 2006 World Cup.

**Event's impact on unhealthy habits and practices.** Twenty studies (22%) investigated the extent to which sport spectatorship influenced people to engage in unhealthy habits and practices. Sixteen studies, including 11 relating to college athletics in the United States, focused on the impact of spectator services on excessive alcohol consumption. For example, Neal, Sugarman, Hustad, Caska, and Carey (2005) found that the alcohol consumption of undergraduate students at Syracuse University increased when that university's men's basketball team played in the NCAA Final Four championship games in 2003. Of the remaining four studies, two studies (Mahan, Drayer, & Sparvero, 2012; Nelson et al., 2007) assessed the association of sport spectatorship with gambling, one study (Indig, Thackway, Jorm, Salmon, & Owen, 2003) assessed its association with illicit drug use, and the fourth study (Cornil & Chandon, 2013) assessed its association with the consumption of unhealthy foods. Overall, 16 of the 20 studies found that sport spectatorship would increase personal engagement in unhealthy habits and practices.

**Social psychological benefits of sport spectatorship.** The eighteen studies (13%) included in this theme investigated how spectator services at the national and local levels affected indicators of social well-being. At the local level, Wann and colleagues (e.g., Wann, 2006a; Wann, Waddill, Polk, & Weaver, 2011) tested if identification, or a sense of connection, with a local sport team would be associated with indicators of social well-being, such as perceived trustworthiness of others, collective self-esteem, and satisfaction with social life. Consistent with the team identification-social psychological health model (Wann, 2006b), the results of these studies indicated a significant positive association between team identification and social well-being indicators. At the national level, researchers attempted to

understand how individuals' social well-being would be influenced by their affiliation with a national team or athletes competing at an international sport event. For example, based on the analysis of longitudinal data from the adult Dutch population, Elling, van Hilvoorde, and Van den Dool (2014) concluded that the success of Dutch athletes in international sport competitions contributed to an increased sense of belonging to the country and national pride, although the extent of this contribution appeared to be small. Similarly, Hallmann et al. (2013) reported the results of a national survey indicating that the majority of Germans felt national pride when elite German athletes succeeded in major sport events. In total, 11 of the 18 studies in this theme suggested that spectator services positively affected social well-being to some extent.

**Effectiveness of health promotion programs.** This theme relating to the relationship between social services and health-related behaviors included 17 studies (13%) assessing the effectiveness of health promotion programs implemented or supported by sport organizations or athletes. Irwin, Irwin, Miller, Somes, and Richey (2010) examined the extent to which "Get Fit with the Grizzlies," a school-based health program implemented by the Memphis Grizzlies of the NBA, influenced health-related knowledge and behavior of students at local elementary schools. The results showed that the program significantly increased the nutritional knowledge, healthy eating practices, and physical activity of the students (Irwin et al., 2010). Pringle et al. (2013) demonstrated that a national health program delivered by English Premier League football clubs entitled "Premier League Health" produced a significant increase in participants' physical activity and healthy eating behaviors and a significant decrease in their sedentary behaviors and body mass index. In addition, five studies investigated the effects of athletes' participation in programs explicitly aimed at HIV prevention. For example, Clark, Friedrich, Ndlovu, Neilands, and McFarland (2006) found that the participation of local professional soccer players in a school-based HIV prevention

program implemented in Bulawayo, Zimbabwe, significantly increased the HIV-related knowledge and attitudes of participating students. Of the 17 studies, the vast majority of the studies ( $n = 13$ ) provided evidence for the effectiveness of health promotion programs implemented or supported by spectator sport.

**Event's impact on crime, violence, and suicide.** Thirteen studies (10%) examined the effect of sport events on personal engagement in violence, crime, or suicide. This theme addresses the impact of spectator services on mental well-being explicitly manifested in those extreme behaviors and was regarded as a special case of the theme “psychological impact of sport spectatorship” discussed below. Seven of the 13 studies concluded that sport spectatorship significantly affected individuals’ engagement in crime, violence, or suicide, but the identified direction of the effect was mixed. In particular, three studies demonstrated that such engagement would decrease as a result of sport events. For example, Joiner, Hollar, and Van Orden (2006) predicted that major sport events would reduce the number of suicides because of the events’ positive influence on mental health. The authors found support for this prediction by demonstrating that various sport events in the United States, such as the Super Bowl, college football games, and Miracle on Ice (i.e., the U.S. national hockey team’s victory over the Soviet Union national team in the 1980 Winter Olympics), were associated with the lower occurrence of suicides. In contrast, the other four studies identified a significant increase in violence, crime, or suicide due to sport spectatorship. Sivarajasingam, Corcoran, Jones, Ware, and Shepherd (2004), for example, showed that the number of violence-related attendance in a local emergency department in Cardiff, Wales significantly increased on the days of matches involving the Wales national rugby team.

**Event’s impact on sport and physical activity participation.** This theme relates to the relationship between spectator services and health-related behaviors, consisting of 11 studies (8%) examining if sport spectatorship and the hosting of sport events would enhance

participation in sport and physical activities. For example, Frawley and Cush (2011) investigated the impact of the 2003 Rugby World Cup on participation in the sport in the host country (Australia) by measuring sport participation using membership registration data from Australian rugby organizations. Through the analysis of the registration data, the researchers identified a 20% increase in junior registrations and a 5% increase in senior registrations during the 2003-04 period when the event took place. They further found that the junior registrations steadily increased after this period, while the senior registrations remained almost unchanged (Frawley & Cush, 2011). Mutter and Pawlowski (2014a, 2014b) conducted a series of studies assessing the extent to which personal relevance of professional sports would affect the frequency of sport participation and provided evidence that high relevance is linked to increased participation.

Seven of the 11 studies demonstrated that spectator services had a positive association with increased participation in sport and physical activities, with four studies providing mixed or no evidence for this association. As an example of the latter, Bauman, Bellew, and Craig (2014) analyzed cross-sectional data from national physical activity surveys of Australian adults in November 1999 and November 2000, and found that participation in physical activity did not change before and after the Sydney Summer Olympics in September 2000.

**Psychological impact of sport spectatorship.** Eleven studies (8%) investigating how spectator services, especially sport spectatorship or fandom, influence individuals' mental well-being constituted this theme. Of these, three studies provided evidence for the positive psychological effect of spectator services. Notably, Pringle (2004) conducted interviews with 20 fans of an English football club and showed that attending the club's games served as a temporary escape from daily life and helped the fans reduce the negative effect of life stress. The remaining eight studies indicated that sport spectatorship results in negative

psychological states or its psychological impact is conditional upon other factors. For example, Banyard and Shelvin (2001) found that fans of a professional soccer team in England experienced significant psychological distress because of the relegation of the team from the English Premier League. Chien and Ross (2012) showed that the anxiety levels of the spectators of a Taiwanese professional baseball game varied with the extent to which they were emotionally invested in the teams playing the game.

**Role modeling effects of athletes.** Nine studies (7%) investigated the extent to which personal attachment to an athlete would influence a population to adopt certain health-related attitudes or behaviors associated with the athlete. This theme addressing the relationship between spectator services and health-related behaviors is closely related to the themes on “effectiveness of health promotion programs” and “sponsorship and advertising of unhealthy products” which also indirectly examined the role modeling effect of athletes. Yet we regarded this theme separately because the included studies focused on athletes’ role modeling effects *outside* their engagement in specific sponsorship activities or health promotion programs.

Six of the nine studies found mixed evidence for the notion that the role modeling effect of athletes is beneficial to population health. For example, Brown, Basil, and Bocarnea (2003) examined the role modeling effect of Mark McGwire, a former baseball star who is a strong supporter of child abuse prevention but openly used Androstenedione (i.e., a muscle-building dietary supplement). They found that identification with McGwire was positively associated with the intended use of the supplement and increased concern for child abuse. These findings showed that identification with an athlete could lead people to engage in behaviors that are both beneficial and detrimental to population health (Brown et al., 2003).

**Sponsorship and advertising of unhealthy products.** Seven studies (5%) focused on the relationship between sponsorship services and health-related behaviors by examining

the promotion of unhealthy products through the sponsorship of sport events, or through the use of sport organizations or athletes for an advertisement or endorsement. Four studies investigated the consumption of unhealthy food products. Dixon et al. (2011) found that the use of sports celebrity endorsements for energy dense and nutrition poor products influenced parents to perceive that these products are nutritious and increased the parents' intentions to purchase the products. Bragg et al. (2013) reported that the endorsements of a professional sport entity were used for over 40% of the 102 food and beverage products analyzed. These authors further found that the nutritional quality of these products tended to be lower than national nutrition standards in the United Kingdom. Of the other three studies, Jones (2010) and Swahn, Palmier, Benegas-Segarra, and Sinson (2013) examined the use of sport sponsorship or advertisement for alcohol products, and Vaidya, Vaidya, and Naik (1999) investigated the sponsorship of the 1996 cricket World Cup series by a tobacco company. Notably, by analyzing the self-report tobacco use of 5,822 children in India before and after the event, Vaidya et al. found that the number of children using tobacco increased by 8.7% six months after this event. In total, five of the seven studies concluded that sponsorship services negatively affected population health.

### **Discussion**

The results of the frequency analyses indicate a lack of interest in the topic among sport management scholars as evidenced by a dearth of publications in sport management journals despite the trend of increased publications in other journals. Given the enormity of health issues confronting the nations and the exorbitant cost of health care, and given that spectator sport can potentially contribute to alleviating these issues and costs, it is only appropriate that sport management scholars get involved in studying the relationships between spectator sport and population health. One avenue for such research is indicated by our finding that previous studies had focused on the effects of spectating at major sports such



as soccer, American football, and basketball. And the settings were confined to Western countries (e.g., the United States, the United Kingdom, Australia). This narrow focus contradicts the notion that the degree of spectator appeal of specific sports significantly varies across countries (Chelladurai, 2014). For instance, cricket is very popular in countries like India, Bangladesh, Pakistan, Sri Lanka, and Pakistan. This example of cricket offers an opportunity for sport management scholars to study the health effects of spectating in a different sport and, in addition, in less developed countries.

Our thematic analysis further reveals that the reviewed studies have examined various research themes in regards to the relationships between certain categories of spectator sport and population health. Research on spectator services is especially comprehensive, and the related research themes provide insight into how these services may affect health-related behaviors and the three types of well-being constituting health (physical, mental, and social well-being). Despite the breadth of research, we identify several gaps in the existing literature that must be addressed to advance our understandings of the relationship between spectator sport and population health. The following discussion focuses on five gaps that we believe are the most important for future sport management research.

First, the reviewed studies are inconclusive about whether spectator services are beneficial or harmful to the physical and mental health of the population and the reduction of crime, violence, and suicide in society. This could be a reflection of the belief that neither health benefits nor detriments are inherent in sport, but that its health effects heavily depend on how sport is managed and marketed (Berg et al., 2015; Chalip, 2006). The inconsistent evidence also highlights the importance of identifying conditional factors that may determine the impact of sport events and spectatorship on physical and mental well-being. One potential factor may be the game outcome. Available evidence seems to indicate that people enjoy good health when their supporting team wins, but suffer from poor health when the team

loses (e.g., Kerr, Wilson, Nakamura, & Sudo, 2005). However, as this evidence relates to only the transitory effects of game outcomes, investigating their longitudinal effects (e.g., win-loss record in a season) on physical and mental well-being is necessary. Another factor that impinges on the health benefits of sport spectatorship may be the psychological states of spectators, such as their motivation for event attendance (Wang, Min, & Kim, 2013), levels of emotional investment in a sport team (Chien & Ross, 2012), and nature of passion for supporting the team (Vallerand et al., 2008). Moreover, the findings of studies on suicide and crime seem to suggest that sport events' impact on personal engagement in those behaviors may vary among types of specific behaviors examined (Fernquist, 2002) and social environments surrounding people (Trovato, 1998). Confirming the effects of these potential conditional factors as well as identifying other factors should allow future researchers to provide clearer implications for the role of spectator services in population health.

Second, reviewed studies provided preliminary evidence for the positive impact of spectator services on sport and physical activity participation and social well-being. However, this evidence is restricted to short-term impacts because most studies used cross-sectional surveys in assessing the extent to which sport events and spectatorship would affect those health outcomes. As exceptions, some research sought to understand long-term impacts by analyzing participation data for a long period of time (Frawley & Cush, 2011) or conducting a longitudinal survey (van Hilvoorde, Elling, & Stokvis, 2010). Future studies should extend on this limited body of research to provide insight into the lasting influence of sport events and spectatorship.

Third, research on the sponsorship and advertising of unhealthy products represents the least studied theme. This lack of attention is surprising given that sponsorship services constitute a significant segment of the sport industry with \$13 billion spent on sport sponsorship in the United States alone in 2013 (Chelladurai, 2014). For example, global fast

food and beverage companies (e.g., McDonald's, Coca-Cola) have been major sponsors of international sport events such as the FIFA World Cup and the Olympics, and have used star athletes as endorsers of their products (e.g., LeBron James' endorsement of McDonald's). Evidence suggests that the excessive consumption of fast food, especially at an early age, can lead to negative health consequences (Bowman, Gortmaker, Ebbeling, Pereira, & Ludwig, 2004). Building on the existing empirical evidence that sport sponsorship and advertising can influence the attitudes and behaviors of children and their parents (Bragg et al., 2013; Dixon et al., 2011), future researchers need to determine the health impact of the promotion of unhealthy products through spectator sport as well as identify the ways to alleviate such an impact.

Fourth, our framework presented in Figure 2 indicates that spectator sport can influence the health of the population through multiple paths. For example, even though sport organizations seek to promote health behaviors through their social services (i.e., the implementation of health promotion programs), this positive effect may be offset by the negative influence of the sponsorship of unhealthy products at their events. Similarly, positive health benefits resulting from the promotion of sport and physical activity through the hosting of a sport event could be outweighed by the psychological and physical distress of the event spectating. Given such different pathways, it is essential to not only focus on specific relationships between spectator sport and population health, but also to consider the cumulative effects of spectator sport on population health through all those pathways. Indeed, there have been some efforts to predict the net health impact of hosting a sport event using a participatory health impact assessment, a method intended to analyze the potential positive and negative health impacts of the event by obtaining perspectives from various stakeholders in the host community (e.g., residents, health workers, decision-makers; McCartney et al., 2010). To the best of our knowledge, however, research has yet to assess

the total health impact of sport events during the post-event period, and hence future studies are needed in this agenda.

Finally, theoretical frameworks explaining the influence of spectator sport on population health are lacking. Some notable exceptions include Wann's (2006b) team identification-social psychological health model which explains the mediating role of social connections in the relationship between individuals' identification with a local sport team and their social well-being. Brown and de Matviuk's (2010) use of theories of involvement in explaining the role modeling effects of athletes on health-related attitudes and behaviors was another exception. As Chalip (2006) suggested, the domain of health has the potential to provide sport management scholars with the opportunity to develop unique theories grounded in sport phenomena. Future efforts should be directed at not only empirically assessing the relationship between spectator sport and population health, but also advancing theoretical understandings of why and how this relationship occurs.

### **Limitations and Conclusions**

Some limitations of the current review must be noted. First, scoping studies are not designed to assess the quality of research designs used in reviewed studies or determine the weight of evidence provided by the studies (Arksey & O'Malley, 2005). Therefore, our discussions on the significance and direction of the effect of spectator sport on population health must be considered tentative, and systematic reviews will be necessary to fully synthesize the evidence when more qualified studies are available. Second, although we searched various sources to identify relevant studies, it is possible that this review omitted some key studies especially published in non-English sources and/or published before 1990. Finally, this review did not include the consultation exercise stage—an optional stage of scoping studies designed to incorporate the views of practitioners and managers into the analysis and interpretation of reviewed studies (Arksey & O'Malley, 2005; Levac et al.,

2010). This stage could represent a further step to advance our understandings of the effect of spectator sport on population health.

In conclusion, the current review of 135 studies identified through a comprehensive literature search reveals the state of research on the relationship between spectator sport and population health. Although a handful of earlier reviews discussed the link between spectator sport and health, they focused on either certain aspects of spectator sport (e.g., events; McCartney et al., 2010) or population health (e.g., suicidal behavior; Andriessen & Krysinska, 2009). Our review advances the existing reviews by presenting a synthesized view of the influence of spectator sport on population health based on the inclusive domains of these two concepts (Chelladurai, 2014; Novick & Morrow, 2008; World Health Organization, 2003). Furthermore, this scoping study serves as an impetus for additional research by sport management scholars on the relationship between spectator sport and population health. Our efforts in identifying the positive and negative health effects of spectator sport could also contribute to addressing important social issues, such as the containment of soaring costs found in health care practice.

This research area presents numerous possibilities for collaboration inside sport management and with scholars from other disciplines. Without a wider, consistent commitment through such collaboration, the contribution sport management can make to population health will remain mostly about potential. We call on our colleagues to help us realize that potential by bridging the gap between our understanding of spectator sport and how we can enhance population health in a significant and consistent manner.

## References

- Andriessen, K., & Kryszynska, K. (2009). Can sports events affect suicidal behavior? A review of the literature and implications for prevention. *Crisis: The Journal of Crisis Intervention and Suicide Prevention*, 30(3), 144-152. doi: 10.1027/0227-5910.30.3.144
- Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology*, 8(1), 19-32. doi: 10.1080/1364557032000119616
- Babiak, K., & Wolfe, R. (2009). Determinants of corporate social responsibility in professional sport: Internal and external factors. *Journal of Sport Management*, 23, 717-742.
- Banyard, P., & Shevlin, M. (2001). Responses of football fans to relegation of their team from the English Premier League: PTS? *Irish Journal of Psychological Medicine*, 18, 66-67.
- Bauman, A., Bellew, B., & Craig, C. L. (2014). Did the 2000 Sydney Olympics increase physical activity among adult Australians? *British Journal of Sports Medicine*, 49, 243-247. doi: 10.1136/bjsports-2013-093149
- Berg, B. K., Warner, S., & Das, B. M. (2015). What about sport? A public health perspective on leisure-time physical activity. *Sport Management Review*, 18, 20-31. doi: 10.1016/j.smr.2014.09.005
- Berthier, F., & Boulay, F. (2003). Lower myocardial infarction mortality in French men the day France won the 1998 World Cup of football. *Heart*, 89, 555-556. doi: 10.1136/heart.89.5.555

- Bowman, S. A., Gortmaker, S. L., Ebbeling, C. B., Pereira, M. A., & Ludwig, D. S. (2004). Effects of fast-food consumption on energy intake and diet quality among children in a national household survey. *Pediatrics, 113*, 112-118.
- Bragg, M. A., Liu, P. J., Roberto, C. A., Sarda, V., Harris, J. L., & Brownell, K. D. (2013). The use of sports references in marketing of food and beverage products in supermarkets. *Public Health Nutrition, 16*, 738-742. doi: 10.1017/S1368980012003163
- Breslow, L. (1972). A quantitative approach to the World Health Organization definition of health: Physical, mental and social well-being. *International Journal of Epidemiology, 1*, 347-355. doi: 10.1093/ije/1.4.347
- Brown, W. J., Basil, M. D., & Bocarnea, M. C. (2003). The influence of famous athletes on health beliefs and practices: Mark McGwire, child abuse prevention, and androstenedione. *Journal of Health Communication, 8*, 41-57. doi: 10.1080/10810730305733
- Brown, W. J., & de Matviuk, M. A. C. (2010). Sports celebrities and public health: Diego Maradona's influence on drug use prevention. *Journal of Health Communication, 15*, 358-373. doi: 10.1080/10810730903460575
- Chalip, L. (2006). Toward a distinctive sport management discipline. *Journal of Sport Management, 20*, 1-21.
- Chelladurai, P. (1992). Sport management: Opportunities and obstacles. *Journal of Sport Management, 6*, 215-219.
- Chelladurai, P. (2014). *Managing organizations for sport and physical activity* (4th ed.). Scottsdale, AZ: Holcomb Hathaway.
- Chien, C., & Ross, S. (2012). Spectator anxiety and internalization: A case of the Chinese Professional Baseball League. *International Journal of Sport Management, 13*, 59-72.

- Clark, T. S., Friedrich, G. K., Ndlovu, M., Neilands, T. B., & McFarland, W. (2006). An adolescent-targeted HIV prevention project using African professional soccer players as role models and educators in Bulawayo, Zimbabwe. *AIDS and Behavior, 10*, 77-83. doi: 10.1007/s10461-006-9140-4
- Collin, J., & MacKenzie, R. (2006). The World Cup, sport sponsorship, and health. *The Lancet, 367*, 1964-1966. doi: 10.1016/S0140-6736(06)68862-4
- Cornil, Y., & Chandon, P. (2013). From fan to fat? Vicarious losing increases unhealthy eating, but self-affirmation is an effective remedy. *Psychological Science, 24*, 1936-1946. doi: 10.1177/0956797613481232
- Dixon, H., Scully, M., Wakefield, M., Kelly, B., Chapman, K., & Donovan, R. (2011). Parent's responses to nutrient claims and sports celebrity endorsements on energy-dense and nutrient-poor foods: An experimental study. *Public Health Nutrition, 14*, 1071-1079. doi: 10.1017/S1368980010003691
- Doherty, A. (2013). "It takes a village": Interdisciplinary research for sport management. *Journal of Sport Management, 27*, 1-10.
- Dvorak, J., Fuller, C. W., & Junge, A. (2012). Planning and implementing a nationwide football-based health-education programme. *British Journal of Sports Medicine, 46*(1), 6-10. doi: 10.1136/bjsports-2011-090635
- Elling, A., van Hilvoorde, I., & Van den Dool, R. (2014). Creating or awakening national pride through sporting success: A longitudinal study on macro effects in the Netherlands. *International Review for the Sociology of Sport, 49*, 129-151. doi: 10.1177/1012690212455961
- Fernquist, R. M. (2002). The 1994–1995 baseball and hockey strikes and their impact on suicide and homicide rates in the United States. *Archives of Suicide Research, 6*, 103-110. doi: 10.1080/13811110208951168



- Frawley, S., & Cush, A. (2011). Major sport events and participation legacy: The case of the 2003 Rugby World Cup. *Managing Leisure, 16*, 65-76. doi: 10.1080/13606719.2011.532605
- Glanz, K., & Maddock, J. (2002). Behavior, health-related. *Encyclopedia of Public Health*. Retrieved from <http://www.encyclopedia.com/doc/1G2-3404000088.html>
- Gochman, D. S. (1982). Labels, systems and motives: Some perspectives for future research and programs. *Health Education & Behavior, 9*, 167–174. doi: 10.1177/109019818200900213
- Godin, G., & Kok, G. (1996). The theory of planned behavior: A review of its applications to health-related behaviors. *American Journal of Health Promotion, 11*(2), 87–98. doi: 10.4278/0890-1171-11.2.87
- Hallmann, K., Breuer, C., & Kühnreich, B. (2013). Happiness, pride and elite sporting success: What population segments gain most from national athletic achievements? *Sport Management Review, 16*, 226-235. doi:10.1016/j.smr.2012.07.001
- Henderson, K. A. (2009). A paradox of sport management and physical activity interventions. *Sport Management Review, 12*(2), 57-65. doi:10.1016/j.smr.2008.12.004
- Indig, D., Thackway, S., Jorm, L., Salmon, A., & Owen, T. (2003). Illicit drug-related harm during the Sydney 2000 Olympic Games: Implications for public health surveillance and action. *Addiction, 98*, 97-102. doi: 10.1046/j.1360-0443.2003.00239.x
- Irwin, C. C., Irwin, R. L., Miller, M. E., Somes, G. W., & Richey, P. A. (2010). Get fit with the Grizzlies: A community-school-home initiative to fight childhood obesity. *Journal of School Health, 80*, 333-339. doi: 10.1111/j.1746-1561.2010.00510.x
- Joiner Jr, T. E., Hollar, D., & Van Orden, K. (2006). On Buckeyes, Gators, Super Bowl Sunday, and the Miracle on Ice: “Pulling together” is associated with lower suicide

- rates. *Journal of Social and Clinical Psychology*, 25, 179-195. doi: 10.1521/jscp.2006.25.2.179.
- Jones, S. C. (2010). When does alcohol sponsorship of sport become sports sponsorship of alcohol? A case study of developments in sport in Australia. *International Journal of Sports Marketing & Sponsorship*, 11, 250–261.
- Kaufman, Z. A., Spencer, T. S., & Ross, D. A. (2013). Effectiveness of sport-based HIV prevention interventions: A systematic review of the evidence. *AIDS and Behavior*, 17, 987-1001. doi: 10.1007/s10461-012-0348-1
- Kerr, J. H., Wilson, G. V., Nakamura, I., & Sudo, Y. (2005). Emotional dynamics of soccer fans at winning and losing games. *Personality and Individual Differences*, 38, 1855-1866. doi:10.1016/j.paid.2004.10.002
- Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly*, 61, 121-140.
- Keyes, C. L. M., & Lopez, S. L. (2001). Toward a science of mental health: Positive direction in diagnosis and interventions. In C. R. Snyder & S Lopez (Eds.), *The handbook of positive psychology* (pp. 45-59). New York, NY: Oxford University Press.
- Kindig, D., & Stoddart, G. (2003). What is population health? *American Journal of Public Health*, 93, 380–383. doi: 10.2105/AJPH.93.3.380
- Kindig, D. A. (2007). Understanding population health terminology. *The Milbank Quarterly*, 85(1), 139–161. doi:10.1111/j.1468-0009.2007.00479.x
- Koivumaa-Honkanen, H., Honkanen, R., Viinamäki, H., Heikkilä, K., Kaprio, J., & Koskenvuo, M. (2001). Life satisfaction and suicide: A 20-year follow-up study. *American Journal of Psychiatry*, 158, 433–439. doi:10.1176/appi.ajp.158.3.433
- Korn, D. A., & Shaffer, H. J. (1999). Gambling and the health of the public: Adopting a public health perspective. *Journal of Gambling Studies*, 15, 289–365. doi:10.1023/A:1023005115932

- Krieger, N., Northridge, M., Gruskin, S., Quinn, M., Kriebel, D., Smith, G. D., ... Miller, C. (2003). Assessing health impact assessment: Multidisciplinary and international perspectives. *Journal of Epidemiology and Community Health, 57*, 659-662. doi:10.1136/jech.57.9.659
- Levac, D., Colquhoun, H., & O'Brien, K. K. (2010). Scoping studies: Advancing the methodology. *Implement Science, 5*(1), 1-9. doi:10.1186/1748-5908-5-69
- Mahan III, J. E., Drayer, J., & Sparvero, E. (2012). Gambling and fantasy: An examination of the influence of money on fan attitudes and behaviors. *Sport Marketing Quarterly, 21*, 159-169.
- Mayring, P. (2000). Qualitative content analysis. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research, 1*(2), 1-8.
- McCartney, G., Thomas, S., Thomson, H., Scott, J., Hamilton, V., Hanlon, P., ... Bond, L. (2010). The health and socioeconomic impacts of major multi-sport events: Systematic review (1978-2008). *BMJ, 340*, c2369. doi: 10.1136/bmj.c2369
- Melnick, M. J. (1993). Searching for sociability in the stands: A theory of sports spectating. *Journal of Sport Management, 7*, 44-60.
- Mokdad, A. H., Marks, J. S., Stroup, D. F., & Gerberding, J. L. (2004). Actual causes of death in the United States, 2000. *JAMA, 291*, 1238-1245. doi:10.1001/jama.291.10.1238
- Montaño, D. E., & Kasprzyk, D. (2008). Theory of reasoned action, theory of planned behavior, and the integrated behavioral model. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (4th ed., pp. 67–96). San Francisco, CA: Jossey-Bass.

- Morrison, M., Tay, L., & Diener, E. (2011). Subjective well-being and national satisfaction: Findings from a worldwide survey. *Psychological Science, 22*, 166–171.  
doi:10.1177/0956797610396224
- Murphy, N. M., & Bauman, A. (2007). Mass sporting and physical activity events: Are they bread and circuses or public health interventions to increase population levels of physical activity? *Journal of Physical Activity and Health, 4*, 193-202.
- Mutter, F., & Pawlowski, T. (2014a). Role models in sports—Can success in professional sports increase the demand for amateur sport participation? *Sport Management Review, 17*, 324-336. doi:10.1016/j.smr.2013.07.003
- Mutter, F., & Pawlowski, T. (2014b). The monetary value of the demonstration effect of professional sports. *European Sport Management Quarterly, 14*, 129-152. doi: 10.1080/16184742.2014.882369
- Neal, D. J., Sugarman, D. E., Hustad, J. T., Caska, C. M., & Carey, K. B. (2005). It's all fun and games... or is it? Collegiate sporting events and celebratory drinking. *Journal of Studies on Alcohol and Drugs, 66*, 291-294.
- Nelson, T. F., LaBrie, R. A., LaPlante, D. A., Stanton, M., Shaffer, H. J., & Wechsler, H. (2007). Sports betting and other gambling in athletes, fans, and other college students. *Research Quarterly for Exercise and Sport, 78*, 271-283.  
doi: 10.1080/02701367.2007.10599425
- Niederseer, D., Thaler, C. W., Egger, A., Niederseer, M. C., Plöderl, M., & Niebauer, J. (2013). Watching soccer is not associated with an increase in cardiac events. *International Journal of Cardiology, 170*, 189-194. doi: 10.1016/j.ijcard.2013.10.066
- Novick, L. F. & Morrow, C. B. (2008). Defining public health: Historical and contemporary developments. In L. F. Novick, C. B. Mays, & G. P. Mays. (Eds.), *Public health*

*administration: Principles for population-based management* (2nd ed., pp. 1-34).

Sudbury, MA: Jones and Bartlett.

- Pringle, A. (2004). Can watching football be a component of developing a state of mental health for men? *The Journal of the Royal Society for the Promotion of Health*, *124*(3), 122-128. doi: 10.1177/146642400412400313
- Pringle, A., Zwolinsky, S., McKenna, J., Daly-Smith, A., Robertson, S., & White, A. (2013). Effect of a national programme of men's health delivered in English Premier League football clubs. *Public Health*, *127*(1), 18-26. doi: 10.1016/j.puhe.2012.10.012
- Reeskens, T., & Wright, M. (2011). Subjective well-being and national satisfaction: Taking seriously the “proud of what?” question. *Psychological Science*, *22*, 1460–1462. doi:10.1177/0956797611419673
- Rowe, K., Shilbury, D., Ferkins, L., & Hinckson, E. (2013). Sport development and physical activity promotion: An integrated model to enhance collaboration and understanding. *Sport Management Review*, *16*, 364-377. doi:10.1016/j.smr.2012.12.003
- Sareen, J., Houlihan, T., Cox, B. J., & Asmundson, G. J. G. (2005). Anxiety disorders associated with suicidal ideation and suicide attempts in the National Comorbidity Survey. *The Journal of Nervous and Mental Disease*, *193*, 450–454.
- Shaffer, H. J., & Korn, D. A. (2002). Gambling and related mental disorders: A public health analysis. *Annual Review of Public Health*, *23*, 171–212. doi:10.1146/annurev.publhealth.23.100901.140532
- Sivarajasingam, V., Corcoran, J., Jones, D., Ware, A., & Shepherd, J. (2004). Relations between violence, calendar events and ambient conditions. *Injury*, *35*, 467-473. doi: 10.1016/S0020-1383(03)00241-9
- Swahn, M. H., Palmier, J. B., Benegas-Segarra, A., & Sinson, F. A. (2013). Alcohol marketing and drunkenness among students in the Philippines: Findings from the

- nationally representative Global School-based Student Health Survey. *BMC Public Health*, 13(1), 1159. doi:10.1186/1471-2458-13-1159
- Trovato, F. (1998). The Stanley Cup of hockey and suicide in Quebec, 1951–1992. *Social Forces*, 77, 105-126. doi: 10.1093/sf/77.1.105
- Vaidya, S. G., Vaidya, J. S., & Naik, U. D. (1999). Sports sponsorship by cigarette companies influences the adolescent children's mind and helps initiate smoking: Results of a national study in India. *Journal of the Indian Medical Association*, 97, 354-356, 359.
- Vallerand, R. J., Ntoumanis, N., Philippe, F. L., Lavigne, G. L., Carbonneau, N., Bonneville, A., ... Maliha, G. (2008). On passion and sports fans: A look at football. *Journal of Sports Sciences*, 26, 1279-1293. doi: 10.1080/02640410802123185
- Valois, R. F., Zullig, K. J., Huebner, E. S., & Drane, J. W. (2001). Relationship between life satisfaction and violent behaviors among adolescents. *American Journal of Health Behavior*, 25, 353–366. doi: 10.5993/AJHB.25.4.1
- van Hilvoorde, I., Elling, A., & Stokvis, R. (2010). How to influence national pride? The Olympic medal index as a unifying narrative. *International Review for the Sociology of Sport*, 45, 87-102. doi: 10.1177/1012690209356989
- Waddington, I. (2000). Sport and health: A sociological perspective. In J. Coakley & E. Dunning (Eds.), *Handbook of sports studies* (pp. 408–421). London, England: Sage.
- Wang, T. R., Min, S. D., & Kim, S. K. (2013). Fulfillment of sport spectator motives: The mediation effect of well-being. *Social Behavior and Personality: An International Journal*, 41, 1421-1433. doi: 10.2224/sbp.2013.41.9.1421
- Wann, D. L. (2006a). Examining the potential causal relationship between sport team identification and psychological well-being. *Journal of Sport Behavior*. 29, 79-95.

- Wann, D. L. (2006b). Understanding the positive social psychological benefits of sport team identification: The team identification-social psychological health model. *Group Dynamics: Theory, Research, and Practice*, *10*, 272-296. doi: 10.1037/1089-2699.10.4.272
- Wann, D. L., Waddill, P. J., Polk, J., & Weaver, S. (2011). The team identification-social psychological health model: Sport fans gaining connections to others via sport team identification. *Group Dynamics: Theory, Research, and Practice*, *15*, 75-89. doi: 10.1037/a0020780
- Wilbert-Lampen, U., Leistner, D., Greven, S., Pohl, T., Sper, S., Völker, C., ... Steinbeck, G. (2008). Cardiovascular events during World Cup soccer. *New England Journal of Medicine*, *358*, 475-483. doi: 10.1056/NEJMoa0707427
- World Health Organization. (2003). *WHO Definition of Health*. Retrieved from <http://www.who.int/about/definition/en/print.html>

## Appendix

## Search Terms Used

The following three sets of search terms are connected by the AND operator for the database search:

1. Search terms used to represent “spectator sport”: “professional sport\*” or “colleg\* sport\*” or “national sport\*” or “sport\* governing bod\*” or Olympic\* or “international sport\*” or “sport\* event\*” or “spectator sport\*” or “elite sport\*” or “professional baseball” or “professional football” or “professional basketball” or “professional hockey” or “professional ice hockey” or “professional soccer” or “professional golf” or “colleg\* football” or “colleg\* basketball” or FIFA or “world cup” or “super bowl” or “professional athlet\*” or “elite athlet\*” or “sport\* celebrit\*” or “star athlet\*” or “student athlet\*”
2. Search terms used to represent “health”: health or well-being or prevention or mortalit\* or fatalit\* or illness or disease or injur\* or “physical activit\*” or obesity or overweight or nutrition or “healthy eating” or tobacco or alcohol or drinking or drug or “substance abuse” or violen\* or “hospital admission” or participation or suicid\* or depression or joy or self-esteem or happiness or pride or “life satisfaction” or “quality of life” or stress or anxiety or “social integration” or “social acceptance” or “social contribution” or “social actualization” or “social coherence” or loneliness or isolation
3. Search used to represent “population”: child\* or student\* or public\* or population\* or fan\* or spectator\* or audience or people or communit\* or patient\* or consumer\* or customer\* or client\* or member\* or viewer\*



Table 1

*Definitions and Indicators of the Components of Health*

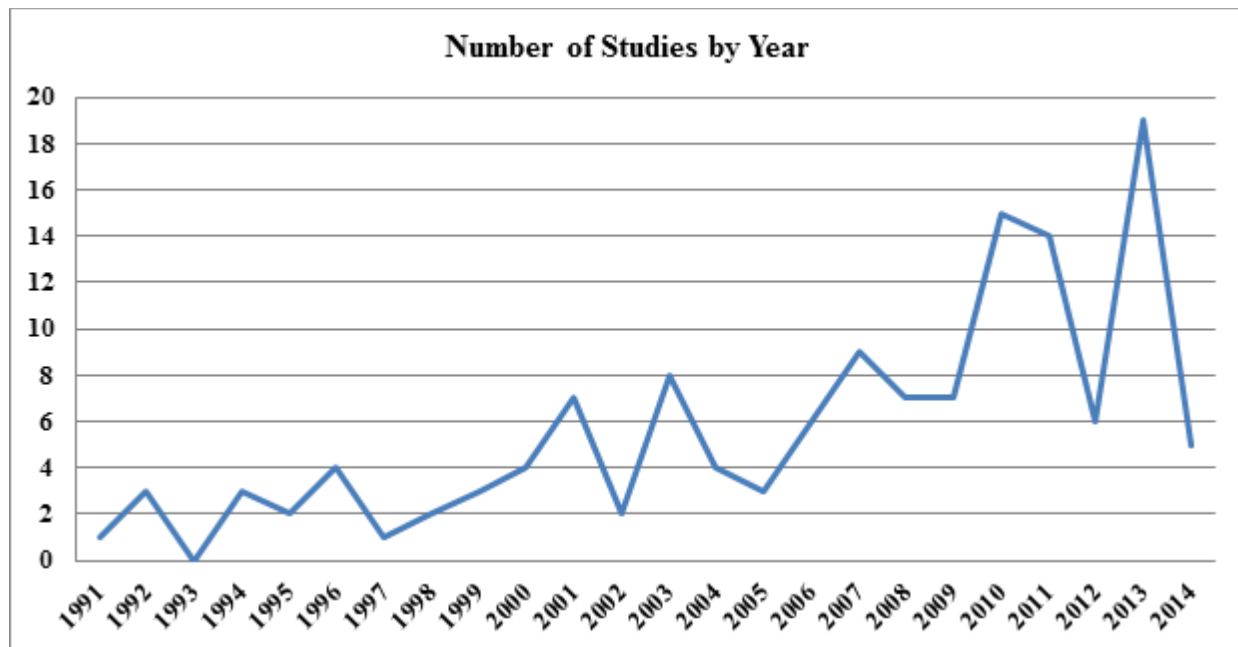
Health component	Definition	Key indicators	Sources
Physical well-being	A state of physical health	Disability, chronic conditions, impairments, symptoms, and energy level	Breslow (1972)
Mental well-being	The extent to which people experience positive or negative mental states	Psychological (e.g., life satisfaction) and clinical (e.g., anxiety) measures as well as involvement in extreme actions (e.g., violence and suicide)	Breslow (1972); Keyes (1998); Koivumaa-Honkanen et al. (2001)
Social well-being	Life functioning in society	A sense of belonging, collective self-esteem, social integration, and national pride	Keyes (1998); Hallman et al. (2013); Wann (2006b)
Health-related behaviors	“Those personal attributes such as beliefs, expectations, motives, values, and other cognitive elements; personality characteristics, including affective and emotional states and traits; and overt behavior patterns, actions, and habits” (Gochman, 1982, p. 169) that may affect health status	Eating habits, exercising, sexual behaviors, and addictive behaviors (e.g., smoking, gambling) as well as their personal determinants	Gochman (1982); Korn and Shaffer (1999)

Table 2

*Description and Frequency of Research Themes*

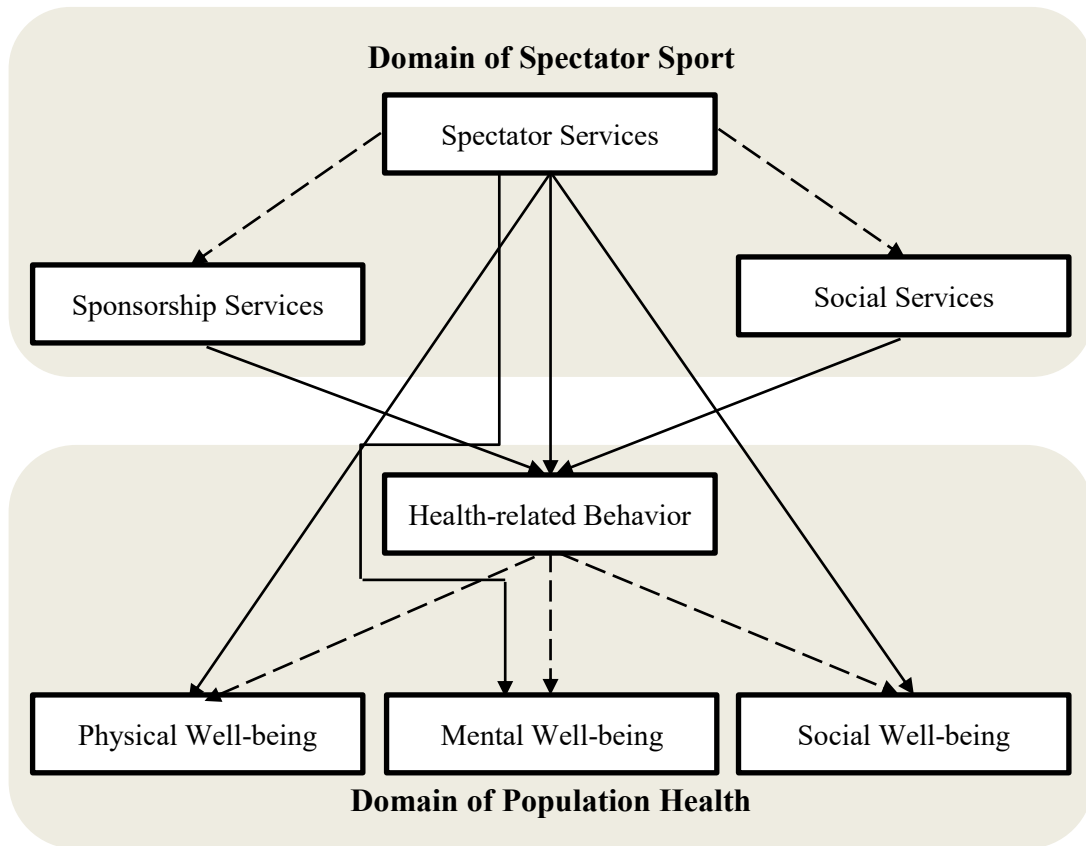
Theme	Description	<i>f</i> (%)	Relationship <sup>a</sup>
Event's impact on physical impairment and mortality	This body of research examines whether sport events and their outcomes affect physical conditions of the population, manifested in hospital admission, physical impairment (e.g., injuries, loss of hearing), and mortality.	29 (21.5)	Spectator → Physical Well-being
Event's impact on unhealthy habits and practices	This body of research examines how sport events and their outcomes as well as personal interest in spectator sport affect one's engagement in unhealthy habits and practices, including excessive alcohol consumption, consumption of unhealthy foods, and gambling.	20 (14.8)	Spectator → Health-related Behavior
Social psychological benefits of sport spectatorship	This body of research examines how individuals' identification with a local sport team as well as affiliation with a national team in the international competitions affects their social well-being, such as collective self-esteem, sense of belonging, and national pride.	18 (13.3)	Spectator → Social Well-being
Effectiveness of health promotion programs	This body of research examines the extent to which health promotion programs and activities implemented or supported by sport organizations and athletes affect participants' health-related behaviors.	17 (12.6)	Social → Health-related Behavior
Event's impact on crime, violence, and suicide	This body of research examines how sport events and their outcomes affect one's mental well-being as manifested in engagement in violence, suicide, or crime.	13 (9.6)	Spectator → Mental Well-being
Event's impact on sport and physical activity participation	This body of research examines whether the sport and physical activity participation of the population is affected by the hosting of sport events and sport spectatorship.	11 (8.1)	Spectator → Health-related Behavior
Psychological impact of sport spectatorship	This body of research examines how sport spectatorship and fandom affect one's psychological state both positively and negatively.	11 (8.1)	Spectator → Mental Well-being
Role modeling effects of athletes	This body of research examines how individuals' attachment to an athlete affects their adoption of health-related attitudes and behaviors associated with the athlete.	9 (6.7)	Spectator → Health-related Behavior
Sponsorship and advertising of unhealthy products	This body of research examines how the consumption of unhealthy products, such as alcohol, tobacco, and unhealthy food products, is promoted through sport sponsorship, advertisement, or endorsement.	7 (5.2)	Sponsorship → Health-related Behavior

*Note.* <sup>a</sup>This corresponds to a specific relationship between a certain category of spectator sport and population health specified in Figure 2.



*Figure 1.* Number of studies examining the effect of spectator sport on population health by year.

For 2014, only studies available before May 31 were included.



*Figure 2.* A framework for the effect of spectator sport on population health. Solid arrows indicate the relationships examined in the reviewed studies. The two dashed arrows in the domain of spectator sport indicate that spectator services generate sponsorship services and social services, as suggested by Chelladurai (2014) and the recent adoption of CSR programs promoting health-related objectives (Dvorak et al., 2012). The three dashed arrows in the domain of population health indicate the relationships proposed based on the health literature.