Stressors, coping, and well-being among sports coaches: A systematic review

Abstract

Objectives: Sports coaching can be an inherently stressful occupation because coaches must fulfill multiple roles and cope with various expectations. Further, stress and well-being have implications for coach performance. The objective of this study was, therefore, to conduct a systematic review of literature on stressors, coping, and well-being among sports coaches.

Design: A systematic review using PRIMSA guidelines.

Method: Thorough and systematic literature searches of PsycINFO, SPORTDiscus, and Web of Science were conducted. To be eligible for inclusion, papers had to be published in the English language between January 1994 and March 2016 and as full papers in peer-reviewed journals.

Results: The final sample consisted of 38 studies that were conducted with 4,188 sports coaches. This sample consisted of 19 qualitative, 17 quantitative, and two mixed methods studies. The findings demonstrate that coaches experience a variety of stressors relating to their performance and that of the athletes they work with in addition to organizational, contextual, interpersonal, and intrapersonal stressors. The findings also highlight that coaches use a variety of coping strategies (e.g., problem solving, social support, escaping the stressful environment) to reduce the negative outcomes of stress. Five studies that were included in this review focused on coaches' well-being and found that basic psychological needs satisfaction, lack of basic psychological needs thwarting, and self-determined motivation are needed for coaches to be psychologically well.

Conclusion: Future research should address gaps in extant literature by using longitudinal study designs to explore coaches' appraisals of stressors, coping effectiveness, social support, and well-being among the unique sports coaching population.

Keywords: cognitive-affective, cognitive-motivational-relational, high performance, transactional

Stressors, coping, and well-being among sports coaches: A systematic review

Psychological stress has been explored in various professional contexts, including law enforcement (Kaiseler, Queirós, Passos, & Sousa, 2014), nursing (Woodhead, Northrop, & Edelstein, 2016), public services (Liu, Yang, & Yu, 2015), and teaching (McCarthy, Lambert, Lineback, Fitchett, & Baddouh, 2015). Collectively, the findings of this research suggest that high levels of perceived stress can reduce performance and contribute to negative health implications. In a sport context, a considerable amount of research has examined the stress experiences of athletes (e.g., Didymus & Fletcher, 2014; Kaiseler, Polman, & Nicholls, 2013; Thelwell, Wagstaff, Rayner, Chapman, & Barker, 2016). The research in this area has highlighted that the coach can be a pertinent stressor for athletes, that athletes are influenced by coaches' stress experiences (e.g., Thelwell et al., 2016), and that coaches' stress experiences are influenced by athletes (Nicholls & Perry, 2016). The growing realization of the influence that a coach can have on the athlete has stimulated research that focuses on sports coaches as performers in their own right. Nonetheless, this unique population has received limited research attention when compared to that directed at athletes (Olusoga, Butt, Hays, & Maynard, 2009). Given that there are approximately 2.4 million coaches working in the United Kingdom alone (Sports Coach UK, 2016) who may face a variety of stressors, it is important that we better understand coaches' experiences to facilitate positive sport environments that may optimize coach and athlete performance.

Sport psychology researchers have frequently adopted a transactional conceptualization of stress (Lazarus & Folkman, 1984). The transactional perspective proposes stress as an umbrella term that encompasses stressors, appraisals, coping, and emotions as central parts of stress transactions. From this perspective, stress is defined as "an ongoing process that involves individuals transacting with their environments, making appraisals of the situations they find themselves in, and endeavoring to cope with any issues

that may arise'' (Fletcher, Hanton, & Mellalieu, 2008, p. 329). Stressors can be defined as ''environmental demands (i.e., stimuli) encountered by an individual'' (cf. Lazarus, 1999, p. 329) and, according to transactional stress theory, individuals evaluate (i.e., appraise) these stressors on an ongoing basis to assess their significance. The appraisal process is made up of primary appraising where an individual evaluates whether or not the situation is relevant and secondary appraising, which involves an evaluation of available coping resources (Lazarus & Folkman, 1987). During primary appraising, an individual may evaluate the situation as stressful and, if he or she does, one or more of three transactional alternatives (harm/loss, threat, challenge) can be experienced (Lazarus & Folkman, 1987). A stressful appraisal is thought to activate coping (Lazarus, 1999), which can be defined as "constantly changing behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p. 141). Coping strategies can be categorized as high-order coping dimensions, such as emotion- (regulation of emotional states) or problem-focused (managing person-stressor transaction; Lazarus & Folkman, 1984). More recent sport psychology research has suggested three further categorizations of coping: avoidance- (e.g., cognitive or behavioral efforts to avoid the situation), approach- (e.g., increasing effort), and appraisal-focused coping (e.g., re-evaluation; see Nicholls & Polman, 2007). Whilst the five aforementioned categories are the most widely used among sport psychology researchers, there remains debate about how coping should be categorized (see Didymus & Fletcher, 2014; Skinner, Edge, Altman, & Sherwood, 2003) and other researchers (e.g., Gaudreau & Blondin, 2002) have suggested three dimensions relating to task (e.g., imagery), distraction (e.g., distancing), and disengagement (e.g., venting) coping. Didymus (2016), however, recommended categorization of coping into families (e.g., dyadic coping, escape, information seeking, negotiation, problem solving, self-reliance, support seeking) that each represent a different

function in adaptation. Thus, the question of how best to categorize coping remains unanswered.

How an individual copes with a stressor is a complex phenomenon that will influence their well-being (Malik & Noreen, 2015). Defining well-being is a challenge because published definitions often focus on dimensions of well-being (e.g., positive feelings or positive functions; Dodge, Daly, Huyton, & Sanders, 2012), rather than capturing the essence of what well-being is. The question of how well-being should be defined remains largely unresolved, which has resulted in multiple, broad definitions being reported in the literature (Gasper, 2010). In this study, well-being was viewed from a positive psychology standpoint as "a broad category of phenomena that includes people's emotional responses, domain satisfactions, and global judgments of life satisfaction" (Diener, Suh, Lucas, & Smith, 1999, p. 277). This definition was adopted because it complements the basic premises of transactional stress theory (i.e., that judgments, or appraisals, and emotions are central to stress transactions) that have dominated the sport psychology literature on psychological stress. Previous research (e.g., Stenling, Lindwall, & Hassmén, 2015) has shown that decreases in athletes' well-being are mirrored by decreases in overall performance. This review will explore the research on coaches' well-being to assess, among other things, whether similar patterns are evident for this population.

While Fletcher and Scott (2010) previously published a narrative review of psychological stress in sports coaches and focused on definitional and theoretical issues, no published systematic review has comprehensively identified, evaluated, and summarized the research on stress and well-being among coaches. This is surprising given the influence that stress and well-being can have on coaches' performance (Fletcher & Hanton, 2003) and the need to better understand coaches' experiences if we are to offer evidence based recommendations for stress management and, ultimately, performance enhancement

(Didymus, 2016). Further, coaches' experiences of stress can influence their performance and that of the athletes with whom they work (Thelwell et al., 2016). With this in mind, the aim of this study was to conduct a systematic review of the research that has explored the stressors that sports coaches' experience, the coping strategies that they use, and their well-being. A review of this nature will provide coaches, sports psychology practitioners, organizations, and researchers with directions for future research and practice, and will offer insight to coaches' experiences that may be used to enhance coach and athlete performance.

Method

Search Strategy

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2015) were used to guide this review. Thorough electronic searches of three databases (PsycINFO, SPORTDiscus, Web of Science) were conducted between December 2015 and March 2016. These databases are well established among the academic community and have been used in previous systematic reviews in sport and exercise psychology (e.g., Nicholls & Polman, 2007; Rumbold, Fletcher, & Daniels, 2012). Furthermore, they represent a variety of disciplines (e.g., general psychology, sport psychology) and, therefore, help to ensure the comprehensiveness of this review. Following the decision on which databases to use, a draft list of keywords was drawn to identify relevant empirical studies: coach, coaches, stress, coping, stress management, burnout, well-being, well being, and wellbeing (see Table 1). These keywords were decided following discussions between the authors and using other systematic reviews in both sport (Rumbold et al., 2012) and non-sport contexts (Edwards & Burnard, 2003). Before performing the searches using these keywords, we ran initial scoping searches using synonymous terms (e.g., resilience, pressure) to ensure that our searches would be comprehensive if we proceeded using the draft list of keywords. However, these searches returned duplicate articles to those

that would be retrieved using the proposed search terms if we searched each database at the full text level. Thus, the draft list of search terms was deemed appropriate and it was decided that all searches would be ran at the full text level. Following these decisions, each of the searches was performed by the first named author and basic information (i.e., authors, year of publication, and article title) for each retrieved article was recorded in a Microsoft Excel® spreadsheet to ensure a comprehensive audit trail. Once the searches were complete, citation pearl growing (Schlosser, Wendt, Bhavnani, & Nail-Chiwetalu, 2006) was used to gather additional papers that may have been missed during the initial searches.

Criteria for Inclusion

To ensure that the searches returned studies relevant to the aims of this review, various inclusion and exclusion criteria were used. The inclusion criteria detailed that papers must have been published as full papers in a peer-reviewed journal in the English language between January 1994 and March 2016. The rationale for restricting the search period to research that had been published post-1994 was twofold. First, during the initial scoping searches, no date restrictions were applied, yet published works prior to 1994 were sparse, and those that were available did not meet the inclusion criteria. Second, the chosen search dates span 22 years, which was deemed an appropriate period that is similar to other published systematic reviews (e.g., Harwood, Keegan, & Smith, 2015). Studies also had to use a qualitative, quantitative, or mixed methods design and present data on stressors, and or coping, and or well-being among sports coaches. Articles were excluded if they were published as books, abstracts, or conference proceedings, or if they focused on other populations (e.g., athletes).

Sifting of Retrieved Citations

The sifting process was carried out in three stages as recommended by Jones (2004) and as used in previous systematic reviews (e.g., Rumbold et al., 2012). Papers were

reviewed for appropriateness first by title, then by abstract, and, finally, by full text (see Figure 1). Duplicate papers were removed from the Microsoft Spreadsheet® and recorded in a separate document. Papers that did not satisfy the inclusion criteria were excluded at each stage of the sifting process by the first named author and inter-rater reliability checks were conducted by each other member of the research team in the following volumes: all of the articles that were excluded at the title level, 4% of articles that were excluded at abstract level, and 11% of articles that were excluded at full text level. The sample articles that had been excluded at abstract and full text levels were chosen at random using the random number generator function in Microsoft Excel®. Three articles (Alcaraz, Torregrosa, & Viladrich, 2015; Stebbings, Taylor, & Spray, 2011; Tashman, Tenenbaum, & Eklund, 2010) that had borderline appropriateness (i.e., the title suggested that the articles were appropriate for inclusion but review of the abstract suggested otherwise) were included in this sample. The authors agreed on 92% of the studies in terms of their suitability for inclusion in the review. In the case of the one study that there was a disagreement with, the authors further discussed the paper until there was a consensus for the article to be included in the final sample.

Characteristics of Final Sample

Each article in the final sample was read and annotated, and data were extracted to develop a comprehensive table of study characteristics (see Table 2). The extracted data from each study in the final sample related to: the underpinning theoretical framework(s), the aim(s), study design, participant characteristics (i.e., sample size, mean age, gender, sport, coaching experience, and coaching level), country where the research was conducted, and key findings. The results of each of the studies were reviewed and amalgamated using narrative synthesis (Popay et al., 2006). This technique facilitated the findings of included studies to be organized in a way that allowed relevant information, connections, and

conclusions to be presented.

Risk of Bias

To assess risk of bias among the studies in our final sample, Kmet, Lee, and Cook's (2004) quality assessment criteria were used to assess each article on an individual basis. This involved the first named author evaluating each quantitative and qualitative article against Kmet et al.'s checklist. For the quantitative studies, a 14-item checklist was used to score each article according to how well it satisfied each of the criteria (2 = fully meets the criteria, 1 = partially meets the criteria, 0 = does not meet the criteria). Items that were not applicable to a particular study were marked with 'n/a'. Quality assessment for the qualitative studies was based on a 10-item checklist using the same scoring protocol as that which was used for the quantitative articles. The applicable parts of each mixed-methods study were assessed using the relevant criteria (i.e., quantitative aspects were assessed using the 14-item checklist and qualitative aspects were assessed using the 10-item checklist). A total quality score was calculated for each article and then converted to a percentage for standardization purposes. A random sample of the quantitative and qualitative studies with their respective quality scores was evaluated and deemed appropriate by the second and third named authors. The outcomes of our quality assessment procedures are presented in Tables 3 and 4.

Results

Study Characteristics

Table 2 provides a summary of characteristics for studies in the final sample. The final sample consisted of 19 qualitative papers, 17 quantitative papers, and two mixed methods papers (total n=38). The sample included studies that adopted cross-sectional (78.9%), longitudinal (10.5%), intervention (7.9%), and case study (2.6%) research designs with a total of 4,188 participants. When assessing the gender of these participants, it can be seen that 3,107 (74.2%) of the participants were male and 944 (22.5 %) were female. The authors of

some studies did not report the gender of their participants, which accounted for 137 (3.3%) of the total amount. The qualitative research studies accounted for 340 of the total number of participants, quantitative studies accounted for 3,823, and mixed methods studies accounted for 25 of the 4,188 participants. The participants ranged in age from 15 to 77 years, had a range of coaching experience (0-49 years), and coached at 15 different levels. Many studies (n=7) recruited coaches from more than one context or coaching level. College (n=9), elite (n=9), and national (n=7) level coaches were most frequently recruited. The other coaching levels that were reported were international (n=4), university (n=4), high performance (n=3), recreational (n=3), regional, (n=3), developmental (n=2), Olympic (n=2), non-elite (n=2), club (n=2), youth (n=1), provincial (n=1), and professional (n=1). The authors of two studies (Kellman & Kallus, 1994; Kulmatycki & Bukowska, 2007) did not specify the level of coaches that they recruited. The coaching levels described here are taken verbatim from the studies in our final sample and a lack of consistency in the literature has resulted in some overlap between the levels that we have been able to report.

Turning to the underpinning theories that were used to guide the studies in our final sample, 15 studies were not supported by a theoretical framework. Of the studies that were theory driven, some (n=18) were underpinned by one theory while others made use of multiple theoretical frameworks (n=5). The theoretical frameworks that were most commonly used and are most relevant to the foci of this review were the cognitive-affective model of stress and burnout (Smith, 1986; n=8); transactional stress theory (Lazarus & Folkman, 1984; n=6); self-determination theory (SDT; Deci & Ryan, 2000; n=5); Kelley's (1999) model of stress and burnout (n=3); the cognitive-motivational-relational theory of stress and emotion (Lazarus, 1999; n=1); and the meta-model of stress, emotions, and performance (Fletcher et al., 2008; n=1). The results of this review suggest that research has predominantly been conducted in Europe (n=23) and the United States of America (n=9). In Europe, the dominant

country of research was the United Kingdom (n=12) followed by Greece (n=3) and Sweden (n=2).

Stressors

Twenty four studies in the final sample explored sports coaches' experiences of stressors. Of these, 14 adopted a qualitative research design. Nine used semi-structured interviews (Didymus, 2016; Frey, 2007; Knight & Harwood, 2009; Knights & Ruddock-Hudson, 2016; Olusoga et al., 2009; Olusoga, Maynard, Hays, & Butt, 2012; Rhind, Scott, & Fletcher, 2013; Robbins, Gilbert, & Clifton, 2015; Thelwell, Weston, Greenlees, & Hutchings, 2008a), two studies used online focus groups (Bruening & Dixon, 2007; Dixon & Bruening, 2007), one study used unstructured interviews (Chroni, Diakaki, Perkos, Hassandra, & Schoen, 2013), one used diaries (Levy, Nicholls, Marchant, & Polman, 2009), and one used a multiple case study design (Durand-Bush, Collins, & McNeill, 2012).

These qualitative studies collectively highlight the volume of stressors that coaches may experience during their careers. Many of the studies (Didymus, 2016; Chroni et al., 2013; Levy et al., 2009; Olusoga et al., 2009, 2012; Rhind et al., 2013; Robbins et al., 2015; Thelwell et al., 2008a) refer to performance and organizational stressors, which suggests that these are prominent stressors for coaches. In addition, Thelwell et al. (2008a) reported that elite coaches face a near equivalent quantities of performance and organizational stressors. One performance stressor that is referred to regularly in the literature is that relating to athlete performance (Didymus, 2016; Chroni et al., 2013; Olusoga et al., 2009, 2012; Rhind et al., 2013; Robbins et al., 2015; Thelwell et al., 2008a). For example, elite coaches have reported that athletes failing to perform to their potential during training and competition is a performance related stressor (Olusoga et al., 2009, 2012). In addition to athletes underperforming, another common stressor relating to athlete performance that has been reported in qualitative studies is that of athlete injury. For example, elite coaches have

mentioned that they dread key players getting injured (Thelwell et al., 2008a) and that athletes training despite injury is stressful (Didymus, 2016). Other stressors relating to athlete performance that have been reported include athlete coachability, professionalism, attitude, and commitment (Didymus, 2016; Olusoga et al., 2009; Rhind et al., 2013; Thelwell et al., 2008a).

Coaches have also reported performance stressors relating to their own performance (Chroni et al., 2013; Didymus, 2016; Durand-Bush et al., 2012; Frey, 2007; Knights & Ruddock-Hudson, 2016; Thelwell et al., 2008a). For example, elite male coaches reported that they struggled to meet training session outcomes and that they placed importance on training sessions running to their high standards (Thelwell et al., 2008a). Similar findings have been reported during research with female development and high performance coaches whereby these individuals placed unrealistically high standards on themselves to create an environment in which their athletes could enjoy themselves and excel (Durand-Bush et al., 2012). Other research with coaches from a variety of levels (youth to national and elite) suggested that coaches encounter situation specific stressors when performing in training and competition (Chroni et al., 2013). For example, these coaches reported concerns for their own performance as a stressor during both training and competition, whether they had communicated all of their training points as a stressor during training, and the quality of their decisions as a stressor during competition. Other stressors that were reported in our final sample of qualitative studies and pertained to coach performance included self-criticism and interpersonal relations (Chroni et al., 2013; Thelwell et al., 2008a).

One other prominent performance stressor is that relating to demands and expectations of the coach (Bruening & Dixon, 2007; Didymus, 2016; Dixon & Bruening, 2007; Durand-Bush et al., 2012; Knight & Harwood, 2009; Olusoga et al., 2009). Specifically, external scrutiny from parents, public, and the media has led coaches to feel

vulnerable, stressed, and frustrated (Knight & Harwood, 2009; Olusoga et al., 2009). One study highlighted that parents' demands on coaches was one of the main stressors that non-elite coaches encountered (Knight & Harwood, 2009). Particularly pertinent in this study was parents imposing on coaches' personal lives (e.g., by telephoning the coach at weekends). Another example of expectations for coaches is the demands of maintaining elite standards during training and competition (Olusoga et al., 2009). Specifically, elite coaches have reported that being expected to compete at an international standard with an inexperienced squad was a stressor. The results of this review that are presented thus far highlight that coaches experience a number of performance stressors and, in particular, those relating to athlete performance, athlete injury, coach performance, and expectations.

In addition to performance stressors, organizational stressors appear to be commonly experienced by sports coaches. For example, organizational stressors relating to administration, finances, overload, the environment, organization, leadership, and team factors have each been frequently reported (Bruening & Dixon, 2007; Didymus, 2016; Dixon & Bruening, 2007; Knight & Harwood, 2009; Levy et al., 2009; Olusoga et al., 2009; Thelwell et al., 2008a). For instance, division one female head coaches reported that working extended hours was a significant organizational stressor (Bruening & Dixon, 2007; Dixon & Bruening 2007). A number of the coaches who took part in these studies had infant children and felt an additional impact from their work hours relating to balancing the roles of mother and coach. In another study, Levy et al. (2009) examined the organizational stressors that were experienced by an elite male coach. They reported that administration related to meetings with management, organizing materials, and attending to e-mails took away from the time that the coach had available to work with his athletes. Elite male coaches have also reported that the requirements placed on them by their organization have negative consequences for their private lives (Olusoga et al., 2009; Thelwell et al., 2008a). As such,

coaches have highlighted that they have to make sacrifices that result in concerns for their relationship status. Other organizational stressors that are experienced by coaches relate to pressure and expectations for performance and results, competition preparation, isolation, and conflict with others (Knight & Harwood, 2009; Olusoga et al., 2009). It appears, therefore, that organizational stressors influence both male and female coaches who are working at a variety of coaching levels and that organizational stressors can have negative implications for coaches in terms of their work-life balance and their ability to fulfill their coaching roles.

Researchers have also highlighted stressors relating to coaches' contextual (e.g., schedule, lack of resources, job security, coach age and experience, level of competition, success of the program), interpersonal (e.g., athletes, expectations of others, administration, budget), and intrapersonal (e.g., performance outcome, lack of control) experiences (Frey, 2007; Robbins et al., 2015). Two examples of contextual stressors that have been reported in qualitative studies are age and years of coaching experience. Frey (2007), for example, indicated that male and female NCAA division one college coaches' age and or years of experience in managing stressors reduced their perceived stress. This was likely because the coaches had learnt how to effectively cope with stressors and or had learnt reappraise them in a more positive light. Two common interpersonal stressors were reported by division two university coaches and related to unequal or inadequate funding and a lack of control over athlete performance (Robbins et al., 2015).

Some studies have gone beyond providing lists of stressors that coaches experience to explore some of the factors underpinning stressors and some of the outcomes of them. For example, Frey (2007) highlighted that stressors can have an energizing effect for division one college coaches' and that they can enhance coaches' focus and motivation. Whether a coach responds to stressors positively or negatively may be influenced by the situational properties that underpin stressors. With a sample of Olympic and international level coaches, Didymus

(2016) reported that stressors relating to athlete concerns, coaching responsibilities, expectations, finance, governance, interference, organizational management, preparation, and selection were underpinned by seven situational properties, including ambiguity, imminence, and novelty. Each of these properties appears to influence coaches' appraisals and, therefore, can determine the outcomes of coaches' stressful experiences (Didymus, 2016). Collectively, the findings of the qualitative studies that were included in this review suggest that female and male coaches who are working at a variety of coaching levels encounter a range of stressors that may be underpinned by situational properties. There is little consensus or consistency about how best to categorize coaches' experiences of stressors but the findings reported here suggest that coaches experience stressors that loosely relate to organizational, performance, contextual, interpersonal, and intrapersonal factors.

Ten of the 24 papers that examined stressors with sports coaches used quantitative methods. The Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983) was used in six of these studies (Georgios & Nikolaos, 2012; Kelley, Eklund, & Ritter-Taylor, 1999; Knight, Reade, Selzler, & Rodgers, 2013; Malinauskas, Malinauskiene, & Dumciene, 2010; Nikolaos, 2012; Tashman et al., 2010), the Coaching Issue Survey (Kelley & Baghurst, 2009) was deployed in two studies (Kelley, 1994; Kelley et al., 1999), and Hudson, Davison, and Robinson (2013; State of Mind Indicator for Athletes, Tension Effort Stress Inventory, Feeling Scale, and Telic State Measure), Judge et al. (2015; Administrative Stress Index and Personal Resource Questionnaire), and Kellman and Kallus (1994; Rest Period Questionnaire and Bibliographic Questionnaire for Coaches) used different questionnaires, some of which were not sport specific.

Quantitative research has highlighted that coaches encounter a variety of stressors (e.g., lack of social support, role based and task based responsibilities, level of coaching, demographics, salary, contract, working hours, competition, and perfectionism) that are

significantly associated with increased perceived stress among coaches (Hudson et al., 2013; Judge et al., 2015; Kellman, & Kallus, 1994; Knight et al., 2013; Tashman et al., 2010). The research also highlights that the stressors encountered may differ between genders. For instance, Kelley and colleagues (1994, 1999) indicated that both male and female collegiate tennis coaches who reported more coaching stressors and were lower in hardiness were more inclined to experience higher levels of perceived stress. However, female coaches were found to have a higher tendency than male coaches to experience coaching stressors. In contrast, a study with university coaches established that the level of burnout in male and female coaches did not significantly differ (Malinauskas et al., 2010), and reported that male coaches had a tendency to burnout more frequently. College, university, and national male coaches have reported demographic factors, job-related characteristics, and contracts as stressors (Knight et al., 2013) while Hudson et al. (2013) reported that competition was a significant stressor for the non-elite coaches in their study. On competition days, alpha-amylase activity, subjective stress, arousal, and unpleasant emotions have been shown to be significantly higher than on practice days (Hudson et al., 2013).

One of the most frequently cited stressors among coaches is social support (Georgios & Nikolaos, 2012; Judge et al., 2015; Kelley, 1994; Knight et al., 2013; Nikolaos, 2012). Collectively, the aforementioned studies found that social support was significantly related to perceived stress. More specifically, a lack of social support was related to higher perceptions of stress and vice versa. Judge et al. (2015) found that social support played a significant role in the experience of task-based stress among college coaches. This was illustrated by task-based stress decreasing as social support increased. Overall, the quantitative research that has focused on the stressors that coaches experience suggests that coaches may encounter a plethora of stressors and that different variables (e.g., hardiness, gender, coaching experience) can increase coaches' perceived stress, particularly on competition days. A frequently

reoccurring variable was social support, which was important in the coaches' perceptions and experiences of stressors.

Other quantitative research with sports coaches has found that increased quantities of stressors can lead to burnout (Georgios & Nikolaos, 2012; Malinauskas et al., 2010; Nikolaos, 2012). More specifically, coaching issues (e.g., understanding athletes' emotional responses and motivations, and budget limitations hampering recruitment), hardiness, coaching level, and social support have been found to moderate perceived stress and, in turn, influence national, college, and high-performance coaches' experiences of burnout (Georgios & Nikolaos, 2012; Kelley et al., 1999; Nikolaos, 2012). The findings of other research (Malinauskas et al., 2010) support this assertion in that high levels of perceived stress among university coaches were significantly related to burnout. Interestingly, coaches with 10 years or more experience were significantly more likely to experience burnout than coaches with less than 10 years coaching experience. In another study, Tashman et al. (2010) suggested that maladaptive forms of perfectionism resulted in more threatening perceptions of stress, thus, potentially leading to the experience of burnout. However, adaptive forms of perfectionism did not seem to result in burnout. Collectively, the quantitative studies that have discussed stressors and burnout suggest that increased levels of stressors can lead to burnout among sports coaches.

Coping

A total of 13 papers studied the coping strategies that are used by coaches to reduce the negative outcomes of stressors. The ongoing debate about how to categorize coping strategies presents itself here and makes it difficult to compare, contrast, and synthesize the findings of studies that were retrieved. To illustrate briefly, some researchers (e.g., Frey, 2007) have referred to cognitive (e.g., altering thought processes, perspective taking), emotional (e.g., social support, visualization), and behavioral (e.g., exercise, reading) coping

strategies, while others (e.g., Thelwell, Weston, & Greenlees, 2010) have used problem- (e.g., talking with others), emotion- (e.g., self-talk), avoidance- (e.g., consuming alcohol), appraisal- (e.g., reflection), and approach-focused categories (e.g., goal-setting). In other research, Didymus (2016) examined coping as an adaptive process and used seven families of coping (dyadic coping, escape, information seeking, negotiation, problem solving, self-reliance, and support seeking) that each relate to a different function in adaptation to categorize the strategies that coaches used. A full discussion of the ways in which coping can be categorized is beyond the scope of the review but interested readers can refer to Skinner et al. (2003) for a thorough discussion.

Qualitative research methods were used in nine of the 13 studies that were retrieved and focused on coaches' ways of coping. Five studies used semi-structured interviews (Didymus, 2016; Frey, 2007; Lundkvist, Gustafsson, Hjälm, & Hassmén, 2012; Olusoga, Butt, Maynard, & Hays, 2010; Thelwell et al., 2010), two used unstructured interviews (Bloom, Durand-Bush, & Salmela, 1997; Thelwell, Weston, Greenlees, & Hutchings, 2008b), one used online focus groups (Bruening & Dixon, 2007), and one used diaries (Levy et al., 2009). One of the earliest qualitative studies in this area explored the use of competition routines (Bloom et al., 1997). The results highlighted that expert team sports coaches may use pre-competition (e.g., preparing and rehearsing a game plan) and post-competition routines (e.g., emotional control) to try and reduce the effects of stressors and minimize anxiety on competition days (Bloom et al., 1997). One of the main aims for a pre- or post-match routine that was highlighted in this study was maintenance of emotional control. One other way in which coaches can control their emotions is via the use of self-talk (Levy et al., 2009; Thelwell et al., 2008b; Olusoga et al., 2010). Coaches have been reported to use self-talk as a psychological skill during stressful experiences to remain positive, as a reminder of motivation, for self-affirmations, and to tell oneself that they are lucky to be doing a job that

they enjoy (Levy et al., 2009; Olusoga et al., 2010). The findings of other qualitative research show that coaches may use various other psychological skills to cope with stressors (e.g., imagery, relaxation, and goal setting; Levy et al., 2009; Thelwell et al., 2008b; Olusoga et al., 2010). For example, elite coaches appear to use self-talk and imagery more regularly than relaxation and goal setting before, during, and after training and competition to help control their emotions, to stay focused on the task, and to image how difficulties would be overcome (Thelwell et al., 2008b).

In addition to competition routines and other psychological skills, many of the qualitative studies retrieved during this review reported that coaches may choose to escape from coaching and or stressful situations as a way to cope with stressors (Bruening & Dixon, 2007; Didymus, 2016; Durand-Bush et al., 2012; Frey, 2007; Levy et al., 2009; Olusoga et al., 2010; Thelwell et al., 2010). For example, a sample of female college level head coaches from the United States reported that escaping from coaching (e.g., by having a massage or consuming alcohol) helped them to relax and switch off (Bruening & Dixon, 2007). In another study, Durand-Bush et al. (2012) reported that Canadian female coaches who were working in competitive development or high performance coaching contexts sometimes isolated themselves as a means to cope with stressors. High level male coaches from the United Kingdom have also been shown to use similar escape-related coping strategies during stressful episodes (Didymus, 2016; Levy et al., 2009; Olusoga et al., 2010). When considered alongside the cultural contexts of the aforementioned studies, the findings collectively suggest that male and female coaches who are working at various levels of coaching and possess different cultural backgrounds may rely on escape and or avoidance-related coping strategies at times during their coaching careers.

Researchers have also reported that coaches use social support as a means to cope with stressors (Bruening & Dixon, 2007; Didymus, 2016; Frey, 2007, Levy et al., 2009;

Olusoga, et al., 2010). In terms of avenues for social support, coaches have cited family, friends, assistant coaches, and other staff members as valuable options (Bruening & Dixon, 2007; Frey, 2007, Levy et al., 2009; Olusoga, et al., 2010). Family members, for example, have been shown to be important sources of support for division one female head coaches during unexpected situations (e.g., an unexpected tournament) and during special circumstances (e.g., extended road trips; Bruening & Dixon, 2007). The findings of other research show that NCAA division one male and female coaches find that having an assistant coach who they perceive to be calmer than themselves can help to manage the negative outcomes of stress (Frey, 2007). More recent research has highlighted that social support in the form of guidance from performance analysts and assistance from other coaches and players were sources of social support for an elite male coach over a 28-day period (Levy et al., 2009). In another more recent study, male Olympic level coaches reported that having friends outside of the sporting arena was important because it allowed them to get away from coaching and to achieve a sensible work-life balance (Olusoga et al., 2010). Collectively, the results of qualitative studies that have discussed social support as a coping strategy among coaches highlight the importance of a strong support network to assist coaches during stressful periods.

The study of coping effectiveness has been highlighted as important yet only one qualitative study was retrieved that focused on this topic among coaches. Levy et al. (2009) conducted a longitudinal case study with an elite male coach and found that his five most frequently cited coping strategies were communication, preparation, planning, social support, and self-talk. Each of these five groups of coping strategies appeared to be moderately effective over the 28-day study period. However, Levy et al. reported that the coach's mean coping effectiveness declined over time and that effectiveness was lowest when the coach experienced a high volume of stressors. While not explicitly focused on coping or coping

effectiveness, Lundkvist et al. (2012) reported that coaches who could not cope with the performance culture in elite sport (i.e., had a lack of effective coping resources) and who lacked the tools to enhance recovery were particularly susceptible to burnout.

Turning to the studies that used quantitative methods to assess coping, our search strategy yielded two relevant studies. Of these, one study was conducted with student coaches who were enrolled on a postgraduate coaching course in Poland (Kulmatycki & Bukowska, 2007) and one was conducted with a sample of provincial South African coaches (Surujlal, & Nguyen, 2011). The paucity of research in this area and the quality of that which does exist (see Table 3) suggests that the findings that are presented here should be interpreted with caution. Kulmatycki and Bukowska (2007) used the Relaxation-Concentration Exercises Questionnaire (Kulmatycki & Bukowska, 2007) to assess differences in student coaches' reactions to and experiences of relaxation exercises in relation to sport type (team or individual) and gender. The results demonstrated that proneness to relaxation was related to both the type of sport and gender but the majority of findings were non-significant. In the other quantitative study, Surujlal and Nguyen (2011) used a questionnaire that had been adapted from a previous study (Wolfson & Neave, 2007) and found that coaches used maladaptive (e.g., ignoring the situation), emotion-focused (e.g., eating or taking exercise), and problem-focused (e.g., planning) coping strategies to reduce the negative outcomes of stress. These coaches used problem-focused coping more often than maladaptive and emotion-focused coping.

Turning to mixed methods studies that have examined coping among coaches, two were retrieved by our search strategy (Longshore & Sachs, 2015; Olusoga, Maynard, Butt, & Hays, 2014). Olusoga et al. (2014) developed, implemented, and evaluated a mental skills training (MST) program with five university coaches using the Mental Skills Questionnaire (Bull, Albinson, & Shambrook, 1996), the modified Competitive State Anxiety Inventory-2

(Jones & Swain, 1992), a modified version of the COPE inventory (Litman, 2006), and a social validation questionnaire. They reported four statistically significant findings: 1) coaches' self-reported ability to relax was significantly higher post-intervention, 2) coaches' self-confidence was significantly higher post-intervention, 3) coaches used significantly less self-blame coping strategies post-intervention, and 4) intensity of pre-competitive somatic anxiety was significantly higher pre-intervention. While the other observed variables showed no statistically significant pre- and post-intervention differences, qualitative social validation data highlighted that the MST program was practically useful for the coaches who took part. In the other mixed methods study, Longshore and Sachs (2015) assessed division one college coaches' use of mindfulness exercises using questionnaires (Mindful Attention Awareness Scale, State and Trait Anxiety Inventory, Brunel Mood Scale) and semi-structured interviews. The results highlighted that coaches who were trained in mindfulness techniques were significantly lower in trait anxiety, perceived stress, and adverse emotions when compared to non-trained coaches. However, the results also showed that mindfulness levels were not significantly different over time or between groups. Taken together, the findings of qualitative, quantitative, and mixed-methods research highlight that coping strategies that are aimed at solving a stressor (i.e., problem-focused) are commonly used among sports coaches. Social support also appears as an important coping option, as do strategies relating to escaping from the environment that is perceived to be stressful. The findings also suggest that coaches who lack coping options may be at risk of burnout and that coping skills (e.g., relaxation, mindfulness) may be taught during interventions with coaches.

Well-Being

The search strategy yielded no qualitative articles and five quantitative articles that examined well-being among sports coaches. These five studies measured well-being using one or both of the following questionnaires: the Positive and Negative Affect Scale (Watson,

Tellegen, & Clark, 1988) and the Subjective Vitality Scale (Ryan & Frederick, 1997). In one of the earliest studies on coaches' well-being that was retrieved during this review, Stebbings et al. (2011) demonstrated that coaches' competence and autonomy need satisfaction positively predicted their psychological well-being as measured by positive affect and subjective vitality. In turn, coaches' psychological well-being positively predicted autonomy supportive behaviors and negatively predicted controlling behaviors toward athletes. In a distinct but related study, Stebbings, Taylor, Spray, and Ntoumanis (2012) highlighted that greater job security, opportunities for professional development, and lower work-life conflict were associated with psychological need satisfaction in coaches, which, in turn, was related to psychological well-being and autonomy supportive behaviors toward athletes. The opposite was found when coaches experienced higher work-life conflict and fewer opportunities for development: these factors were associated with maladaptive processes of thwarted psychological needs, psychological ill-being, and controlling interpersonal behavior. More recently, other authors (Alcaraz et al., 2015) have adopted similar study designs to those used by Stebbings and colleagues to explore psychological well-being among team sport coaches. The results of this study suggest that coaches' motivation mediates relationships from relatedness need satisfaction and basic psychological need thwarting to coaches' psychological well-being (Alcaraz et al., 2015). Collectively, the findings of these three studies provide preliminary evidence that three conditions are necessary for coaches to be psychologically well: basic psychological needs satisfaction, lack of basic psychological needs thwarting, and self-determined motivation.

The findings of this review show that two studies have examined coaches' well-being using longitudinal study designs (Bentzen, Lemyre, & Kentta, 2016; Stebbings, Taylor, & Spray, 2015). Stebbings et al. (2015) explored coaches' psychological well- and ill-being as predictors of their perceived autonomy supportive and controlling interpersonal styles over an

eleven-month period. They found that well-being was positively associated with perceived autonomy support both within and between coaches. In the most recent study on coaches' psychological well-being, Bentzen et al. (2016) assessed whether the SDT process model could be used to understand burnout and well-being in high performance coaches (HPC) over the course of a competitive season. The results highlight that coaches' well-being decreased and symptoms of burnout increased over the course of the season. More specifically, changes in the perceived environment led to changes in psychological need satisfaction, which, in turn, contributed to changes in autonomous motivation and in well-being and burnout. Taken together, the findings of this research suggests that basic psychological needs satisfaction contributes to heightened psychological well-being. In addition, coaches who report high psychological well-being are more likely to exhibit autonomy supportive behaviors that contribute to adaptive environments for those who are under their instruction. Interestingly, all of the research that was retrieved in this review and focused on coach well-being used quantitative methods and adopted a SDT (Deci & Ryan, 2000) perspective.

Discussion

The aim of this systematic review was to conduct a thorough analysis of the research that has explored the stressors that sports coaches' experience, the coping strategies that they use, and their psychological well-being. Thirty-eight studies were included in the final sample. The findings highlight that coaches encounter a variety of organizational, performance, contextual, interpersonal, and intrapersonal stressors. The review also demonstrates that coaches attempt to cope with these stressors using strategies that can be categorized according to the intention and function of coping (emotion-, problem-, appraisal-, avoidance-, approach-focused) or as coping families (dyadic coping, escape, information seeking, negotiation, problem solving, self-reliance, support seeking) that each serve a different function in adaptation. Coping effectiveness was studied in only one article that our

search strategy yielded and the findings highlight that coping effectiveness decreases as the volume of stressors experienced increases. With reference to well-being, the search strategy yielded five quantitative studies that explored this concept. The findings of these studies highlight that increased coach well-being contributes to the provision of positive (i.e., autonomy supportive) environments for athletes.

The majority of research that has explored coaches' stress experiences has examined the stressors that coaches encounter. The findings of this review highlight that coaches encounter a variety of stressors that are similar to those experienced by athletes (see e.g., Didymus & Fletcher, 2012). However, for coaches, stressors relate not only to their own performance but also that of their athletes, to organizational factors that include a complex network of other people (e.g., athletes, parents, other coaches, support staff), and to personal factors that influence life at work and at home. The myriad of stressors reported by the studies in this review reflects the individual and complex nature of coaches' stress transactions and highlights the importance of considering coaches' experiences as part of broader social structures. Our findings highlight that HPCs (i.e., coaches who are coaching highly skilled athletes in a sport environment that focuses primarily on performance; Erickson, Côté, & Fraser-Thomas, 2007) have received extensive research attention when compared to coaches who are operating at development or youth levels, for example. The focus on HPCs may be because a fine line exists between success and failure in more competitive environments and, as such, HPCs often experience considerable pressure from media, fans, and their organization (Smith & Hodge, 2014). Given that the gap between success and failure is so small, and that coaches are often not afforded much time to succeed, it is not surprising that HPCs have been the focus of research attention. Nonetheless, there remains a notable absence of research with non-elite coaches. To maintain and enhance sport participation, retain coaches, and develop higher quality HPCs, more attention should be

dedicated to coaches who are working at sub-elite levels. Furthermore, while it was not a specific aim of this review, it was noted that only one study was retrieved that contemplated coaches' appraisals of stressors (Didymus, 2016). Given the pivotal role of appraisal in stress transactions (Lazarus, 1999), researchers would do well to make this concept a central focus of future research with coaches.

Turning to the findings that relate to coaches' coping, the majority of research that has been published in this area refers to some or all of the most widely used categories of coping: emotion-, problem-, avoidance-, and approach-focused coping. There are, however, inconsistencies in the ways that coping strategies are grouped into these five categories and one recent study (Didymus, 2016) criticized this categorization approach for holding limited practical significance. Another option for categorizing coping is to group strategies into coping families that each have a different role in adaptational processes (Skinner et al., 2003). With recent research introducing these coping families to both sports coaching (Didymus, 2016) and athlete contexts (Didymus & Fletcher, 2014; Tamminen & Holt, 2010), it appears that researchers are starting to move away from the traditional classifications towards the use of adaptationally functional families. In doing so, coping can be understood from a developmental perspective, which may be beneficial for researchers and practitioners alike. The results of this review that relate to coping are similar to those found among athletes (see, for a review, Nicholls & Polman, 2007) in that problem- and emotion-focused coping are used most frequently (e.g., Frey, 2007; Levy et al., 2009; Surujlal & Nguyen, 2011). Problem-focused coping, for example, may be more commonly deployed by coaches if they are highly conscientious (O'Brien & DeLongis, 1996) or if the stressors experienced are perceived to be within the individual's control (Folkman, 1991). With regards to the literature on coping effectiveness, only one study in the final sample examined this phenomena (Levy et al., 2009). The results highlight that a coach's mean coping effectiveness declined over

time and that effectiveness was lowest when the coach experienced a high volume of stressors. The importance of coping effectiveness has been highlighted yet due to only one study examining the effectiveness of coping strategies, more research is needed to determine the effectiveness of coping strategies for coaches who are working in different coaching contexts.

A prominent and reoccurring factor that was referred to in the studies in this review was social support (see e.g., Judge et al., 2015; Lundkvist et al., 2012; Olusoga et al., 2010; Rhind et al., 2013). In total, 14 of the 38 studies in our final sample reported social support as either a stressor (e.g., lack of trust and support between coaches) or a coping strategy (e.g., support to look after coaches' children to accommodate unsociable working hours). Surprisingly, however, there appears to be no published research that aimed to focus specifically on this concept among coaches. For example, whilst Knights and Ruddock-Hudson (2016) do examine social support, the majority of their results section focuses on occupational stress and there is limited data in this paper that specifically explores social support. According to general psychology literature (e.g., Cohen & Wills, 1985), social support can act as a buffer against the negative outcomes of stress. Hence, future research is recommended that explores the role of social support as both a stressor and a coping strategy among coaches who are working at various levels. Research of this nature would help to inform coaches, practitioners, and organizations about how social support can hinder and or be used to assist coaches in their varied roles.

Regarding well-being among sports coaches, five studies were retrieved that examined this concept. Each of these studies was framed by SDT (Deci & Ryan, 2000) and adopted a quantitative research design. The studies suggest that basic psychological needs satisfaction, lack of basic psychological needs thwarting, and self-determined motivation are needed for coaches to experience psychological well-being. In addition, one study (Bentzen

et al., 2016) suggested that coaches' well-being decreases over the course of a competitive season. Despite these results, further investigation into coaches' well-being is warranted. This is because well-being is the least well understood topic that was considered in this review and has only been explored quantitatively with coaches to date. This is surprising given the noteworthy implications that psychological well-being has for coaches (e.g., burnout) and the athletes (i.e., training environment) with whom they work. A review of conceptual and definitional issues of well-being as they apply to competitive athletes concluded that most studies to explore this concept have applied weak theoretical rationales and have not distinguished between well-being at different levels (e.g., global or context-specific; Lundqvist, 2011). This may be because research on well-being is often framed by vague and inconsistent conceptualizations (Lundqvist, 2011). Lundqvist's findings, coupled with our discovery that the literature on coaches' well-being is in its infancy, points to a pertinent opportunity for researchers. To expand briefly, it appears timely for researchers to work toward a definition of coach well-being before embarking on systematic programs of theoretically informed qualitative and quantitative research (e.g., that which aims to connect stressors and coping strategies with well-being). Indeed, it will be important to understand what well-being means to coaches and to ascertain the theoretical frameworks that are most relevant to this population.

Fifteen of the studies included in the final sample did not use a theoretical framework to underpin the research. Of the studies that did use theoretical frameworks, the two most commonly used theories were the cognitive-affective model of stress and burnout (Smith, 1986) and transactional stress theory (Lazarus, 1999; Lazarus & Folkman, 1984). Both of these theories are suitable theoretical frameworks to assess stress among sports coaches. However, with research heading towards a more adaptational approach to stressors and coping, transactional stress theory and the cognitive-motivational-relational theory of stress

and emotions (Lazarus, 1999) offer promise for interested researchers. This is because these models focus on stressors, coping, appraisals, and outcomes of stress, and provide a more transactional underpinning than other models of stress. Two further notable discussion points relate to the participants who were sampled in the reviewed studies and to the methods and study designs that have been adopted. Turning first to the sampled coaches, 22.5% of the sampled participants were female and only three studies (Bruening & Dixon, 2007; Dixon & Bruening, 2007; Durand-Bush et al., 2012) focused solely on female coaches. The limited research that has explored gender differences suggests that male and female coaches may experience different stressors (Durand-Bush et al., 2012; Kelley, 1994; Kelley et al., 1999) and may cope with these stressors in different ways to male coaches (Bruening & Dixon, 2007; Kulmatycki & Bukowska, 2007). Currently, females make up 30% of the coaching workforce in the United Kingdom (UK Coaching, 2015) and UK Coaching are working to ensure that females comprise 40% of the coaching population and 30% of national team coaches by 2020 (UK Coaching, 2015). To achieve this aim and work towards a more diverse and inclusive coaching workforce, a greater understanding of female coaches' stress experiences and psychological well-being is needed. Referring to the methods that were used in the reviewed studies, half of the papers (50%) used qualitative approaches. This is likely due to the complex and individualized nature of stress (Lazarus & Folkman, 1984) and well-being (Diener et al., 1999) and the appropriateness of qualitative methods for collecting rich data. However, quantitative methods were also used frequently to assess the stressors that coaches encounter. This balance of qualitative and quantitative research methods is a strength of the research that was reviewed in this study. However, researchers may want to consider combining methods to conduct mutli- and or mixed-methods research to gain further understanding of coaches' stress and well-being. The majority of reviewed studies (78.9%) employed cross-sectional designs, which is surprsing given the value of longitidunal research

for detecting changes in phenomena over time. Researchers should, therefore, consider making further use of longitudinal study designs when developing future projects on coaches' stress and well-being.

Turning to the implications of this review, a few noteworthy applications for coaches, practitioners, National Governing Bodies (NBGs), and researchers are apparent. For example, sports coaching presents unique stressors that are not seen in other professions, which points to the potentially stressful nature of this line of work. That being said, coaches appear to develop coping strategies to manage the negative outcomes of stress and reduce the possibility of burnout and diminished psychological well-being. Given these findings, NGBs should include as standard a focus on stressors, coping, and well-being in coach education programs to help coaches to equip themselves with the necessary skills to navigate the coaching landscape. Coaches themselves should seek to understand the stressors that they experience, the coping strategies that they use, and explore the strategies that are effective for them as individuals. Researchers should continue to explore stress and well-being among coaches with a particular emphasis on those areas that are highlighted as underexplored in extant literature. Namely, the ways in which coaches appraise stressors, the effectiveness of coaches' coping efforts, social support as both a stressor and a coping strategy, and coaches' psychological well-being. In addition, researchers should work towards greater consistency in how coping is categorized, how coaching levels are defined and applied, and how well-being should be conceptualized when working with coaches. Such endeavors would help to create coaching environments that reduce the occurrence of stressors, maximize coaches' coping potential, and increase psychological well-being.

Conclusion

The results of this review highlight that coaches encounter a variety of organizational, performance, contextual, interpersonal, and intrapersonal stressors, and that they attempt to

cope by predominantly using problem-focused strategies. However, little is known about how effective coaches' coping strategies are and psychological well-being among this unique population is under researched. These two areas should, therefore, be priorities for interested researchers. There is also a need for studies that examine social support to understand how coaches' support networks are structured and used. Finally, research on stress and well-being among diverse coach populations (e.g., females, non-elite coaches) is required to develop a more comprehensive body of evidence.

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* References marked with an asterisk indicate studies that were included in the systematic review.

Table 1

Search Strings Used to Retrieve Articles From Each Database

Keyword	Search string	Limiters
Coaches	Coaches AND Stress	Full text available
	Coaches AND Coping	Published between 1994 and 2016
	Coaches AND Stress management	Published in a peer-reviewed journal
	Coaches AND Burnout	Available in full in the English Language
	Coaches AND Well-being OR Wellbeing OR Well being	
	Coaches AND Stress OR Coping OR Stress management OR Burnout OR Well-being OR Wellbeing OR Well being	
Coach	Coach AND Stress	
	Coach AND Coping	
	Coach AND Stress management	
	Coach AND Burnout	
	Coach AND Well-being OR Wellbeing OR Well being	
	Coach AND Stress OR Coping OR Stress management OR Burnout OR Well-being OR Wellbeing OR Well being	

Note. Each of the searches was conducted at the full text level (TX All Text).

Table 2

Study Characteristics of Studies Included in Final Sample

Authors	Study Title	Aim(s)	Design	Participants	Coach Level	Country	Theoretical Framework(s)	Sport(s)	Key Findings
Alcaraz, Torregrosa, & Viladrich (2015)	How coaches' motivations mediate between basic psychological needs and well-being/ill-being	Test how behavioral regulations are mediated between basic psychological needs and psychological well-being and ill-being in a sample of team-sport coaches	Quant/Cross-Sectional	238M/54F (M_{age}=25.9, SD=8.1, CE=1-49)	NS/D	Spain	Self Determination Theory	Basketball, Soccer	Coaches' motivation mediated the relationships from both relatedness need satisfaction and basic psychological needs thwarting for coaches' well-being. Basic psychological needs satisfaction and thwarting and ill-being were predicted by direct effects.
Bentzen, Lemyre, & Kenttä (2016)	Changes in motivation and burnout indices in high-performance coaches over the course of a competitive season	Ascertain whether the 4-step self determination theory process model explains burnout and well-being among high-performance coaches.	Quant/ Longitudinal	314M/29F (M_{age}=40.3, SD=9.8, CE=1-49)	NS/HP	Norway, Sweden	Self Determination Theory	Basketball, Biathlon, Handball, Ice Hockey, Orienteering, Skating, Ski Jumping, Skiing (Alpine, Cross-Country, Nordic Combined, Telemark), Soccer, Swimming, Track and Field, Volleyball	On average, coach burnout increased and well-being decreased over the course of a competitive season. Changes in perceived environment led to changes in psychological need satisfaction and, in turn, to changes in autonomous motivation and burnout and well-being.

Bloom, Durand-Bush, & Salmela (1997)	Pre- and post-competition routines of expert coaches of team sports	Expert coaches' perceptions of their pre- and post-competition routines.	Qual/Cross-Sectional	21 (M_{age}=45.5, CE=12-31)	NS/E	Canada	Coaching Model	Basketball, Field Hockey, Ice Hockey, Volleyball	Prior to competition, coaches prepared and mentally rehearsed their game plan and maintained a positive focus. After competition, coaches focused on emotional control.
Bruening & Dixon (2007)	Work–family conflict in coaching II: Managing role conflict	Consequences of work-family conflict among female coaches. Coping mechanisms used to achieve success at work and quality of life with family.	Qual/Cross-Sectional	41F (M_{age}=35.4, CE=2-10)	H/C	United States	NS	Basketball, Cross Country, Rowing, Soccer, Softball, Tennis, Track, Volleyball	Work-family conflict influenced outcomes related to work, family, and life. Coping mechanisms included organization and time management, support networks, and being flexible with working hours.
Chroni et al. (2013)	What stresses coaches in competition and training? An exploratory inquiry	Distinguish between training-specific and competition-specific stressors.	Qual/Cross-Sectional	22M/5F (M_{age}=43.4, SD=8.4, CE=4-35)	NS/E, N, Y	Greece	NS	Alpine Skiing, Athletics, Basketball, Crew, Rhythmic Gymnastics, Soccer, Volleyball, Wrestling	Pressure and expectations (e.g., athlete performance, coach performance, organization-environment, and competition stressors) were found to be high-order categories.
Didymus (2016)	Olympic and international level sports coaches' experiences of stressors, appraisals, and coping	Use the cognitive-motivational-relational theory of stress and emotions to explore psychological stress with Olympic and international sports coaches. Explore	Qual/Cross-Sectional	9M/6F (M_{age}=36.9, SD=15.4, CE = 8-35)	NS/OL, I	United Kingdom	Cognitive-Motivational-Relational Theory of Stress and Emotions	Athletics, Equestrian, Netball, Rugby League, Rugby Union, Squash, Tennis, Triathlon, Water Polo	The coaches experienced stressors related to ten themes (e.g., athlete concerns, performance). Stressors were underpinned by seven situational properties (e.g., ambiguity, imminence, novelty). The coaches reported challenge, threat, benefit, and harm/loss appraisals. Ways of coping

		situational properties of stressors and coaches' appraisals.							related to seven families of coping (e.g., dyadic coping, support seeking) that each play a different role in adaptive processes.
Dixon & Bruening (2007)	Work–family conflict in coaching I: A top-down perspective	Develop Dixon and Bruening's (2005) multilevel framework of work-family conflict in relation to high-level coaching.	Qual/Cross-Sectional	41F (M_{age}=35.4, CE=2-10)	H/C	United States	Multilevel Model of Work-Family Conflict in Sport	Basketball, Cross Country, Rowing, Soccer, Softball, Tennis, Track, Volleyball	Particular attention was paid to how higher level factors (e.g., work climate, culture) shaped and constrained lower level attitudes and behaviors (e.g., individual conflict, time management).
Durand-Bush, Collins, & McNeill (2012)	Women coaches' experiences of stress and self-regulation: A multiple case study	Examine self-regulation strategies for coping with stress. Explore coaches' perceptions of the impact of stress and self-regulation on well-being, burnout, and coaching effectiveness.	Qual/Multiple Case Study	8F (M_{age}=40.5, CE=5-25)	NS/HP, D	Canada	Cognitive-Affective Model of Stress and Burnout, The Model of Self-Regulation	Alpine Ski, Curling, Hockey, Paddling, Ringette, Rowing, Synchronized Skating	Coaches faced various internal and external demands in their coaching and personal lives. The coaches reported using several types of self-regulation strategies (e.g., breathing techniques) to cope with stressful situations.
Frey (2007)	College coaches' experiences with stress - "problem solvers" have problems, too	Understand coaches' experiences of stress, the perceived effects of stress on coaching performance, and coping strategies.	Qual/Cross-Sectional	6M/4F (M_{age}=45.7, CE=14-35)	H/C	United States	Cognitive-Affective Model of Stress and Burnout	Baseball, Basketball, Diving, Softball, Swimming, Tennis, Volleyball	Five major themes characterized the coaches' experiences: contextual/conditional factors, sources of stress, responses and effects of stress, managing stress, and sources of enjoyment.
Georgios & Nikolaos (2012)	An investigation of a model of personal-situational	Examine a conceptual model of personal/ situational	Quant/Cross-Sectional	164M (M_{age}=40.9, SD=8.2, CE=1+)	NS/N	Greece	Cognitive-Affective Model of	Track and Field	Variables of hardiness, competitive trait anxiety, and satisfaction were all found to be moderators of

	factors, stress and burnout in track and field coaches	variables, perceived stress, and burnout.					Stress and Burnout		stress perception. The variables of this model suggest that it can predict the burnout syndrome.
Hudson, Davison, & Robinson (2013)	Psychophysiolo-gical and stress responses to competition in team sport coaches: An exploratory study	Conduct a multidisciplinary in situ examination of coaches' psychophysiologic al responses to competition stress.	Quant/Cross-Sectional	10M (M_{age}=39.8, SD=13.1, CE=0.5-21)	NS/NE	Finland	Reversal Theory	NS	On competition day, alpha-amylase activity was significantly higher, as were subjective stress, arousal, and unpleasant emotions. Prior to and during active play, participants were mainly in conformist, alloic, and mastery states. At the end of play, coaches were in telic and sympathy states.
Judge et al. (2015)	Understanding the occupational stress of collegiate track and field coaches during the championship season	Investigate sources of occupational stress for coaches during the championship season.	Quant/Cross-Sectional	52M/15F (M_{age}=44.51, CE=0-40)	H & A/C	United States	NS	Track and Field	When all three predictors (Social support, years coaching experience, and division currently coaching at) were entered into the model, social support and NCAA division were significant predictors of task-based stress. As social support increased, task-based stress decreased.
Kelley, Eklund, & Ritter-Taylor (1999)	Stress and burnout among collegiate tennis coaches	Extend understanding of burnout among coaches.	Quant/Cross-Sectional	163M/99F (M_{age}=2, SD=10.3, CE=1-33)	H/C	United States	Kelley's Model of Coach Stress and Burnout, Cognitive-Affective Model of Stress and Burnout	Tennis	Tennis coaches experienced levels of burnout similar to those of other helping professionals. There was a significant main effect for gender but not for competition level. Female coaches had a higher tendency than male coaches to find coaching issues stressful.

Kelley (1994)	A model of stress and burnout in collegiate coaches: Effects of gender and time of season	Examine a model of stress and burnout in coaches.	Quant/ Longitudinal	131M/118F (M_{age}=36.6, SD=8.8, CE=1-17)	H/C	United States	Cognitive-Affective Model of Stress and Burnout	Baseball, Softball	Both male and female coaches higher in coaching issues and lower in hardiness were higher in perceived stress. Males were lower in social support satisfaction and higher in perceived stress.
Kellmann & Kallus (1994)	Interrelation between stress and coaches' behavior during rest periods	Examine the interrelation between stress and coaches' behavior during rest periods.	Quant/Cross-Sectional	141M/13F (M_{age}=40.8, SD=9.4)	NS	Germany	NS	NS	Coaches who are highly stressed by practice were significantly less active and less authoritarian during rest periods than low stressed colleagues. Coaches who were highly stressed by competition were significantly less warm-hearted than the low stressed group.
Knight & Harwood (2009)	Exploring parent-related coaching stressors in British tennis: A developmental investigation	Provide a detailed insight into the stressors that coaches encounter due to their interactions with parents.	Qual/Cross-Sectional	58M/12F (M_{age}=31.6, SD=7.3, CE=2-29)	NS/NE	Canada	Developmental Model of Sport Participation	Tennis	Sampling-stage coaches reported stressors relating to parents' understanding of tennis and development. Specializing-stage coaches highlighted stressors concerning parental pressure and involvement. Investment-stage coaches replicated many of the specializing stage stressors but highlighted various methods to reduce parent-related stressors.
Knight, Reade, Selzler, & Rodgers (2013)	Personal and situational factors influencing coaches' perceptions of stress	Identify coaches' levels of perceived stress. Examine personal and situational factors that influence coaches'	Quant/Cross-Sectional	459M/43F (M_{age}=43)	H & A/C, U, N	United Kingdom	Meta-Model of Stress, Emotions, and Performance	NS	Demographic factors, job-related characteristics, and certain aspects of their contract were associated with coaches' perceptions of stress. Unclear expectations, long working

		perceptions of stress.							hours, and a lack of social support were related to higher perceptions of stress.
Knights & Ruddock-Hudson (2016)	Experiences of occupational stress and social support in Australian Football League senior coaches	Examine the experiences of occupational stress and social support of Australian Football League senior coaches.	Qual/Cross-Sectional	12 (M_{age}=44, SD=6.4, CE=1-12)	NS/N	Australia	NS	Australian football	Five themes emerged from the findings. Pressurized workplace environments; development and improvement of others and self; accountabilities and responsibilities to others; advice, support and comfort from others; and stress and adversity, the ramifications.
Kulmatycki & Bukowska (2007)	Differences in experiencing relaxation by sport coaches in relation to sport type and gender	Compare individual sports coaches and team sports coaches in terms of their responses to and experiences of relaxation exercises.	Quant/ Intervention	91 (M_{age}=33)	NS	Poland	NS	NS	Relaxation level of student coaches of individual sports were found to be significantly higher in comparison to student coaches of team sports. Female student coaches achieved the highest relaxation scores.
Levy, Nicholls, Marchant, & Polman (2009)	Organizational stressors, coping, and coping effectiveness: A longitudinal study with an elite coach	Determine the frequency of organizational stressors and coping strategies reported by an elite coach. To identify coping strategies used and their effectiveness.	Qual/ Longitudinal	1M (M_{age}=40, CE=6)	H/E	United Kingdom	NS	Aquatics	Administration, overload, competition environment, athletes, and team atmosphere were salient organizational stressors. Coping related to problem-focused, emotion-focused, and avoidance strategies. These strategies were generally effective, but coping effectiveness declined over a 28-day period.
Longshore & Sachs (2015)	Mindfulness training for coaches: A	Determine the efficacy of the Mindfulness	Mixed/ Intervention	8M/12F (M_{age}=34.5,	H & A/C	North East	NS	NS	Trained coaches reported significantly less anxiety and greater emotional

	mixed-method exploratory study	Training for Coaches (MTC) program and to qualitatively evaluate the MTC's mechanics and impact.		SD=9.9, CE=3-44)		United States			stability. State measures showed that trained coaches were lower in anxiety and adverse emotions at each time point. Interviews showed six distinct positive impacts on coaches: anxiety and stress, emotions, mindfulness, coaching, athletes, and personal life.
Lundkvist, Gustafsson, Hjälm, & Hassmén (2012)	An interpretative phenomenological analysis of burnout and recovery in elite soccer coaches	Increase knowledge of elite soccer coaches' burnout experiences. Gain knowledge about coaches' stress recovery.	Qual/Cross-Sectional	8M (M_{age}=43)	H/E	Sweden	NS	Soccer	Two profiles were found: problems in handling performance culture and stressors relating to overall situation, including workload, family and health. When combined with work overload, coaches who have problems coping with the performance culture and who lack the tools to cope were particularly vulnerable.
Malinauskas, Malinauskiene, & Dumciene (2010)	Burnout and perceived stress among university coaches in Lithuania	Investigate associations between burnout, gender, working experience, and perceived stress among university coaches.	Quant/Cross-Sectional	136M/67F (M_{age}=35, SD=9.6, CE=1+)	NS/U	Lithuania	NS	NS	Short-term work experience coaches of less than 10 years were not as sensitive to the pressures from the people surrounding them and the stress of work than more experienced coaches. High levels of perceived stress among university coaches were significantly related to burnout.
Nikolaos (2012)	An examination of a burnout	Evaluate burnout in high	Quant/Cross-Sectional	170M (M_{age}=39.2,	H/HP	Greece	Kelley's Model of	Basketball	The results showed that the independent variables

	model in basketball coaches	competition basketball coaches. Examine a model of personal/situational variables, stress perception, and burnout.		SD=7.4, CE=4-27)			Coach Stress and Burnout, Cognitive-Affective Model of Stress and Burnout		of coaching level, coaching issues, and social support were significant stressors for basketball coaches. This suggest that the variables can be predictors of burnout.
Olusoga, Butt, Hays, & Maynard (2009)	Stress in elite sports coaching: Identifying stressors	Identify the stressors coaches encountered in their experiences coaching world class athletes.	Qual/Cross-Sectional	6M/6F (M_{age}=47.3, SD=7.6, CE=6-22)	NS/E	United Kingdom	Transactional Stress Theory	Bowls, Diving, Equestrian, Field Hockey, Lacrosse, Sailing, Swimming, Table Tennis	Coaches experienced a wide range of stressors relating to ten higher order themes. Conflict within the organization was a key theme.
Olusoga, Butt, Maynard, & Hays (2010)	Stress and coping: A study of world class coaches	Investigate responses to and effects of stress in world class sports coaches. Explore the coping strategies used.	Qual/Cross-Sectional	6M/6F (M_{age}=47.3, SD=7.6, CE=6-22)	NS/E	United Kingdom	Transactional Stress Theory, Cognitive-Affective Model of Stress and Burnout	Bowls, Diving, Equestrian, Field Hockey, Lacrosse, Sailing, Swimming, Table Tennis	Coaches suggested that their negative responses to stress could be projected onto athletes. Structuring and planning were reported as coping strategies but coaches described limited use of psychological skills and avoided stressors that provoked strain.
Olusoga, Maynard, Hays, & Butt (2012)	Coaching under pressure: A study of Olympic coaches	Consider the perceptions of Olympic coaches' ability to cope with multifaceted stressors. Identify the ways in which coaches have developed their ability to coach in stressful situations.	Qual/Cross-Sectional	8M (M_{age}=43.3, SD=6.2, CE=5-21)	NS/OL	United Kingdom	NS	Athletics	Psychological attributes, preparation, and coping at events were factors that coaches perceived as important for successful Olympic coaching. Coaches identified 11 psychological attributes that influenced their ability to coach under pressure. Key themes included coach interaction and

									simulating Olympic pressure.
Olusoga, Maynard, Butt, & Hays (2014)	Coaching under pressure: Mental skills training for sports coaches	Develop, implement, and evaluate a mental skills training package to enhance coaches' ability to coach under pressure.	Mixed/ Intervention	5M (M_{age}=34.2, SD=2.8, CE=7-18)	NS/U	United Kingdom	NS	Field Hockey, Rugby Union, Triathlon	Coaches described positive changes in their coaching performance as a result of the intervention. Only a small number of coaches reported statistically significant changes.
Rhind, Scott, & Fletcher (2013)	Organizational stress in professional soccer coaches	Investigate the organizational stressors experienced by professional coaches.	Qual/Cross-Sectional	10M (M_{age}=41, CE=5-25)	H/Prof	United Kingdom	NS	Soccer	Coaches identified stressors related to job role, players, managers, support staff, training environment, away matches, governance, and soccer culture.
Robbins, Gilbert, & Clifton (2015)	Coaching stressors in a division II historically black university	Study coaches at a historically black College/University division II athletic program.	Qual/Cross-Sectional	9M/3F (M_{age}=37.9, CE=2-36))	H & A/U	United States	Transactional Stress Theory	Baseball, Basketball, Cross Country, Soccer, Volleyball	Three stressor related higher order themes (interpersonal, intrapersonal, and contextual) were reported. Commonly cited stressors were athletes, expectations of others, lack of control, schedule, and job security.
Stebbings, Taylor, & Spray (2011)	Antecedents of perceived coach autonomy supportive and controlling behaviors: Coach psychological need satisfaction and well-being	Examine a process model of potential antecedents of perceived coach autonomy supportive and controlling behaviors.	Quant/Cross-Sectional	313M/130F (M_{age}=41.1, SD=14.2)	NS/RE, CL, R, N, I	United Kingdom	Self Determination Theory	NS	Coaches' competence and autonomy need satisfaction positively predicted levels of psychological well-being. Coaches' psychological well-being positively predicted perceived autonomy support toward their athletes and negatively predicted their perceived controlling behaviors.

Stebbings, Taylor, & Spray (2015)	The relationship between psychological well- and ill-being, and perceived autonomy supportive and controlling interpersonal styles: A longitudinal study of sport coaches	Longitudinally explore sports coaches' psychological well-being and ill-being as predictors of perceived autonomy supportive and controlling interpersonal styles.	Quant/ Longitudinal	306M/112F (M_{age}=43.7, SD=14.4)	NS/RE, R, N, I	United Kingdom	Self Determination Theory	NS	Individual differences in positive affect and integration were positively associated with autonomy support. Within-person increases and individual differences in negative affect were associated with increased use of interpersonal control. The indicators of well-being did not predict interpersonal control and the indicators of ill-being did not predict autonomy support.
Stebbings, Taylor, Spray, & Ntoumanis (2012)	Antecedents of perceived coach interpersonal behaviors: The coaching environment and coach psychological well- and ill-being	Explore potential antecedents of coaches' perceived autonomy supportive and controlling behaviors.	Quant/Cross-Sectional	154M/41F (M_{age}=46.2, SD=13.3)	NS/RE, CL, R, N, I	NS	Self Determination Theory	NS	Greater job security, opportunities for professional development, and lower work–life conflict were associated with psychological need satisfaction, which related to an adaptive process of psychological well-being.
Surujlal & Nguyen (2011)	Coping under pressure: Strategies for maintaining confidence amongst South African soccer coaches	Descriptively explore the sources of stress and coping methods used by soccer coaches.	Quant/Cross-Sectional	76M/12F (CE=6-15)	NS/Prov	South Africa	NS	Soccer	The top three sources of stress were a lack of resources, fixture backlog, and games where the outcome was critical. The lowest sources of stress were political interference, physical assaults from players, and substituting a player. Maladaptive coping, emotion management coping, and problem management

									coping strategies were used by coaches.
Tashman, Tenenbaum, & Eklund (2010)	The effect of perceived stress on the relationship between perfectionism and burnout in coaches	Explore potential relationships pertaining to coaches' burnout by testing two models.	Quant/Cross-Sectional	114M/63F	H & A/C	Florida (United States)	Kelley's Model of Coach Stress and Burnout, The Cognitive-Affective Model of Stress and Burnout, Transactional Stress Theory	Baseball, Basketball, Bowling, Diving, Golf, Rowing, Sailing, Softball, Swimming, Tennis, Track/Cross Country, Volleyball	An indirect effect of self-evaluative perfectionism on burnout through perceived stress was found. Maladaptive forms of perfectionism resulted in more threatening perceptions of stress. Adaptive forms of perfectionism did not result in increased appraisals of stress or burnout.
Thelwell, Weston, & Greenlees (2010)	Coping with stressors in elite sport: A coach perspective	Identify stressors experienced by coaches. Examine the strategies that elite-level coaches employ to cope with stressors.	Qual/Cross-Sectional	3M (M_{age}=36.6, CE=4-11)	H & A/E	United Kingdom	Transactional Stress Theory	Cricket, Rugby Union, Soccer	Performance and organizational stressors, and problem-, emotion-, avoidance-, appraisal-, and approach-focused coping dimensions were cited. Coping strategies were employed for performance and organizational stressors, rather than being employed for one or the other.
Thelwell, Weston, Greenlees, & Hutchings (2008a)	Stressors in elite sport: A coach perspective	Examine stressors experienced by coaches who work with elite athletes. Explore whether coaches should be viewed as performers.	Qual/Cross-Sectional	7M/4F (M_{age}=35.7, SD=9.6, CE=3-10)	NS/E	United Kingdom	Transactional Stress Theory	Athletics, Cricket, Field Hockey, Golf, Gymnastics, Rugby Union, Sailing, Soccer	Coaches experienced comparable numbers of performance and organizational stressors. Performance stressors were related to their own performance and that of their athletes while organizational stressors related to environmental, leadership, personal, and team factors.

Thelwell, Weston, Greenlees, & Hutchings (2008b)	A qualitative exploration of psychological-skills use in coaches	Examine whether, where, when, and for what purposes coaches use psychological skills.	Qual/Cross-Sectional	13 (M_{age}=33.8, SD=9.7, CE=3-13)	NS/E	United Kingdom	NS	Athletics, Cricket, Field Hockey, Golf, Gymnastics, Rugby, Sailing, Soccer	Self-talk and imagery were cited more frequently than relaxation and goal setting. Reasons for using each psychological skill were specific to either training or competition.

Note. Quant=Quantitative, Qual=qualitative, M=Male, F=Female, M_{age}=Mean Age, SD=Standard Deviation, CE=Coaching Experience, NS=Not Specified, H=Head Coach, A=Assistant Coach, N=National Coach, HP=High Performance Coach, E=Elite Coach, C=College Coach, Y=Youth Coach, D=Development Coach, R=Regional, RE=Recreational Coach, CL=Club Coach, NE=Non Elite Coach, U=University Coach, OL=Olympic Coach, I=International Coach, Prof=Professional Coach, Prov=Provincial Coach

Table 3

Quality Assessment of Included Quantitative Studies

	Quality Assessment Criteria														Total	Quality
Article	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Score	Score
Alcaraz, Torregrosa, & Viladrich (2015)	Y	Y	Y	P	n/a	n/a	n/a	Y	P	Y	Y	n/a	Y	Y	18	90%
Bentzen, Lemyre, & Kenttä (2016)	Y	Y	Y	Y	n/a	n/a	n/a	Y	Y	Y	Y	n/a	Y	Y	20	100%
Georgios & Nikolaos (2012)	Y	P	P	P	n/a	n/a	n/a	Y	P	P	N	n/a	P	Y	12	60%
Hudson, Davison, & Robinson (2013)	Y	Y	P	P	n/a	n/a	n/a	Y	P	Y	Y	n/a	Y	Y	17	85%
Judge et al. (2015)	Y	P	Y	Y	n/a	n/a	n/a	Y	Y	Y	Y	n/a	Y	Y	19	95%
Kelley, Eklund, & Ritter-Taylor (1999)	Y	Y	Y	Y	n/a	n/a	n/a	Y	Y	Y	Y	n/a	Y	Y	20	100%
Kelley (1994)	Y	Y	Y	P	n/a	n/a	n/a	Y	Y	N	Y	n/a	Y	Y	17	85%
Kellmann & Kallus (1994)	Y	P	P	P	n/a	n/a	n/a	P	P	P	N	n/a	N	P	9	45%
Knight, Reade, Selzler, & Rodgers (2013)	Y	Y	Y	P	n/a	n/a	n/a	Y	Y	Y	Y	n/a	Y	Y	19	95%
Kulmatycki & Bukowska (2007)	Y	P	P	P	n/a	n/a	n/a	P	Y	N	n/a	n/a	Y	Y	12	67%
Malinauskas, Malinauskiene, & Dumciene (2010)	Y	Y	Y	Y	n/a	n/a	n/a	Y	Y	P	N	n/a	P	Y	16	80%
Nikolaos (2012)	Y	Y	P	P	n/a	n/a	n/a	Y	Y	Y	Y	n/a	Y	Y	18	90%
Olusoga, Maynard, Butt, & Hays (2014)	Y	Y	Y	Y	n/a	n/a	n/a	Y	P	Y	n/a	n/a	Y	Y	17	94%
Stebbings, Taylor, & Spray (2011)	Y	Y	P	Y	n/a	n/a	n/a	Y	Y	Y	Y	n/a	Y	Y	19	95%
Stebbings, Taylor, & Spray (2015)	Y	Y	P	Y	n/a	n/a	n/a	Y	Y	Y	Y	n/a	Y	Y	19	95%
Stebbings, Taylor, Spray, & Ntoumanis (2012)	Y	Y	P	Y	n/a	n/a	n/a	Y	Y	P	Y	n/a	Y	Y	18	90%
Surujlal & Nguyen (2011)	Y	Y	Y	Y	n/a	n/a	n/a	P	P	N	n/a	n/a	P	P	12	67%
Tashman, Tenenbaum, & Eklund (2010)	Y	Y	Y	P	n/a	n/a	n/a	Y	Y	Y	Y	n/a	Y	Y	19	95%

Note. 1) Question/objective sufficiently described? 2) Study design evident and appropriate? 3) Method of subject/comparison group selection or source of information/input variables described as appropriate? 4) Subject (and comparison group, if applicable) characteristics sufficiently described? 5) If interventional and random allocation was possible, was it described? 6) If interventional and blinding of investigators was possible, was it reported? 7) If interventional and blinding of subjects was possible, was it reported? 8) Outcome and (if applicable) exposure measure(s) well defined and robust to measurement/misclassification bias? means of assessment reported? 9) Sample size appropriate? 10) Analytical methods described/justified and appropriate? 11) Some estimate of variance is reported for the main results? 12) Controlled for confounding? 13) Results reported in sufficient detail? 14) Conclusions support the by results? Y=yes, P=partial, N=no, n/a=not applicable.

Table 4

Quality Assessment of Included Qualitative Studies

	Quality Assessment Criteria										Total	Quality
Article	1	2	3	4	5	6	7	8	9	10	Score	Score
Bloom, Durand-Bush, & Salmela (1997)	Y	Y	Y	Y	Y	P	Y	N	Y	N	15	75%
Bruening & Dixon (2007)	Y	P	Y	Y	Y	Y	Y	N	Y	N	15	75%
Chroni et al. (2013)	Y	P	Y	Y	Y	P	N	N	Y	N	12	60%
Didymus (2016)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	20	100%
Dixon & Bruening (2007)	P	P	Y	Y	Y	Y	Y	N	Y	N	14	70%
Durand-Bush, Collins, & McNeill (2012)	Y	Y	Y	Y	Y	Y	P	Y	Y	N	17	85%
Frey (2007)	Y	Y	Y	Y	Y	Y	Y	N	Y	N	16	80%
Knight & Harwood (2009)	Y	Y	Y	Y	P	Y	Y	Y	Y	N	17	85%
Knights & Ruddock-Hudson (2016)	Y	Y	Y	P	N	Y	Y	Y	Y	Y	17	85%
Kulmatycki & Bukowska (2007)	Y	P	P	P	P	P	P	N	Y	N	10	50%
Levy, Nicholls, Marchant, & Polman (2009)	Y	Y	Y	Y	P	Y	Y	N	Y	N	15	75%
Lundkvist, Gustafsson, Hjälm, & Hassmén (2012)	Y	Y	Y	P	Y	P	Y	Y	Y	N	16	80%
Olusoga, Butt, Hays, & Maynard (2009)	Y	Y	Y	Y	Y	Y	Y	N	Y	N	16	80%
Olusoga, Butt, Maynard, & Hays (2010)	Y	Y	Y	Y	Y	Y	Y	N	Y	N	16	80%
Olusoga, Maynard, Hays, & Butt (2012)	Y	Y	Y	Y	Y	Y	Y	N	Y	N	16	80%
Olusoga, Maynard, Butt, & Hays (2014)	Y	Y	Y	Y	Y	Y	Y	N	Y	N	16	80%
Rhind, Scott, & Fletcher (2013)	Y	Y	Y	Y	Y	Y	Y	N	Y	N	16	80%
Robbins, Gilbert, & Clifton (2015)	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	18	90%
Thelwell, Weston, Greenlees, & Hutchings (2008a)	Y	Y	Y	Y	P	Y	Y	N	Y	N	15	75%
Thelwell, Weston, Greenlees, & Hutchings (2008b)	Y	Y	Y	Y	Y	Y	Y	N	Y	N	16	80%
Thelwell, Weston, & Weston (2010)	Y	Y	Y	Y	Y	Y	Y	N	Y	N	16	80%

Note. 1) Question/objective sufficiently described? 2) Study design evident and appropriate? 3) Context for the study clear? 4) Connection to a theoretical framework/wider body of knowledge? 5) Sampling strategy described, relevant, and justified? 6) Data collection method clearly described and systematic? 7) Data analysis clearly described and systematic? 8) Use of verification procedure(s) to establish credibility? 9) Conclusions supported the by results? 10) Reflexivity of the account? Y=yes, P=partial, N=no.

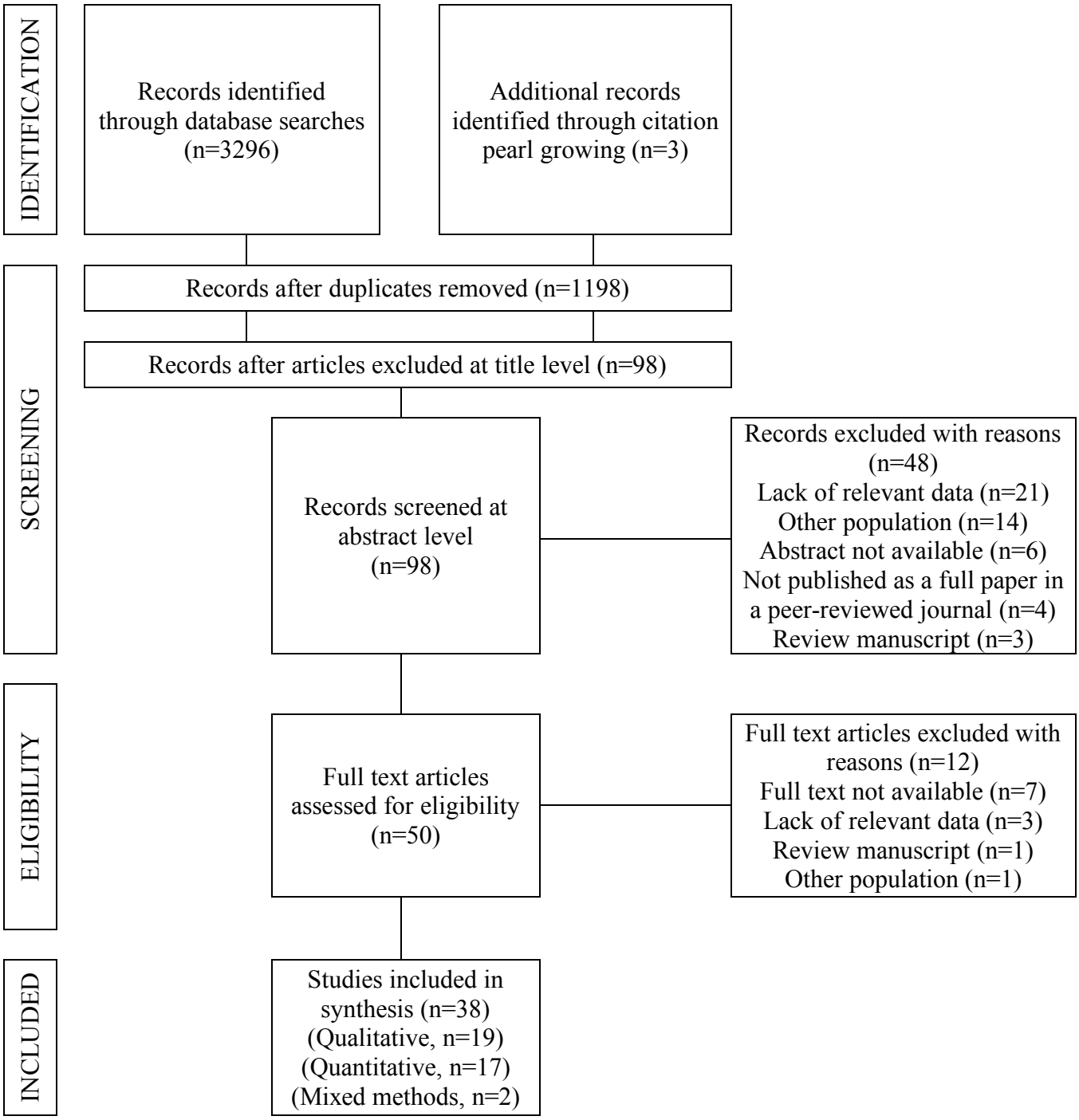

Figure 1. PRISMA flow diagram summarizing the study selection criteria.