

## Review

# Promoting mental health among young males in sporting contexts: A systematic review

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## ABSTRACT

**Background:** Young males experience markedly poorer mental health outcomes. Organised sport settings provide novel prospects to improve the mental health of this subpopulation.

**Aim:** This systematic review aimed to evaluate interventions targeted at the promotion of mental health and wellbeing among young males in organised sporting contexts.

**Methods:** Six databases (SportDiscus, PsycInfo, Medline, Web of Science, Scopus, CINAHL) were searched from inception to June 2022 (and updated in September 2023). Eligible studies examined interventions targeting the mental health and wellbeing (e.g., depression, anxiety, resilience) or mental health literacy (e.g., stigmatising attitudes, help-seeking) of young males aged 10–24 years (or associated stakeholder samples; e.g., parents or coaches of male youth).

**Results:** A total of 15 studies were included in this review. Overall, the findings indicate promising effects of sport-based interventions on the mental health and mental health literacy outcomes of young males.

**Conclusions:** This review suggests that there is scope to improve the capacity of sports-based interventions to affect positive change in the mental health of male youth. The findings from this review also have important implications for the development and evaluation of sports-based interventions targeted at young males in future.

## 1. Introduction

Globally, 89 million males (10–19 years) are reported to experience a mental health condition (commonly anxiety and depression) (UNICEF, 2021). Mental health conditions are recognised as a key risk factor for suicide (Hill et al., 2021), a leading cause of premature mortality among young males, both globally (World Health Organization, 2014a) and in high income countries (Australian Bureau of Statistics, 2018). Gender disparities in suicide rates are cited in many countries (World Health Organization, 2021). In Australia, for example, suicide mortality rates are markedly higher among young males (17.6 per 100 000 population) relative to their female counterparts (5.7 per 100 000 population) (World Health Organization, 2021). This has been attributed to the reticence of this demographic to seek support for mental health problems (Slade et al., 2009; Smith et al., 2023), documented to be

underpinned by masculine stereotypes (e.g., stoicism, strength, power), stigmatising attitudes toward mental health, and inadequate mental health literacy (Clark et al., 2020; Seidler et al., 2020). The pervasiveness of mental health issues coupled with poor help-seeking practices highlights the growing need to develop innovative approaches to promote mental health (i.e., capacity to cope with the normal stressors of life and function productively; Fusar-Poli et al., 2020) in young males. This is particularly important given that 62.5 % of mental health disorders emerge prior to 25 years of age (Solmi et al., 2022). Thus, engaging young males in early intervention or prevention efforts is fundamental, and will safeguard this demographic from the longer-term disadvantages (e.g., unemployment) of mental health issues that are known to track into adulthood (Weavers et al., 2021).

Organised sport settings provide a promising approach to support the wellbeing of young males, particularly given the capacity of such

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settings to foster a range of beneficial outcomes (e.g., connectedness and belonging) (Eather et al., 2023; Eime et al., 2013), known to be protective of mental health (Scardera et al., 2020). In many countries, such as Australia and Europe, many young males participate in organised sport (75 % and 80 %, respectively; Eime et al., 2020; Emmonds et al., 2023), and thus, sport settings provide a promising platform to drive widespread change in the wellbeing of this subpopulation. Recently, Drummond et al. (2022) concluded that youth sporting clubs may provide nurturing and supportive spaces for young males with an immense potential to foster positive mental health outcomes. Additional evidence indicates that adolescent males and associated stakeholder samples (e.g., youth parents and coaches) perceive organised sport as a setting that could usefully be harnessed to improve the provision of mental health support (Ferguson et al., 2019; Hurley et al., 2017; Petersen et al., 2023; Swann et al., 2018). Organised sport is also suggested as a valuable setting to engage marginalised and vulnerable subpopulations of young males (e.g., Aboriginal and Torres Strait Islander males) (Smith et al., 2020). As such, efforts to effectively utilise organised sport settings to support the mental health of young males should be a priority.

There is growing consensus that to maximise the engagement with and effectiveness of mental health resources in sporting contexts, there is a need to move away from a one-size-fits-all approach and instead develop tailored approaches (Petersen et al., 2023). A recent review of general wellbeing programs targeted at young males indicated that male-specific programs are more effective and engaging for this demographic than gender-neutral programs (Gwyther et al., 2019). However, none of these programs were implemented in sporting contexts (Gwyther et al., 2019). The implementation of mental health resources in sport settings that are tailored to the unique needs and preferences of young males may be key to optimising the mental health outcomes of this subpopulation. To date, several male-targeted mental health programs have been developed for utilisation in sport settings. For example, *Ahead of the Game*, is a sports-based mental health program targeted at adolescent males, and is shown to have positive effects on outcomes such as mental health literacy, help-seeking and resilience (Vella et al., 2018, 2021). There are, however, limitations that have been cited in relation to such programs (e.g., time and resource intensive) that may impede their acceptability, feasibility and scalability (Walton et al., 2021). As such, there is scope to improve the utility of mental health resources in sport settings that are targeted at male youth.

Organised sporting contexts provide a unique opportunity to drive widespread change in the mental health outcomes of young males. The development of effective (and acceptable) mental health resources for implementation in these contexts that are tailored to young males, is important to engaging this subpopulation in early intervention and prevention efforts. Insights into existing approaches aimed at supporting the mental health of male youth in sport is necessary to optimally harness such settings to support the wellbeing of this subpopulation. Therefore, the present review aimed to systematically evaluate interventions targeted at the promotion of mental health and wellbeing among young males in organised sporting contexts.

## 2. Methods

### 2.1. Design

A systematic review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Rethlefsen et al., 2021). The protocol was prospectively registered with the Open Science Framework

[https://osf.io/mdcwh/?view\\_only=b24f44c629264e428da7b3769b192a62](https://osf.io/mdcwh/?view_only=b24f44c629264e428da7b3769b192a62).

### 2.2. Search strategy

Six databases including SportDiscus, PsycInfo, Medline, Web of

Science, Scopus, and CINAHL were searched from inception. The search strategy was peer-reviewed by an academic librarian and the Medline search strategy is presented in Appendix A. The search was conducted in June 2022, and updated in September 2023.

### 2.3. Eligibility criteria

#### 2.3.1. Population

Eligible studies incorporated males aged 10–24 years (corresponding to the World Health Organisation's (2014b) definition of young people) with a sample mean or median within this range. Studies that presented data disaggregated by gender or incorporated stakeholder samples associated with young males were also eligible for inclusion (e.g., parents or coaches of male youth).

#### 2.3.2. Intervention

Interventions were required to target the promotion of mental health in an organised sporting context (operationalised as physical activity that is directed by adult or youth leaders and involves rules, formal practice, and competition; Logan et al., 2019).

#### 2.3.3. Outcomes

For inclusion, studies must have examined at least one of the following outcomes related to mental health (e.g., depression, anxiety, stress), wellbeing (e.g., resilience, positive affect) or mental health literacy (e.g., mental health knowledge, stigmatising attitudes, help-seeking, help-provision).

#### 2.3.4. Type of study

Eligible studies included primary empirical data (quantitative or qualitative). Review papers, protocols, commentaries, editorials, conference abstracts, and dissertations were excluded. Studies published in a peer-reviewed journal with full-text in the English language were included.

**2.3.4.1. Study selection.** Citations were extracted from the electronic databases into Endnote for duplicate removal. The citations were subsequently exported into the Covidence platform for two rounds of screening. Specifically, two reviewers (JMP, KR) independently screened the titles, abstracts, and then full-text citations against the eligibility criteria. Disagreements were resolved by discussion. Following screening, forward and backward citation tracking was conducted using Google Scholar to ensure all relevant publications were identified.

#### 2.3.5. Data extraction and synthesis

Data from all included studies were extracted by one reviewer (JMP) using a standardised pre-piloted form developed for the present review. A second reviewer (KR) independently extracted the data from 20 % of the included studies, and any discrepancies were resolved by discussion. Data pertaining to (1) sample characteristics, (2) study design, (3) intervention details, (4) mental health outcome(s) (i.e., mental health and wellbeing, mental health literacy), (5) key findings, and (6) feasibility of intervention (e.g., adherence, acceptability) was extracted. Corresponding authors were contacted to obtain required data not included in publications. Data were subsequently synthesised narratively.

#### 2.3.6. Critical appraisal

The critical appraisal was conducted by two independent reviewers (JMP, KR), and any discrepancies were resolved by discussion. The studies were assessed using the Joanna Briggs Institute (JBI) critical appraisal tools for randomised controlled trials and quasi-experimental studies (and controlled trials or pre-post designs) (Joanna Briggs Institute, 2017, 2020). The Critical Appraisal Skills Programme (CASP) and

the Mixed Methods Appraisal Tool (MMAT) were used to appraise the cross-sectional qualitative and mixed methods studies, respectively (Critical Appraisal Skills Programme, 2018; Pluye et al., 2011). Each item (across all appraisal tools) was rated as “yes”, “no” or “unclear”. Studies were not excluded based on the critical appraisal results.

### 3. Results

#### 3.1. Study selection

In the initial electronic database search (June 2022), 5970 articles were retrieved and an additional 1057 articles in the updated searches conducted in February ( $n = 676$ ) and September 2023 ( $n = 381$ ). After duplicates were removed, a total 5691 title and abstracts were screened, of which 5577 were deemed ineligible. The remaining 114 full-text articles were screened, and a final 15 studies were included in the systematic review. No additional studies were identified by the forward and backward citation tracking (see Figure 1).

#### 3.2. Characteristics of studies

Characteristics of the included studies are presented in Appendix B. Studies were published between 2010 and 2023, with most ( $n = 13$ ) published from 2018 onwards. Few studies ( $n = 3$ ) were pre-registered (Liddle et al., 2021; Schweickle et al., 2023; Vella et al., 2021). Eleven studies were conducted in Australia, two in the USA, and one in Germany and South Africa. The studies were randomised controlled trials ( $n = 2$ ), controlled trials ( $n = 4$ ), quasi-experimental ( $n = 3$ ), pre-post ( $n = 4$ ) and cross-sectional designs ( $n = 2$ ). The comparison groups included no intervention ( $n = 6$ ), waitlist control ( $n = 2$ ) or an alternative intervention ( $n = 1$ ).

#### 3.3. Participants

Sample sizes ranged from 18 to 1004 participants, with a median of 74 participants per study. Most studies included male-only samples ( $n = 12$ ). The interventions were predominately targeted at male athletes ( $n$

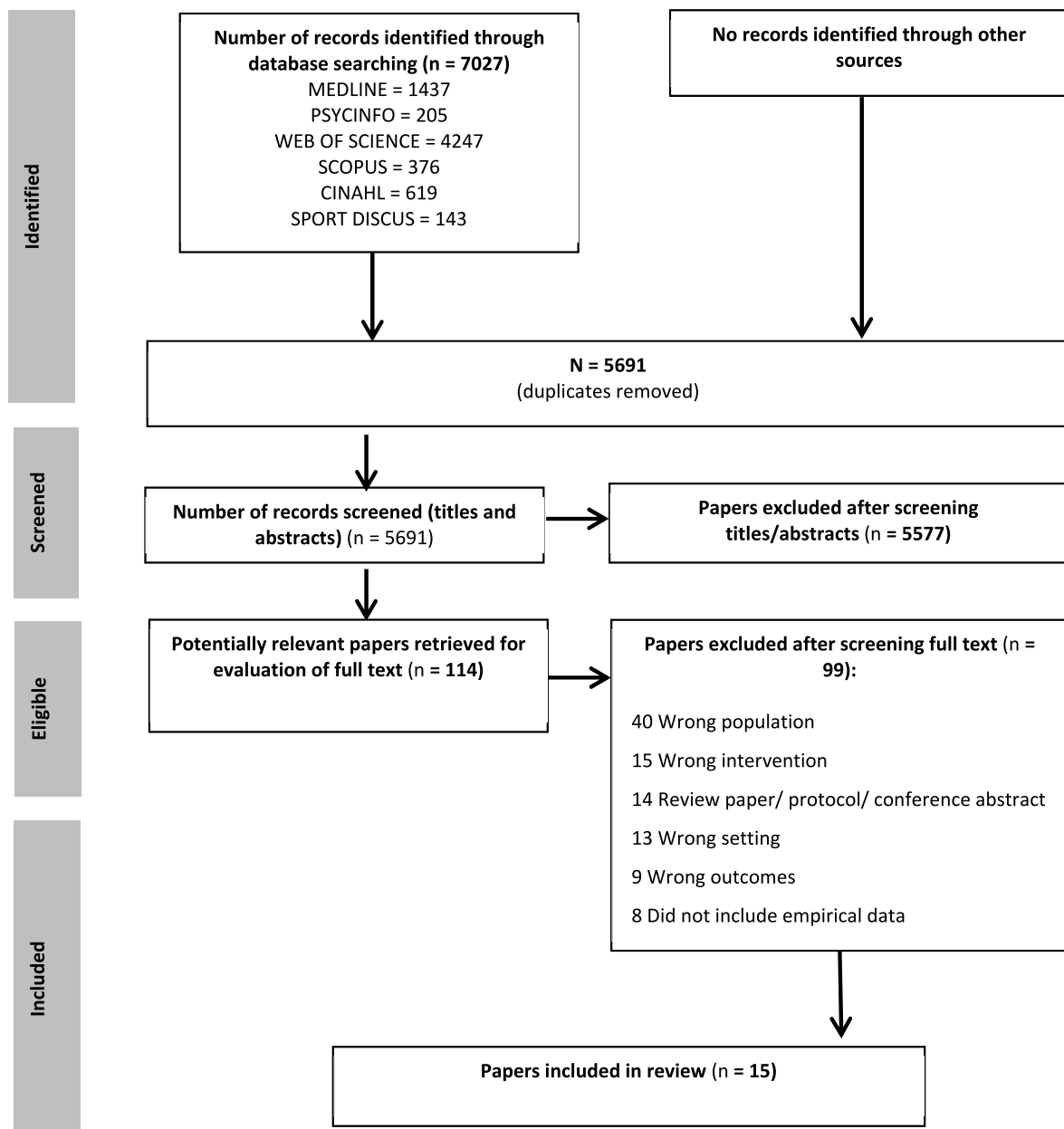


Figure 1. PRISMA flowchart.

= 11), with few targeted at stakeholder samples associated with young males ( $n = 4$ ; i.e., parents, coaches, club leaders, support staff). Studies included samples from community sporting clubs ( $n = 10$ ), professional (or elite) sporting clubs ( $n = 3$ ), and university (or collegiate) settings ( $n = 2$ ). The sports represented across the included studies were rugby ( $n = 6$ ), soccer ( $n = 5$ ), football ( $n = 3$ ), hockey ( $n = 1$ ), and swimming ( $n = 1$ ).

### 3.4. Interventions

The duration of interventions ranged from receipt of a single session ( $n = 5$ ) to 9 months ( $n = 1$ ). More specifically, the interventions were delivered in <1 day ( $n = 5$ , 33.3 %),  $\leq 1$  month ( $n = 4$ , 27.0 %), durations spanning between 2 and 5 months ( $n = 5$ , 33.3 %), and over 9 months ( $n = 1$ , 7.0 %). Follow-up assessments were conducted at 4 weeks ( $n = 3$ ) and 12 weeks ( $n = 1$ ). Many studies implemented a single intervention session ( $n = 5$ ), while other studies implemented four ( $n = 3$ ) or six sessions ( $n = 3$ ). The average intervention time per session ranged from 30 ( $n = 3$ ) to 180 min ( $n = 1$ ). The intervention sessions were delivered by health professionals (e.g., registered clinical psychologist;  $n = 5$ ), accredited facilitators ( $n = 4$ ), research personnel ( $n = 5$ ), and sporting club stakeholders (e.g., club welfare manager;  $n = 2$ ).

The included studies implemented a variety of interventions, for example, Ahead of the Game (Liddle et al., 2021; Schweickel et al., 2023; Vella et al., 2021; Wynters et al., 2021), RISE Development Program (Dowell et al., 2021; Waters et al., 2022; Waters et al., 2023), Read the Play (Patafio et al., 2021), and Talk Today (Lefebvre et al., 2022). A core component of many of the interventions ( $n = 14$ , 93 %) was the provision of educational information targeted at mental health literacy ( $n = 7$ ), mental health awareness ( $n = 1$ ), or psychological well-being (e.g., stress prevention, coping;  $n = 7$ ). Additional intervention components included the appointment of designated mental health staff (e.g., mental health champions, player well-being officer;  $n = 2$ ) and mental health awareness days ( $n = 1$ ). One intervention involved mindfulness meditation training (Vidic et al., 2018). Most interventions were conducted in-person ( $n = 14$ ) and supplemented by print ( $n = 10$ ) or online resources ( $n = 5$ ). Only one intervention was delivered entirely via digital technologies (telephone, computer, teleconference) (Waters et al., 2023).

Across the studies, 86.6 % ( $n = 13$ ) provided information in relation to intervention development. Interventions were developed in consultation with sporting stakeholders (e.g., athletes, coaches;  $n = 7$ ), mental health experts ( $n = 3$ ), and a mental health association ( $n = 1$ ). Interventions were also based on previously developed programs ( $n = 3$ ) and existing literature or recommendations ( $n = 4$ ). Two studies cited that the interventions were underpinned by theoretical frameworks, namely the Transactional Model of Stress and Coping (Belz et al., 2020), and the Integrated Behaviour Change Model and Self-Determination Theory (Liddle et al., 2021).

### 3.5. Outcomes

Eleven studies (73.3 %) assessed outcomes related to mental health and well-being. Commonly assessed outcomes included depressive symptoms ( $n = 4$ ), anxiety symptoms ( $n = 3$ ), psychological wellbeing ( $n = 4$ ), psychological distress ( $n = 4$ ), grit ( $n = 3$ ), gratitude ( $n = 3$ ), behavioural problems ( $n = 3$ ), perceived stress ( $n = 2$ ), coping self-efficacy ( $n = 2$ ), coping strategy use ( $n = 2$ ) and resilience ( $n = 2$ ). Additional outcomes measured included positive and negative affect, self-efficacy for negative emotions, implicit beliefs (in relation to handling adversity), optimism and life satisfaction.

Eight studies (53.3 %) assessed outcomes related to mental health literacy. Outcomes included anxiety and depression literacy ( $n = 4$ ), help-seeking (confidence, intentions, attitudes or knowledge) ( $n = 6$ ), help-seeking behaviours ( $n = 1$ ), help-provision (confidence and intentions) ( $n = 4$ ), stigmatising attitudes ( $n = 7$ ), and mental health

knowledge (e.g., symptom recognition) ( $n = 3$ ). One study qualitatively (focus groups) evaluated the effectiveness of a mental health literacy program to promote mental health literacy (knowledge, attitudes, and skills) (Wynters et al., 2021).

### 3.6. Effect of intervention

#### 3.6.1. Mental health and wellbeing

Of the eleven studies that assessed outcomes related to mental health and wellbeing, seven (63.6 %) reported significant improvements (see Table 1). Significant between-group differences were reported in relation to depression ( $n = 1$ ), resilience ( $n = 2$ ), wellbeing ( $n = 2$ ), coping self-efficacy ( $n = 2$ ), coping strategy use ( $n = 1$ ), and behavioural problems (anger, externalising behaviours;  $n = 1$ ), in favour of the intervention group. Significant within-group improvements were reported in anxiety symptoms ( $n = 2$ ) and gratitude ( $n = 1$ ). Effect sizes ranged from medium ( $n = 1$ ) to large ( $n = 3$ ); with effect size data not provided by two studies.

#### 3.6.2. Mental health literacy

Table 2 summarises the intervention effects on mental health literacy outcomes. Across the studies that examined outcomes related to mental health literacy ( $n = 8$ ), most (87.5 %) reported positive effects (on one or more outcomes). More specifically, studies reported significant between-group improvements in anxiety and depression literacy ( $n = 4$ ), help-seeking (intentions or confidence) ( $n = 2$ ), help-provision (intentions or confidence) ( $n = 2$ ), and stigmatising attitudes ( $n = 2$ ). One study reported significant within-group increases in mental health knowledge and confidence to respond to mental health difficulties (Pierce et al., 2010). Effect sizes varied from medium ( $n = 1$ ) to large ( $n = 1$ ); with these data not reported by two studies. In two studies, cross-sectional data indicated that the intervention supported the

**Table 1**

Summary of findings pertaining to mental health and wellbeing outcomes.

	[+]	[0]
1. Depression	[(Waters et al., 2022)]	[(Belz et al., 2020; Dowell et al., 2021; Waters et al., 2023)]
2. Anxiety	(Dowell et al., 2021; Waters et al., 2023)]	[(Waters et al., 2022)]
3. Psychological well-being	(Schweickel et al., 2023; Vella et al., 2021)	[(Belz et al., 2020; Cupples et al., 2021)]
4. Psychological distress		[(Hurley et al., 2018; Liddle et al., 2021; Schweickel et al., 2023; Vella et al., 2021)]
5. Grit		[(Dowell et al., 2021; Waters et al., 2022; Waters et al., 2023)]
6. Gratitude	[(Waters et al., 2023)]	[(Dowell et al., 2021; Waters et al., 2022)]
7. Behavioural problems	[(Waters et al., 2022)]	[(Dowell et al., 2021; Waters et al., 2023)]
8. Perceived stress		[(Belz et al., 2020; Vidic et al., 2018)]
9. Coping self-efficacy	[(Cupples et al., 2021; Laureano et al., 2014)]	
10. Coping strategy use	[(Cupples et al., 2021)]	[Belz et al., 2020]
11. Resilience	[(Schweickel et al., 2023; Vella et al., 2021)]	
12. Affect		[(Laureano et al., 2014)]
13. Fortitude		[(Laureano et al., 2014)]
14. Self-efficacy for negative emotions		(Dowell et al., 2021)]
15. Implicit beliefs		[(Schweickel et al., 2023; Vella et al., 2021)]
16. Optimism		(Dowell et al., 2021)]
17. Life satisfaction		[(Waters et al., 2022)]

Note. [+] = positive intervention effect, [0] = no intervention effect.

**Table 2**  
Summary of findings pertaining to mental health literacy outcomes.

	[+]	[0]
1. Depression Literacy	[[Hurley et al., 2018; Liddle et al., 2021; Schweickle et al., 2023; Vella et al., 2021]]	
2. Anxiety Literacy	[[Hurley et al., 2018; Liddle et al., 2021; Schweickle et al., 2023; Vella et al., 2021]]	
3. Help-seeking Confidence	[[Vella et al., 2021; Wynters et al., 2021]]	
Intentions	[[Schweickle et al., 2023; Vella et al., 2021]]	[[Liddle et al., 2021; Patafio et al., 2021]]
Attitudes		[[Hurley et al., 2018; Pierce et al., 2010]]
Knowledge		[[Hurley et al., 2018; Liddle et al., 2021; Patafio et al., 2021]]
Behaviours		[[Patafio et al., 2021]]
4. Help-provision Confidence	[[Hurley et al., 2018; Lefebvre et al., 2022; Pierce et al., 2010; Wynters et al., 2021]]	[[Liddle et al., 2021]]
Intentions	[[Liddle et al., 2021]]	
5. Stigmatising attitudes	[[Lefebvre et al., 2022; Liddle et al., 2021; Schweickle et al., 2023]]	[[Hurley et al., 2018; Patafio et al., 2021; Pierce et al., 2010; Vella et al., 2021]]
6. Mental health knowledge	[[Lefebvre et al., 2022; Pierce et al., 2010]]	[[Patafio et al., 2021]]

Note. [+] = positive intervention effect, [0] = no intervention effect.

acquisition of mental health knowledge, confidence to provide or seek help, and reductions in stigmatising attitudes (Lefebvre et al., 2022; Wynters et al., 2021).

### 3.7. Feasibility

#### 3.7.1. Adherence

In total, three studies reported participant adherence to the intervention. Two studies reported that 30.0 % of participants completed all components of the intervention (Schweickle et al., 2023; Vella et al., 2021), while the other reported 97.0 % adherence to intervention sessions (Cupples et al., 2021).

#### 3.7.2. Acceptability/satisfaction

Eight studies (53.3 %) reported on the acceptability of the intervention. All these studies reported high participant acceptability/satisfaction with the interventions. For example, one study reported that participants rated the intervention as both enjoyable and helpful ( $M_{\text{enjoyable}} = 5.6$ ,  $M_{\text{helpful}} = 5.2$  on a 6-point scale; Waters et al., 2023). Another reported that participants largely perceived the intervention as valuable (82.3 %), informative and understandable (91.1 %), and relevant (82.3 %) (Lefebvre et al., 2022).

#### 3.7.3. Critical appraisal

The critical appraisal results are summarised in Appendix 2. The randomised controlled trials ( $n = 2$ ) fulfilled over half ( $\geq 7$ ) of the criteria for the relevant quality assessment tool. Both achieved true randomisation (ensuring treatment groups were similar at baseline), used reliable outcome measures, and conducted appropriate statistical analyses. One study (Belz et al., 2020), however, did not provide sufficient details in relation to concealment of treatment allocation or blinding procedures (e.g., in relation to participants or outcome assessors). Across the controlled trials ( $n = 4$ ), quasi-experimental ( $n = 3$ ) and pre-post studies ( $n = 4$ ), three fulfilled all criterion, with the remaining studies fulfilling between 55.5 % and 89.0 % of the criterion. Most incorporated multiple assessments of the outcome(s) pre-and-post

intervention ( $n = 10$ ), reliable (and valid) outcome measures ( $n = 10$ ), and sufficient details of participant flow ( $n = 6$ ). Similarly, the cross-sectional mixed-methods (Lefebvre et al., 2022) and qualitative studies (Wynters et al., 2021) both largely fulfilled the criterion of the MMAT (15 out of 17 items) and CASP (7 out of 10 items), respectively.

## 4. Discussion

The present review is the first to systematically evaluate interventions targeted at the promotion of mental health and wellbeing among young males in organised sporting contexts. A small, yet rapidly growing body of evidence has examined such interventions. More specifically, 15 studies were included in this review (86 % published from 2018 onwards), and most focused on promoting mental health and wellbeing ( $n = 7$ ), with fewer targeting mental health literacy ( $n = 4$ ) or both mental health (and wellbeing) and mental health literacy ( $n = 4$ ). The recency of many of these papers is testament to the growing recognition that sport settings are important sites for mental health promotion. Taken together, the findings of this review provide critical insight into the capacity of sporting contexts to be harnessed to support the mental health of young males; a demographic that is disproportionately affected by poor mental health outcomes (Australian Bureau of Statistics, 2022; UNICEF, 2021).

Most studies (80.0 %) reported positive effects for one (or more) mental health and wellbeing, or mental health literacy outcomes. Although, across studies that measured mental health (and wellbeing) and mental health literacy ( $n = 4$ ), only two studies (Schweickle et al., 2023; Vella et al., 2021) reported significant improvements in both such outcomes (resilience, well-being, depression and anxiety literacy, help-seeking). In studies that assessed mental health literacy outcomes, 85.7 % reported improvements. More specifically, the interventions consistently supported improvements in depression and anxiety literacy (Hurley et al., 2018; Liddle et al., 2021; Schweickle et al., 2023; Vella et al., 2021), help-seeking and help provision (confidence) (Hurley et al., 2018; Lefebvre et al., 2022; Pierce et al., 2010; Vella et al., 2021; Wynters et al., 2021), and mental health knowledge (Lefebvre et al., 2022; Pierce et al., 2010). Among studies that measured mental health and wellbeing outcomes ( $n = 11$ ), 63.6 % reported improvements in such outcomes (e.g., anxiety, resilience, coping self-efficacy). The findings, do however, suggest that in relation to many (82.4 %) of the mental health and well-being outcomes there were either inconsistent effects (e.g., one of four studies reported positive change in depression) or no effects (e.g., psychological distress, grit, perceived stress; see Table 1). It should be noted that none of the interventions were shown to inadvertently negatively impact mental health or wellbeing outcomes, important given that there is considerable scope to cause undue harm in this field of research. Nevertheless, our findings fit with a recent meta-analysis of mental health interventions in non-elite sport settings, reporting stronger (more favourable) evidence pertaining to the effects of such interventions on mental health literacy outcomes (e.g., mental health knowledge), in contrast to mixed evidence in relation to mental health outcomes (e.g., depression) (Sutcliffe et al., 2021).

Existing research suggests that mental health literacy is an important determinant of mental health and wellbeing outcomes (Bjørnsen et al., 2019; Lam, 2014; Tambling et al., 2021). It has been recognised that interventions should first target (and affect change) in mental health literacy (e.g., mental health knowledge, help-seeking, stigmatising attitudes), to subsequently elicit favourable mental health and wellbeing outcomes (Bjørnsen et al., 2019). Accordingly, Vella, Swann, Batterham, et al. (2021) suggest that longer-term follow-ups may be necessary to capture changes in mental health and wellbeing outcomes (e.g., as help-seeking is enacted); an important limitation to the included studies (only 27.0 % included follow-ups). In future, the promotion of mental health literacy should be considered as an integral component of sport-based interventions, particularly given young males are cited to have lower mental health literacy (relative to their female counterparts)

(Singh et al., 2022).

The interventions were largely implemented in community sporting clubs (66.6 %; e.g., Dowell et al., 2021; Liddle et al., 2021; Vella et al., 2021). Notably, a higher proportion of such interventions (90.0 %) demonstrated positive effects on mental health (and wellbeing) or mental health literacy outcomes, relative to those conducted in professional sporting clubs (66.6 %) or university settings (50.0 %). This is important given community sporting clubs are recognised to afford widespread reach. For example, in Australia 75.0 % of young males participate in sport (predominately within a sports club) (Eime et al., 2020). Additionally, existing research indicates that male youth athletes along with associated stakeholder samples (parents and coaches) perceive organised (community) sport as a valuable setting to support mental health (Ferguson et al., 2019; Hurley et al., 2017; Swann et al., 2018). Other research suggests that this sporting context presents novel prospects for improving the wellbeing of marginalised or vulnerable subpopulations of young males (e.g., Aboriginal and Torres Strait Islander males) (Smith et al., 2020). Notably, however, none of the interventions were tailored to such subpopulations, and this warrants consideration in future. Ongoing efforts to develop and implement interventions in community sporting clubs could be key to curbing the prevalence of mental health problems in young males.

Most interventions targeted male athletes, and fewer targeted associated stakeholder samples (e.g., parents or coaches of youth males). Given growing consensus that multi-level approaches are the gold standard for mental health promotion in sport settings (Vella, Swann, & Tamminen, 2021), the development and evaluation of interventions that intervene at multiple levels of influence (e.g., athletes, parents, coaches) is critical. The findings from this review further suggest that few interventions have targeted coaches of male youth; a stakeholder sample considered as “gatekeepers” for athlete mental health (Brown et al., 2017; Smith et al., 2020). Sport coaches are recognised to play an important role in establishing supportive sporting environments that normalise and destigmatise mental health and help-seeking (Bissett et al., 2020). Evidence does however, suggest that coaches have inadequate mental health literacy (Ferguson et al., 2019), and this has been linked to lower engagement in mental health prevention and early intervention behaviours (O’Leary et al., 2022). As such, sport coaches are an important target for intervention in future.

This review has identified that there are a range of programs that exist to support the mental health and wellbeing of young males in sport settings (e.g., Ahead of the Game, Read the Play, Talk Today). The interventions varied in structure (and duration), such that many incorporated one (stand-alone) session, while others comprised multiple sessions. This heterogeneity precludes conclusions pertaining to the most effective structure (and format) of interventions in sport settings. Single stand-alone sessions (of a short duration), may however, be most appealing to those in sport settings, although the capacity of such interventions to facilitate sustained changes in the mental health outcomes of young males is unknown. On the other hand, highly structured (multi-component) interventions (e.g., Ahead of the Game) are inherently time and resource intensive, and this may limit their uptake and scalability. Walton et al. (2021) has instead suggested that a suite (or “toolkit”) of adaptable mental health resources may usefully provide sporting stakeholders with clear guidance in relation to mental health promotion (and early intervention) in sport settings. In South Australia, for example, SportSA recently launched the Mental Fitness Charter (Breakthrough Mental Health Research Foundation, 2022), providing sporting clubs access to a range of mental health resources (e.g., workshops, training, print/digital resources), with an overarching aim to challenge the stigma associated with mental health issues and normalise mental health conversation. There is now a need to evaluate resources such as the Charter (or “toolkit”), to inform important advancements in this field of research.

Interventions were largely delivered in-person (and supplemented by print or digital resources). This is surprising given the move toward the

use of digital technologies, with evidence suggesting that smartphone applications, for example, have the capacity to support health behaviours (e.g., physical activity; Petersen et al., 2020). Smartphone applications incorporate adaptive functionalities that allow the tailoring of content, advantageous given growing recognition that a one-size-fits all approach is not appropriate for mental health promotion in sporting contexts (Petersen et al., 2023). They also have the capacity to provide timely, cost-effective and discreet support (circumventing stigma associated with help-seeking). Notably, emerging evidence suggests that smartphone applications show promise in their potential to improve the mental health and wellbeing outcomes of young people (Leech et al., 2021) and the population more broadly (Eisenstadt et al., 2021). The development of smartphone applications for utilisation in sporting settings, is therefore, an important avenue for future consideration.

Many studies reported information in relation to intervention development. Few were developed in consultation with mental health professionals (e.g., clinical psychologists). This is increasingly recognised as important to enhancing intervention quality (Schouten et al., 2022), and thus, multi-disciplinary collaborations should be considered as integral to intervention development in future. Several studies cited consultation with sporting stakeholders (e.g., athletes, coaches), and notably, all reported high participant acceptability with the interventions. This further highlights the value of developing interventions that consider end-user preferences and needs. In future, interventions developed for implementation in sport settings may also benefit from the involvement of sporting stakeholders with lived experience of mental illness (Watling et al., 2022). Interestingly, only three studies reported on intervention engagement. One study, for example, reported that 30.0 % of male athletes completed all components of the intervention (Vella et al., 2021). Recently, Petersen et al. (2023) reported that young stakeholders (12–25 years) are less willing to participate in mental health initiatives in sporting clubs. This suggests that strategies are necessary to encourage young people to participate in such initiatives, particularly given intervention engagement is cited as an important precursor to intervention effectiveness (Romeo et al., 2019; Schoeppe et al., 2016). Finally, in future, research must assess and report on the engagement with mental health interventions in sport settings.

The findings indicate that few mental health interventions targeted at young males in sport settings are underpinned by theoretical frameworks. This is an important shortcoming given theoretical frameworks are recognised to provide guidance in relation to theoretical constructs (e.g., intentions, attitudes) that should be targeted by an intervention to drive health-related behaviour change (McEwan et al., 2019; Webb et al., 2010). Relatedly, only one study examined mechanisms of change (Schweickle et al., 2023), and reported that resilience mediated improvements in psychological distress and wellbeing. Future research must, however, examine mediation pathways in relation to mental health literacy outcomes, important to further optimise the efficacy of such interventions. Masculine norms, for example, are known to play a well-substantiated role in the help-seeking of young males (Seidler et al., 2016), and thus could be considered as an important mechanism by which interventions may elicit change in the reticence of male youth to seek help. Examination of such mechanisms will be important to the development (or refinement) of sport-based approaches to mental health promotion among young males.

## 5. Implications

Our findings have important implications for improving mental health promotion among young males in sport settings. To date, a small number of sport-specific mental health interventions have been developed and evaluated, and show promise in their capacity to effect positive change in young males. There is, however, considerable scope to strengthen such interventions, and thus, their efficacy to support mental health. More specifically, approximately half of the interventions

targeted mental health literacy (e.g., Hurley et al., 2018; Liddle et al., 2021; Vella et al., 2021). This is an important target for increased intervention in future given: (1) the well-established links between mental health literacy and improved mental health (and well-being) outcomes (Bjørnsen et al., 2019), and (2) evidence suggesting that young males have poorer mental health literacy (Singh et al., 2022). Moreover, there is a lack of consensus regarding the most effective structure (and format) of interventions in sport settings, with great variety noted in the interventions included in this review. This warrants examination, and could include ascertaining the value of highly structured programs (e.g., Ahead of the Game) relative to adaptable resources such as a toolkit or Charter. Future interventions should also consider: (1) the use of digital tools (e.g., smartphone applications), (2) targeting multi-level influences (e.g., coaches, parents and athletes), and (3) integration of theoretical frameworks. Finally, ongoing efforts to involve stakeholders (along with health professionals) in the development of interventions will ensure such interventions are tailored to users' needs (and underpinned by expert insight), important to optimising their effectiveness and acceptability.

This review also has important implications for guiding future evaluations of interventions implemented in sport settings. More specifically, conducting randomised controlled trials, considered the gold-standard for evaluating intervention efficacy, should be prioritised in future to support the advancement of this field of research. Evaluations of sport-specific interventions targeted at young males should incorporate longer-term follow-ups, key to ascertaining the capacity of such interventions to affect sustained change in mental health outcomes. This too, will elucidate the *downstream* effects of such interventions, for example, isolating the effects of enhanced coach mental health literacy on athlete wellbeing; an important avenue for investigation as suggested by Sutcliffe et al. (2021). There is also a need to further examine the mechanisms of change (e.g., masculine norms), and this may include exploring pathways that mediate intervention effects on mental health literacy outcomes. Finally, few studies reported information pertaining to intervention implementation (e.g., barriers, facilitators). This must therefore be considered in future evaluations, to assist those in sport settings (e.g., sporting clubs) to successfully navigate the challenges associated with the implementation of mental health initiatives.

### 5.1. Strengths and limitations

The present review has several strengths. Specifically, this is the first review to isolate the effects of mental health interventions in sport settings targeted at young males (and associated stakeholder samples). The review was also prospectively registered and followed PRISMA guidelines. Nevertheless, there are also some limitations that should be acknowledged. In particular, a small number of studies met the inclusion criteria. There was also considerable heterogeneity in the study designs, populations, interventions and measured outcomes that precluded conducting a meta-analysis, and thus, limited the capacity to quantify the overall impact of such interventions. Many of the studies (73.3 %) were conducted in Australia, and this may limit the generalisability of the findings. This is perhaps not surprising given high-income countries are recognised to prioritise mental health research. For example, a recent bibliometric analysis reported that globally, Australia has contributed the most published literature (37.5 %) in relation to mental health literacy (Sweileh, 2021). Finally, this review was limited to peer-reviewed literature (i.e., exclusion of grey literature) published in the English language, which may introduce publication bias.

### 5.2. Conclusion

The present review provides important insights into sports-based mental health interventions targeted at young males. The findings suggest that such interventions have the capacity to affect positive change in mental health literacy outcomes (e.g., depression and anxiety literacy,

help-seeking). There was, however, limited evidence to suggest that these sport-based interventions are effective in facilitating positive mental health outcomes (e.g., psychological well-being) in young males. As such, this review indicates that there is scope to improve the effectiveness of mental health interventions targeted at young males in sport settings. This review provides valuable knowledge that will be important to guiding the development and evaluation of sports-based mental health interventions tailored to young males in future. Ongoing efforts to harness sport settings to support the mental health of young males is necessary to drive widespread change in the wellbeing of this subpopulation.

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### Declaration of competing interest

The authors declare that they have no competing interests.

### Data availability

No data was used for the research described in the article.

### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.psychsport.2023.102551>.

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