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Do participant reporting practices in youth sport research adequately represent the diversity of sport contexts?

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ABSTRACT

Objective: There is extensive support for the developmental benefits associated with sport participation, yet research highlights the need to consider how outcomes of sport involvement differ depending on sport types, settings, and amount of involvement. The purposes of the two interrelated studies were to explore the natural diversity of youth sport contexts (Study 1) and to appraise reporting practices in relation to how sport psychology researchers describe youth sport samples (Study 2).

Method: Through online searches of program websites, Study 1 involved a scan of a mid-sized Canadian city to demonstrate the diversity of youth sport contexts. Study 2 involved a review of youth sport peer-reviewed articles published from the year 2000 onwards with a focus on how the authors presented participant- and context-related information.

Results: Study 1 demonstrated substantial variation in sport type, opportunities based on gender, and levels of competition within the example city. Despite the diversity across sport contexts, Study 2 demonstrated that sample reporting was typically restricted to gender, age, and sport type. Meanwhile, articles commonly omitted descriptions regarding the general context (e.g., time/cost requirements, group composition) that are expected to influence developmental experiences in sport.

Conclusion: The diversity of sport opportunities afforded to youth suggests that experiences are likely to differ, yet reporting practices do not adequately describe the participants or contexts under investigation. Accordingly, practical examples of reporting items for youth sport researchers at both athlete and context levels are advanced.

1. Introduction

An extensive body of literature supports the developmental benefits that can be accrued through sport involvement for young populations (e.g., Holt et al., 2017). For instance, sport participation is associated with physical benefits spanning improved strength, fitness, and body composition (e.g., body mass index), along with decreased risk of disease (e.g., Alfano, Kleges, Murray, Beech, & McClanahan, 2002; Warburton, Nicol, & Bredin, 2006). From a psychosocial perspective, benefits of involvement range from increased social interactions (Eime, Young, Harvey, Charity, & Payne, 2013), psychological well-being (Richman & Shaffer, 2000), and the development of leadership and teamwork skills (Light, 2010). Indeed, these adaptive outcomes, in combination with common anecdotal and cultural rhetoric, reinforce the perception that sport is inherently positive (e.g., Coakley, 2016). However, researchers caution against the assumption that sport involvement automatically translates to healthy development and advocate for a more nuanced approach to understanding *how* or *why* sport facilitates positive development—while also identifying circumstances that may reduce these benefits (e.g., Fraser-Thomas, Côté, & Deakin, 2008).

Much of the research oriented toward exploring sport as a developmental context falls under the umbrella of positive youth development (PYD) through sport (Fraser-Thomas, Côté, & Deakin, 2005). This line of research has its origins in developmental psychology and emphasizes a strengths-based approach whereby youth are expected to thrive in environments characterized by formative activities, purposeful quality relations, and civic engagement (e.g., Benson, 1997; Damon, 2004). Such perspectives are evident within sport-specific frameworks focused on the conditions underpinning youth development, ranging from the personal assets framework (PAF; Côté, Turnnidge, & Evans, 2014), the model of positive youth development (Holt, Deal, & Smyth, 2016), a conceptualization of sport experiences (Cairney, Clark, Kwan, Bruner, & Tamminen, 2018), and holistic approaches to talent

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development (Henriksen, Stambulova, & Roessler, 2010) and athletic career transitions (Wylleman, Reints, & De Knop, 2013). Importantly, despite deviations across these perspectives, they collectively strive to provide coherence pertaining to the diversity in youth sport environments and developmental pathways.

The PAF (Côté et al., 2014) describes the elements necessary for adaptive youth sport experiences. These elements involve an individual's engagement with the activity being undertaken (what), their relationships with significant others (who), and the general settings surrounding the activity (where). By comparison, the model advanced by Holt et al. (2016) supports the significance of considering the social environment (comprised of adult and peer relationships and parental involvement), but also includes a focus on life skills (skill building and transfer activities). The athletic talent development environment (ATDE; Henriksen et al., 2010) similarly advocates recognition of a wide range of environmental components at micro (e.g., team, family) and macro (e.g., sport federation, media) levels for athletic and non-athletic domains. Each of these frameworks emphasizes the need to consider how sport activities are structured, the quality of interactions with social agents, and the appropriateness of the settings—not only as descriptive features but as aspects that influence athletic engagement, experiences, and development.

Each of the approaches described above have links to developmental systems theory (Overton, 2015) or social-ecological models (e.g., Bronfenbrenner, 1999) that highlight the importance of considering the mutual interactions between an individual and their environment. Ranging from the broadest societal and cultural influences that help define what it means to participate in sport at a macro level, athlete development is also shaped by increasingly proximal influences at a micro level. On one hand, macro level influences such as culture, ethnicity, or values are critical for understanding how youth perceive sport and to understand how sport is designed in certain contexts (e.g., Williams & Deutsch, 2016). On the other hand, recognizing more micro level influences like program design (e.g., Roth & Brooks-Gunn, 2016) can (a) reveal how values or policies are manifested in sport contexts and (b) clarify the meaningfulness of more proximal influences on youth development. These elements should be viewed as an interacting system.

The way youth sport programs are structured is one characteristic that is included in youth development models as a critical feature to consider in relation to developmental outcomes. As one example, a recent systematic review specifically examined the impact of sport structure on psychosocial outcomes in youth (Evans et al., 2017). When examining published literature focused on the design of youth sport, this study highlighted the wide range of sport types, settings, and patterns of involvement. In relation to sport type, for instance, researchers were found to use a traditional team versus individual sport dichotomy, which overlooks the substantial diversity in the types of sport groups that exist (see Evans, Eys, & Bruner, 2012). Notably, Evans et al. (2012) suggested that merely indicating sport type based on whether or not members work together during competition—a form of task interdependence—omits other important task and outcome interdependencies, including whether team members share a collective outcome and compete against one-another. The Evans et al. (2017) systematic review reinforces the premise that even the slightest changes in the sport context—whether it be the number of training sessions, team size, or level of competition—could impact psychosocial outcomes for participating athletes.

Even though the objective of a given study may not be to examine how the design of youth sport influences psychosocial outcomes, rich contextual descriptions are fundamental to scientific reporting. In fact, the need to include appropriate and detailed information regarding research participants is evidenced by guidelines established within the American Psychological Association Publication Manual (APA, 2010). The manual states that this process is "critical to the science and practice of psychology, particularly for generalizing findings, making comparisons across replications, and using the evidence in research syntheses and secondary data analyses" (p. 29). Details such as the major demographic characteristics, age, ethnicity, level of education, and gender identity, are but several examples given to emphasize the information required. Further, a recent APA reporting guideline document reinforces this point, describing the need for both major demographic and topic-specific characteristics to be provided (Appelbaum et al., 2018).

Considering the imperative for accurate sample descriptions in psychology, combined with the theoretical arguments and emerging empirical evidence specific to sport, we argue that researchers should direct attention toward how they investigate and describe sport contexts. Indeed, while this emphasis aligns with the ecological models advanced in sport, it is also prudent for other substantive reasons. Attention toward sample characteristics and sport contexts could guide standards and field-specific norms for reporting practices, while also promoting common awareness of the meaning behind general terms frequently used to describe sport contexts (e.g., team vs. individual sport; competitive vs. recreational sport). In addition, consistent detailed reporting could provide opportunities for future research to aggregate and synthesize evidence pertaining to how contextual features are associated with youth development.

The current research involved two studies that sought to appraise the fundamental ways in which youth sport programs differed within a naturalistic setting, followed by determining the extent that researchers described these differences within the academic literature. Promoting the need for detailed reporting practices in youth sport research would be largely inconsequential if little naturalistic diversity existed in the public domain. Accordingly, prior to determining the extent to which diversity—or lack thereof—was described within the academic literature, a real-world example of youth sport contexts was explored. As such, the purpose of Study 1 was to conduct a sport scan of a mid-sized Canadian city to demonstrate the diversity in contextual features within youth sport settings. Study 2 was then completed to explore major journals in sport psychology to assess the degree to which current reporting practices adequately described important contextual features as reflected in Study 1.

2. Study 1: a city-based scan of available sport offerings

Study 1 sought to represent the broad scope of youth sport programs available within a regional community, which would eventually serve to contrast against the descriptors commonly used in the sport psychology literature (see Study 2). This process involved the review of all sport programs available within a mid-sized Canadian city, obtained by online searches and by personally contacting program coordinators, and characterizing the nature of sport activities delivered within each program. Note that for Studies 1 and 2, sport was operationalized as any identifiable or objective physical activity that involved competition (with oneself or an opponent) and was shaped by rules, facilities, normative beliefs, and policies (Evans et al., 2017). For these studies, we sought sport programs and research largely involving athletes between the ages of 3–18 years (see specific inclusion/exclusion criteria for each study). Considering that youth sport programs often extend from the inception/introduction to sport to the adolescence/early adulthood, our orientation toward this age group was generally informed by the proposed developmental stages comprising toddler/early childhood (i.e., ages 2–6), middle/late childhood (i.e., ages 7–12), early adolescence (i.e., ages 13–15), and middle/late adolescence (i.e., ages 15–21; Haywood & Getchell, 2014; Malina, Bouchard, & Bar-Or, 2004).

2.1. Method

2.1.1. Sport search

The electronic search of youth sport programs available in Kingston, Canada, took place between December 2016 and January 2017. At the

time of data collection, Kingston had a total population of 117,660, with 24,030 individuals under the age of 19 years (20.4% of total population; Statistics Canada, 2017). The primary language for the majority of the population was English (85.9%), followed by French (13%), and other (0.8%). The average age was 41.9 years, with an average individual income of $44,990 (CAD) which neared the average for mid-sized Canadian cities. Although Kingston was selected to serve as an arbitrary example for the diversity of sport programs, it is important to acknowledge that similar mid-sized cities in North America are recognized as providing increased opportunities for sport participation and elite development (e.g., Côté, Macdonald, Baker, & Abernethy, 2006). Kingston was also selected as a convenience sample that was known to the investigative team (e.g., research team was primarily located in Kingston).

Given the paucity of guidelines regarding searches of sport programs within geographical areas, and its value to the current research, our search was informed by an online sport program review conducted in Australia (Liddle, Deane, & Vella, 2017) and suggestions advanced for gray literature searches (Paez, 2017). This information was combined with pertinent guidelines advanced for quality systematic reviews pertaining to methods (e.g., eligibility criteria, program selection), results (e.g., program characteristics, synthesis), and discussions (e.g., summary of evidence; Moher, Liberati, Tetzalff, Altman, & PRISMA Group, 2009). Specifically, the research team began with the electronic databases from a regional physical activity advocacy group (i.e., "Active Places", 2018). Supplemental searches were conducted via online search engines (e.g., Google) and the City of Kingston website (www.kingston.vic.gov.au) using similar search terms to those on the advocacy group's webpage and through personal word of mouth. To ensure that every potential program was identified, specific sets of keywords were used during the search, including 'sport,' 'youth,' 'team,' 'individual,' 'competitive,' 'recreational,' and 'active.' After identifying local programs, the research team gathered information about each using publicly available information from websites followed by e-mail contacts with program coordinators when information was unavailable (e.g., program cost).

2.1.2. Inclusion and exclusion criteria

The search criteria were designed to include programs that were available for children and youth ranging from 3 to 18 years of age. Our rationale for using 18 years as a cut-off was the onset of 'adult only' programs that begin with this age group. Adult programs (those involving participants aged 18 years and older) were only included if they also involved children and youth within our targeted age range. In addition, all levels of competition were included, ranging from early development to elite involvement. Sport programs were excluded if they did not meet the inclusion criteria or were outside of the greater Kingston region.

2.1.3. Data extraction and collection

The majority of information regarding the structure of the sport offerings (e.g., type of sport, cost, time commitment) was obtained online, however a snowball technique involving word of mouth and personal contacts within the community was also used to gain additional information where needed. Each club was coded regarding the sport type, age, level of competition, gender, cost of participation, practice and game hours, travel expectations, coach certification requirements, and presence of selection processes. The coding sheet for recording information for each program is available from the corresponding author upon request. In addition, a similar template that was used for Study 2 is available online. When coding information from programs, certain descriptors were coded using written descriptions, whereas key descriptors were coded using frequency descriptors (e.g., program size, gender distribution) or averages or ranges (e.g., practice and game hours per week). When information was unavailable, each program was attributed percentages regarding the portion of information gathered. The first and second authors began by coding a shared pool of 20% of the programs ($n = 74$) to ensure coder reliability, prior to separating the remaining programs so that each coder handled 40% independently ($n = 148$).

It is important to note that less than 15% of identified programs provided all necessary information on their websites, so researchers were required to contact program coordinators through email or by telephone. From these conversations, information pertaining to the cost of the program, practice hour requirements, travel expectations, selection processes, and coach information was obtained. Five sport programs had no contact information listed for their coordinators, and 35 programs did not respond to email and telephone correspondence. Therefore, complete information for identified programs was accessed in 91% of cases.

2.2. Results

A total of three hundred and seventy sport programs were identified. To explore the diversity across these programs, we initially classified each program according to existing classifications of sport type and gender involvement, along with thematically classifying programs regarding level of competition.

Regarding level of competition, programs varied in relation to skill level requirements, inclusion of team selection processes, time commitments, and cost. These program specifics and additional descriptions were classified into three levels of competition: competitive, recreational, and introductory. Introductory programs were low in cost, had weekly time commitment requirements, and targeted individuals who were new to the sport. Recreational programs were slightly more expensive, had weekly time commitments, and were for youth with introductory to competent levels of skill. Finally, competitive programs were the most expensive, had extensive time commitments, typically involved a selection process, and were for individuals high in competency relative to their age group. Table 1 illustrates these sport context types, with 205 competitive programs with an annual average cost of $774, 3.9 practice hours per week, and travel requirements outside of Kingston 1.25 days per week. The sport scan uncovered fewer programs that were introductory and recreational in nature, and these programs involved lower cost ($338 and $312), fewer practice hours (2.5 and 1.7 h per week), and limited travel requirements (0 days a week). Table 1 also demonstrates the diversity within each discrete classification of competitive level, suggesting that even though programs could be classified as competitive, recreational, or introductory, doing so overlooks important ways that the actual context of sport participation could vary.

Classification of sport type was informed by the typology advanced by Evans et al. (2012), extending beyond the individual and team sport dichotomy to a continuum based on team member interdependence (see Table 2). The seven sport interdependence types identified by Evans et al. (2012) include (a) integrated (teams work together during

Table 1
Level of competition and associated features for the contexts (study 1).

	Introductory	Recreational	Competitive
Sport Clubs	20	145	205
Cost Range	$95–700	$10–1550	$250–2650
Cost Average	$338 (*197.12*)	$312 (*479.44*)	$774 (*574.79*)
Gender	79% Co-ed	77% Co-ed	28% Co-ed
	21% Female	12% Female	32% Female
	0% male	11% Male	40% Male
Practice Hours	2.5 h/week (*1.3*)	1.7 h/week (*1.3*)	3.9 h/week (*1.7*)
Travel hours*	0 days/week	0 days/week	1–1.5 days/week
Selection process	No selection	No selection	97% Tryouts

Note: *Number of travel days = number of days the team or athlete is required to travel outside of city limits for a game, tournament, event, or practice.

Table 2
Sport type and associated features for the contexts (study 1).

	Integrated	Segregated	Collective	Cooperative	Contrient	Independent
Sport Teams	248	42	9	4	33	19
Cost Average	$438.8	$182.7	$105	$120	$7118	$52.5
Gender	33% Male 32% Female 35% Co-ed	11% Male 11% Female 78% Co-ed	100% Co-Ed	100% Co-Ed	100% Co-Ed	100% Co-Ed
Practice Time (hours per week)	4.76	2	N/A	3	N/A	N/A

competition with a clear group goal), (b) segregated (team members compete together but are not always required to interact with one another on the task), (c) collective (team members partake in the same race or competition with one another *and* obtain a team 'title'), (d) cooperative (teammates compete in different groupings but contribute to a team title), (e), contrient (teammates compete individually, against one another, with no identified group goal), (f) independent (members have no identified group goal and compete at different competitive levels), and (g) solitary (individuals sometimes gather together for practice events, but do not identify as a group). There were 248 integrated sport opportunities, with an average cost of $438 and 4.8 practice hours per week. Whereas the majority of offerings represented integrated sport, it is important to note that numerous other types were identified, highlighting the necessity to move beyond the traditional team and individual sport classification in sport reporting. Notably, segregated (n = 42) and contrient (n = 33) sport types were present in some sport programs. Although contrient sport had the highest cost for participation, programs that delivered contrient sport opportunities commonly provided limited information (i.e., 40% of information available, on average).

The gender composition of the activities/programs referred to male-only, female-only, and co-ed sport options. Table 3 illustrates the similarity in sport opportunities across male and female participants. Male sport had a slightly greater number of opportunities—six more sport teams, 0.5 more hours of travel, and 0.5 more practice hours per week. However, male sport had a greater cost associated with participation than both female and co-ed sport, ranging from $90–6,000 annually. Interestingly, co-ed sports, or sport programs that allowed both males and females to compete, had the greatest number of teams/clubs available overall, with 42 more than male only opportunities. Whereas co-ed sport had the greatest number of teams at the recreational level (i.e., participatory focused), male sport had a greater number of competitive teams. Finally, the practice hours per week were consistent between all genders (i.e., 3.2–4 h per week).

3. Study 2: systematized review of reporting practices in youth sport research

Study 1 uncovered diversity across sport programs, even within discrete terms commonly used by researchers (e.g., competitive vs. recreational, team vs. individual). Building from this notion, a systematized review (Grant & Booth, 2009) of youth sport publications was conducted in Study 2 to explore the degree to which reporting practices represent the naturalistic diversity of sport contexts. To do so, we examined sport psychology publications from a selection of journals and publication years to consider how researchers reported on the context of their research in relation to: (a) classifying terms such as those representing sport type, competitiveness, and member composition, along with (b) reporting of micro-level aspects for which programs varied (e.g., cost, hours of involvement, travel requirements).

Table 3
Gender and associated features for the contexts (study 1).

	Male	Female	Co-Ed
Sport Teams	115	109	157
Cost Range	$90–6000	$75–2640	$10–700
Cost Average	$715 (*958.1*)	$386 (*597.3*)	$262 (*148.5*)
Travel Time (days per week)	0.5–1	< 1	~0
Practice Time (hours per week	3.25	3.2	4
Introductory Level	9	12	4
Recreational Level	20	21	62
Competitive Level	86	73	38

3.1. Method

3.1.1. Review and search process

This study can most accurately be framed as a systematized review (Grant & Booth, 2009), whereby a representative subsample of articles was subjected to review components advanced within the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (PRISMA; Moher, Liberati, Tetzlaff, Altman, & PRISMA Group, 2009). Specifically, the primary deviations from a systematic review entailed the constrained search process to select only a sample of youth sport research along with the absence of efforts to examine the quality or state of the literature (e.g., risk of bias). Nevertheless, it was critical to employ tools from systematic review protocols as described in the following sections (e.g., systematic article selection and coding process; Moher et al., 2009). The coded articles were from four major sport psychology peer-reviewed journals. The selection of journals was informed by similar sport psychology reviews (e.g., Culver, Gilbert, & Sparkes, 2012; Gilbert & Trudel, 2004; Meredith, Dicks, Noel, & Wagstaff, 2017), with the purpose of obtaining a representative account of the international research for both empirical and more applied articles. These journals included the *Journal of Sport and Exercise Psychology*, *Journal of Applied Sport Psychology*, *Psychology of Sport and Exercise*, and the *International Journal of Sport and Exercise Psychology*. The first and second authors began the search process in October 2017, with hand searches of journal tables of content to identify relevant articles from the year 2000 onwards. Considering the purpose of this review, this timeframe was expected to exemplify current reporting practices in the field. All located articles and citation information (e.g., year of publication, list of authors, journal, article title) were managed in Zotero 5.0.

3.1.2. Article eligibility

Regarding inclusion and exclusion criteria, articles were included if the study involved data collection with youth sport athletes (based on the operationalizations described in Study 1). Literature reviews, methodological papers, conference proceedings, and government/non-governmental organization and non-profit organization reports were excluded as they did not involve a sample that required reporting.

3.1.3. Article selection and coding

Once duplicate articles were removed, screening at title and abstract level commenced (see Fig. 1). The first and second authors each screened half of the article abstracts to remove any unrelated and

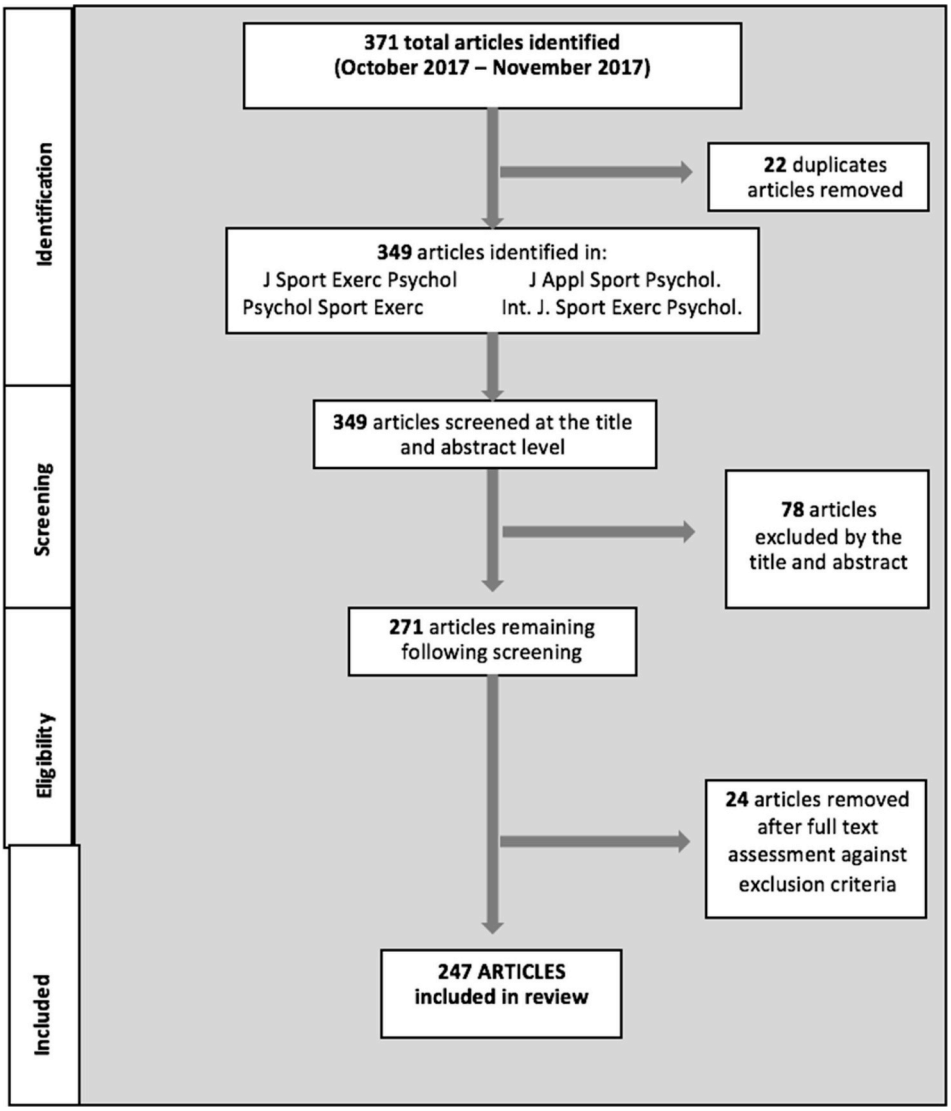

Fig. 1. Flow diagram of youth sport article selection for systematized review (study 2).

ineligible studies. When screening at the full text level, a preliminary reliability check was undertaken. The first and second authors began by reviewing a sample of 27 articles (10% of total sample) to examine coder reliability and address any concerns with consistency. Three discrepancies were identified (88% reliability), and once they were discussed and resolved during a research team meeting with the third and fourth authors, the remaining articles were equally distributed to the two coders for independent review (n = 123).

Following full text selection, data extraction/coding followed the general guidelines advanced by Moher et al. (2009), however were restricted to involving necessary identifying information (e.g., article title, author name, year of publication, journal) and researchers' reporting of sample and context characteristics. The general themes sought within the articles were informed by important contextual elements identified in the youth sport literature (e.g., Côté et al., 2014; Evans et al., 2017) and from the results of Study 1. Namely, these themes included gender, age, ethnicity, sport, sport type, sample size, hours of sport participation, level of competition, number of years in sport, number of years on team, number of years with coach, geographical location, number of teammates on a team, and number of coaches per team. The coding sheet is available as an online supplemental resource.

3.2. Results

The original search identified 371 potential articles. After removing 22 duplicates, 349 were reviewed at the title and abstract level, and 271 progressed to full-text review—247 were ultimately included (see Fig. 1). The following sections (a) depict the extent to which authors reported on sample and contextual features, and (b) provide a general account of the typical 'youth sport' populations investigated within the field. Specifically, the first section features the general reporting practices exhibited by researchers across all articles reviewed (i.e., Reporting practices). The second section highlights themes pertaining to the reported information specific to sport under investigation, gender, age, and sport interdependence type (i.e., Sample characteristics). A table containing all coded articles is available as an online supplemental resource.

3.2.1. Reporting practices

This project determined that articles shared patterns regarding how they described the samples and sport contexts under investigation (see Table 4). Three categories of information were reported on. First, participant attributes were explored. Articles reported basic information about participants such as gender (95.9%) and age (98.8%), however

Table 4
Theme reporting participant percentages in youth sport research (study 2).

	% of Studies Including Information
Gender of Participant	95.90%
Age of Participants	98.77%
Sport Type	97.54%
Sample Size	99.59%
Hours of Sport Participation	25.82%
Participant Ethnicity	27.45%
Level of Sport	89.34%
Number of Years in Sport	39.34%
Number of Years on Team	11.89%
Number of Years with Coach	3.7%
Location of Research	91.28%
Sport Interdependence Type*	N/A

Note. *Not reported in the articles, and instead determined by researchers based on identified sport type and Evans et al. (2012) sport interdependence typology.

only 63 articles (25.8%) reported the ethnicity of the participants. A large portion of articles (n = 225; 91.3%) included the location of the participant sample within their methods, with 48% of this research being conducted in Europe (n = 108; e.g., Sweden, England), 42.6% in North America (n = 96; e.g., Canada, United States), 4.9% in the Oceanic (n = 11; e.g., Australia, New Zealand), 3.2% in Asia (n = 7; e.g., Singapore), and 1.3% in the Middle East (n = 3; e.g., Israel). Second, sport context attributes were recorded. Specific information on the sport type (97.5%), sample size (99.6%), and level of competition (89.3%) were frequently included in the methods. Any information beyond these traditional demographic descriptors was scant, thus limiting readers understanding of the actual sport context. For example, only 9 articles (3.7%) included information on the number of years the athletes participated with their coach (M = 1.8), and no articles included information on the number of coaches per team. Additionally, only 90 articles (36.9%) reported the hours per week of sport involvement, with the average being 4.5 h (SD = 6.5), and 3 of the articles (1.2%) reported the size of each separate team within their study. Finally, descriptions of the athlete's participation pattern and progression through sport was investigated. Only 96 articles (39.3%) included information on the number of years athletes had played their sport (M = 5 years), and 29 articles (11.7%) included information on the number of years they had been with their current team (M = 2.8 years).

3.2.2. Sample characteristics

Regarding content that *was* reported-on within articles, the following sections describe the samples investigated and are specifically categorized in relation to sport type, gender, age, and sport interdependence type.

3.2.2.1. Sport under investigation. Thirty-three different sports were studied, ranging from soccer and hockey to golf and downhill skiing. Interestingly, most articles involved samples combining a range of sports (39%). For articles reporting samples involved in a single sport, soccer was the most prevalent (20.7%), with others being tennis (7.1%), ice hockey (4.6%), swimming (4.6%), basketball (4.2%), gymnastics (4.2%), American football (2.9%), and volleyball (2.5%).

3.2.2.2. Gender. All but 4% of articles reported participant gender, and inclusion of mixed-gender teams and programs were the most common (60%). The remaining articles were conducted with all-male (23%) or all-female (13%) athletes. Within the various sport contexts, 50% of the articles involving soccer were all-male, while only 14.5% were all-female. Other popular sports such as ice hockey and American football comprised 82% and 100% all-male samples, respectively. Gymnastics (100%) was the only sport that featured more females than male participants, and multiple sports such as basketball, volleyball, swimming, cross country, and dance had both male and female participants. Finally, for the articles that involved a combination of sports, the genders also included both male and female participants in 88.5% of instances.

3.2.2.3. Age. Although only 1% of articles failed to report age, there was a combination of reporting practices involving either the mean or the range of the sample. Considering differences in reporting style, age was coded for this review into five categories: < 9 years, 9–12 years, 13–15 years, 16–18 years, and > 18 years. To fit within these categories, the majority (85%) of a sample had to be within the age range. This information was obtained using mean calculations and standard deviations from the age range for each study. To best classify ranges, a study was coded in relation to any of these age categories when at least one participant was reported as being within that range (for a range listed as 11–15 years, a point was awarded to the 9–12 years *and* the 13–15 years). Nearly half (45%) of the research conducted in youth sport involved participants aged 13–15 years, with a similar frequency of articles involving youth aged 9–12 years (22%) and 16–18 years (27%). Comparatively few studies had been conducted with children under the age of 9 (~1%) and those over 18 (5%). This pattern was consistent across the various sport contexts. For example, teams such as soccer, ice hockey, swimming, gymnastics, and the mixed sport sample had age ranges from 6 to 19 years. Other sports, such as basketball, volleyball, American football, cricket, tennis, and dance comprised athletes aged 10–18 years. Finally, sports such as baseball, cross country running, field hockey, rugby, rowing, figure skating, and skiing tended to include teenagers and young-adults from 14 to 19 years.

3.2.2.4. Sport interdependence type. Sport interdependence type was informed by the typology advanced by Evans et al. (2012). Importantly, although we did not expect researchers to specifically classify their samples within a particular interdependence type, exploring which have been most investigated was vital to contrast against the prevalence of real-world offerings (Study 1). Researchers often included a combination of interdependence types within their samples (36.88%). When restricting sampling to a common type, integrated sports were the most common (37.3%), with segregated (6.2%), cooperative (6.6%), independent (3%), collective (0.4%), and contrient (0.4%) appearing less frequently. In 9% of cases, not enough information was provided to classify interdependence type.

4. Discussion

Across two studies, we explored the diversity of sport programs within a mid-sized Canadian city (Study 1) and depicted current reporting practices in youth research to determine the extent to which they accurately represented sport contexts (Study 2). Although we were able to group sport programs into discrete categories related to level of competition, sport type, and gender composition in Study 1, programs nevertheless varied according to numerous micro-level features such as time commitments, cost of participation, and travel requirements. Study 2 assessed reporting practices within youth sport research and, indeed, demonstrated that general information such as gender, age, type of sport, and sample size were frequently reported. Nevertheless, this information was often provided at the individual-level as opposed to reporting on types of programs or sport opportunities, and other key characteristics were not reported, including: hours spent playing the sport, ethnicity of players/group composition, participation cost, length of time with a coach, and number of years in a certain sport or on a team. Further, although researchers reported general descriptions across the sample as a whole, results indicated that generalized terms were often employed with little-to-no operationalization of those terms (e.g., competitive sport) or key descriptive characteristics.

A critical observation when contrasting Studies 1 and 2 was that,

whereas researchers did report features of the sport context, this information frequently lacked specificity and overlooked areas necessary to adequately depict the naturalistic diversity of sport. The following sections describe (a) the implications of inadequate reporting practices in relation to ecological models of youth development through sport, (b) the impact that detailed reporting could have in furthering our understanding of youth sport experiences, (c) the need for purposeful sampling practices that align with the diversity of 'youth sport,' and (d) suggestions to advance research efforts and reporting practices.

Recognizing that experiences can differ markedly based on the diverse characteristics of sport contexts is critical. Indeed, involvement in sport can represent different experiences for youth, beyond the obvious variations in psychosocial environments such as quality of coach-athlete and peer relationships (e.g., Jowett & Poczwardowski, 2007; Smith, 2003) or exposure to autonomy-supportive versus mastery-oriented environments (e.g., Duda, 2001). In fact, recent evidence notes the impact that even seemingly minor variations in sport contexts can have on athlete psychosocial outcomes (Evans et al., 2017), such as level of competition or the type of sport for acceptance of gamesmanship or cheating (e.g., Lee, Whitehead, & Ntoumanis, 2007). The results from Study 2 indicate that researchers either often overlook—or report in superficial terms—important sample and contextual features. For instance, few articles reported the weekly hours of involvement or years of participation for their sample, information pertaining to coaches (e.g., experience, certification), or broader community or sport program details.

Consider the following examples pertaining to an athletes' perceptions of their teams' cohesion or the identity that they derive from their membership with that team. Differences in relation to the amount of time spent with teammates, the interdependence required to compete, the level of competition, or the presence/absence of a selection process are all likely to impact such perceptions. For instance, successfully engaging with and progressing through a selection process will influence identity perceptions (e.g., Tajfel & Turner, 1979). Similarly, considering the differences in frequency of interaction and proximity experienced by teammates (based on team travel, weekly sport involvement, etc.), it is expected that perceptions of cohesion would also differ (e.g., Carron & Eys, 2012). Further, sport type can influence teammate interactions, and by extension, athlete experiences (e.g., Evans & Eys, 2015). The inclusion of such information would more closely adhere to the social-ecological approaches that are salient within youth development research (e.g., Côté et al., 2014; Henriksen et al., 2010; Holt et al., 2016).

As research in youth sport continues to grow, it is important to consider how reporting practices need to develop as well. Without considering the diversity in youth sport contexts, we cannot fully comprehend how this may be affecting those involved or properly extend and apply these findings to other situations, settings, and populations of interest. For example, researchers have recognized the professionalization of youth sport, whereby early specialization is emphasized and offerings are largely adult-driven (Bergeron et al., 2015). Similarly, participation and activity-based models, such as the Developmental Model of Sport Participation (Côté, Baker, & Abernethy, 2007), have been used to compare activities and experiences of athletes engaged in different sport stages (i.e., sampling, specializing, investing). Adequately representing the context under investigation is critical to furthering the utility of such models, and in assisting the predictability for important sport outcomes ranging from improved performance, to continued participation, and personal development (Côté & Hancock, 2016). Even when these characteristics are not vital for a specific investigation, consistent reporting practices by researchers could facilitate retrospective analyses across the literature (e.g., APA, 2010). Aggregations of findings from numerous investigations could be used to explore the influence of sport contexts (e.g., meta-analyses), while retrospective studies could examine the extent to which the sport landscape is changing and what such changes could mean for youth.

Detailed reporting within youth sport research can further impact our understanding of youth sport experiences, including those of the parents and their children. For instance, parents note barriers that prevent youth sport involvement, such as financial expenses and time commitments required for families (Quarmby, 2016). The expectation to attend multiple practices per week, in addition to games or competitions can make it difficult to attend all activities while maintaining other important aspects of their lives. In addition, and possibly most importantly, parents have expressed a difficulty in identifying sport opportunities in their communities (Wiersma & Fifer, 2008). Although we were able to locate information for the majority of programs in Study 1, only 15% had all necessary information on their websites and 10% either had no contact information or did not respond to our enquiries—thus, representing the potential for missed opportunities for sport involvement. This lack of publicly available information is mirrored by issues of research reporting in Study 2. Better reporting would allow researchers to more specifically explore the implications of less overt sport features (e.g., cost, time commitment) on important outcomes, and transfer this information to the community to allow parents and families better access and knowledge of youth port programs.

In addition to reporting practices, the current findings highlight the need for purposeful sampling that reflects the diversity of youth sport with respect to contexts and participants within sport programs. This suggestion aligns with recommendations from the APA publication manual for the specificity required within sampling practices. Information such as ethnicity, gender identity, level of coach training/certification, sport type, and cost of programs, are but several examples of topics that fall within the recommendations (APA, 2010). Indeed, without this information, research findings lack generalizability, cannot be used for comparisons across replication studies, and may not be used as evidence in research syntheses or secondary data analyses. As several recent examples of this purposeful sampling, Benson, Šiška, Eys, Priklerová, and Slepič;ka (2016) and Vierimaa, Bruner, and Côté (2018) examined youth athletes from more elite to very recreational sport contexts, and ensured the inclusion of information such as number of teams and their sizes, athlete age, ethnicity, years of experience, coach information, and thorough descriptions of the level of competition. By including this additional information, the researchers were able to more adequately represent their samples and contextualize their findings.

Beyond the broad goal of eliciting richer measurement and reporting practices, this research provides insight in relation to the use of more consistent and widespread operationalizations of key terms. We recommend that researchers may describe their sample using general terms, but that they also measure and report underlying aspects of the sport context at the level of the program and the participant. For instance, whereas researchers commonly use terms like 'competitive sport' to describe their sample, we recommend: (a) that descriptive terms should be clearly operationalized, and (b) that aspects reflecting level of competitiveness within the sport context should be measured and reported using athlete-level questions and/or assessments of the broader program (e.g., asked to coaches or administrators). As an example, descriptions provided in Study 1 afford a preliminary operationalization of competitive sport as several of the following: Programs that involve competition with athletes from other programs or teams, cost money to participate in, encompass more than 3 h of time demands per week, and typically entail member try-outs or selection. Perhaps more importantly, this research reveals that diversity across these micro-level aspects means that authors should report such critical underlying facets that relate to competitive level, such as hours per week, cost, or selection processes. Without clearly defining competitive sport or measuring underlying aspects, it is not possible to generalize those findings to similar settings, nor is it possible to understand how variations in competitiveness within a sample may have contributed to its findings.

In the hope of aiding future research efforts, the findings from this study enable us to (a) propose the investigation of certain themes that

Table 5
Examples of reporting items for youth sport researchers.

Domain	Descriptive Feature	Example Features To Report	
		Athlete-Level	Program/Context-level
Demographic	Sex	Athlete sex or gender	Proportion of males and females in program
	Age	Athlete age	Age distribution or range in program
	Race/ethnicity	Athlete race/ethnicity	Program diversity
Type of Involvement	Competitive level	–	Yearly cost; Presence of selection process; Travel requirements; Breadth of competition (e.g., regional, national)
	Degree of involvement	Hours per week for sport-related activities; Number of sports involved in	Time commitment required of athlete members of program (e.g., sport training, volunteering)
	Yearly involvement pattern	Specialization or sampling (i.e., participates in single sport year-round)	Length of sport season in club; Club policies regarding sampling
Program Type or Setting	Sport type	–	Sport type of program or team
	Program size	–	Number of teams/athletes/coaches across organization
	Team social environment	–	Number of teammates/peers
		–	Number of coaches; Coach experience/certification
Individual-Level	Role within sport	Leadership status; Sport position	–
	Tenure in sport	Years of sport involvement	–
	Tenure with program/team/coach	Years with current program/team/coach	–

appear to be under explored in youth research, and (b) advance recommendations for reporting criteria that researchers could consider in relation to both athlete specific and contextual information. For themes worth investigating, researchers should explore relevant moderator variables such as an athlete's tenure or progression through sport (e.g., years involved with the sport, with the current team, with the current coach)—identified as critical considerations for youth experiences (Eime et al., 2013)—and the specific sport's structure (e.g., weekly hour commitments, travel necessity, cost). Similarly, and considering our emphasis on the diversity of sport contexts, single-sport studies extending beyond the predominant focus on soccer could further our understanding of sport involvement to less traditionally investigated sports (e.g., handball, cricket, fencing). In a similar vein, integrated sport types have received the greatest research attention with youth—recognizing that this is indicative only of our subset of articles—so extending this research to other more independent sport types could further inform the impact of sport context on individual experiences and social processes (e.g., Evans & Eys, 2015). Lastly, considering that the majority of the research was conducted in Europe and North America, exploring youth sport experiences across a broader range of contexts internationally would be beneficial.

To serve as a heuristic guide for future data collection efforts, we propose the following list of features that could be compiled and reported. These items generally reflect the information extracted using our coding sheet, in addition to themes that were identified within sport opportunities (Study 1) and were often under reported within the current literature (Study 2). Specifically, we encourage researchers to obtain detailed information about athlete demographics as well as the broader sport context (see Table 5). However, we emphasize that these are simply examples of the types of information that could be collected, and acknowledge that it is not likely that all will be available or relevant in every instance. Further, and to avoid additional burden on participants, Study 1 demonstrates that relevant contextual information is often available on publicly accessible websites and researchers could also consider distributing descriptive surveys to coaches, program administrators, or parents.

Finally, it is worth emphasizing that when interpreting the current results, we urge readers to recognize the example-oriented purpose of this research. Specifically, the example utilized in Study 1 is a mid-sized Canadian city, and we acknowledge that the range and diversity demonstrated for sport programs is not necessarily indicative of other cities in Canada, nor in other countries globally. Similarly, as a means of obtaining a general account of the reporting practices for research involving youth, four main journals representing international readership and spanning applied to more empirical based orientations were reviewed. Although a complete review of the entire youth sport literature was not conducted, we nevertheless expect that our 'snapshot' captured general reporting trends with sufficient accuracy so as to serve as a useful example for an important topic in our field. Finally, we also acknowledge that our research team is situated in North America, which should be considered in relation to our positionality within the research.

To conclude, these two studies demonstrated the inherent variety present within youth sport contexts and the relatively superficial nature with which researchers are currently describing study samples. As such, and in relation to the question posed within the title of this article, current participant reporting practices do not adequately represent the diversity of sport contexts. It is our hope is that this article promotes more thorough and consensual reporting in youth sport research, specifically relating to participant demographics and detailed accounts of sport contexts. Such a move would align with the holistic developmental and ecological approaches to youth sport adopted in the field.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.psychsport.2019.101559.

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