



High prevalence of harmful drinking habits and gambling among professional rugby players: mental health symptoms and lifestyle risks among New Zealand Super Rugby players – a cross-sectional survey

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ABSTRACT

Objectives Determining the prevalence of mental health and lifestyle risk factors (smoking, alcohol consumption, recreational drug use, gambling, family violence and anger management) in New Zealand (NZ) male professional rugby players.

Study design Cross-sectional survey of mental health symptoms and lifestyle risk factors in male professional rugby players in NZ.

Methods Players from all five NZ men's Super Rugby Franchises were invited to complete an online questionnaire (SportCHAT) measuring demographic status and mental health symptoms. Descriptive and inferential statistical analyses were used to identify the most prevalent mental health and lifestyle risk factors.

Results 105 players participated in the study (response rate 52.5%). 51.4% of players were either at moderate or high risk for alcohol-related harm (defined as potential health, social, legal or financial problems linked to alcohol consumption). In comparison, 4.8% reported recreational drug use and 5% reported smoking tobacco. Twenty players (19%) reported engaging in gambling, with five of these reporting problematic gambling. 21% of players reported symptoms of depression, but none reached the 'mild depression' threshold of the Patient Health Questionnaire for Depression. Younger players (aged 20–29) were more likely to report symptoms of depression than older players (aged 30–39). The prevalence of anxiety symptoms was 17.1%. 66.7% of these players reported minimal symptoms (GAD-7 score 0–4) and 33.3% reported mild symptoms (GAD-7 score 5–9). Family violence was reported by 2.9% of respondents, while 12.4% reported issues with anger management. There were no significant differences between ethnic groups.

Conclusion There is a higher prevalence of alcohol misuse and gambling, but lower reported rates of depression and anxiety symptoms in this cohort when compared with the general population.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Previous studies have shown that mental health conditions among athletes are as common, if not more common, than in the general population. As a cohort, current professional rugby players have not been studied. Apart from alcohol use, the prevalence of other lifestyle risk factors has not been studied.

WHAT THIS STUDY ADDS

⇒ To our knowledge, this is the first study that has investigated the prevalence of mental health symptoms and lifestyle issues in active, professional male rugby players.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Further research into the incidence of these problems, potential causes and increased education is suggested.

INTRODUCTION

According to the World Health Organisation Mental Health Report 2022, about one in eight people worldwide live with a mental health condition, with the prevalence of different mental health disorders varying with gender and age.¹ In both men and women, depression and anxiety disorders are the most common individual conditions, with suicide being the leading cause of mortality among those under the age of 35 years.¹ Mental health symptoms and conditions have increasingly been recognised among current and former athletes, with most studies showing a similar or greater incidence compared to the general population.^{2–10} In addition to the triggers that may lead to mental health symptoms in the general population, some potential sport-specific triggers have been identified in the literature. For example, players may suffer

anxiety about their readiness to perform.¹¹ While some elite players may use this anxiety regarding competition to boost self-confidence and facilitate performance, for others, the symptoms can be debilitating.¹² There can also be a fear of failing or letting down the team, while the potential impact of injury, especially brain injury, may be another relevant factor.^{13 14} To date, there is limited data relating to currently active professional rugby players. However, there is anecdotal evidence that a number may suffer from anxiety or depression and even, at times, suicidal ideation.¹⁵ A study of retired rugby players from France, Ireland and South Africa has found that 28% experienced anxiety and/or depression and 24% from adverse alcohol behaviour (defined as a score of 5/12 or more on the Alcohol Use Disorders Identification Test (AUDIT)).⁴ In general, the higher the AUDIT score, the more likely it is that the patient's drinking is affecting his/her health and safety.

There are a range of lifestyle risk factors that are associated with non-communicable diseases, including mental health diagnoses. It is known that some of these exist within a professional sports context. For example, excessive alcohol consumption appears to be common in rugby environments, with several studies showing a high incidence of alcohol misuse among rugby cohorts. Adverse alcohol behaviour is common among retired rugby players, with almost one-quarter (24%) of participants in one study reporting this problem.⁴ Alcohol misuse also appears to be a problem among amateur players, with drinking being common and being viewed as being part of the culture of the game.^{16 17} As well as the well-recognised alcohol-related harms seen in the general population, binge drinking has a direct negative impact on athletic performance in rugby players.¹⁸ To our knowledge, the incidence of problem drinking and other lifestyle risk factors, such as gambling and illicit drug use, among current professional players is not known.

The electronic Case-finding and Help Assessment Tool (eCHAT) is a validated screening tool that has been used successfully in primary care and community settings to help identify people with substance misuse, problem gambling, depression, anxiety, exposure to abuse and difficulty controlling anger.^{19–22} A key component of eCHAT is the 'help' question, which asks patients whether they would like help, either during this visit or at a later date, regarding a specific problem. If a survey respondent indicates they would like to help, they are directed towards an additional validated questionnaire relating to that domain. Lifestyle risk factors (smoking, problematic drinking, other drug use, gambling and exposure to abuse), as well as mental health issues (depression, anxiety, anger control), are addressed in the tool. In the general practice (GP) setting, the questionnaire also asks about physical activity, which is less relevant in a professional sports setting.

This study determined the prevalence of mental health symptoms and lifestyle risk factors in male professional

rugby players in New Zealand (NZ) using an adapted version of the eCHAT tool.

METHODS

Study design

This is a cross-sectional survey of mental health symptoms and lifestyle risk factors in male professional rugby players in NZ.

Participants

All contracted players from NZ's five men's Super Rugby franchises were invited to participate. Super Rugby is a men's professional rugby union club competition involving teams from Australia, Fiji, NZ, and the Pacific Islands. It has previously included teams from Argentina, Japan and South Africa. It is the highest level of club competition in NZ. A total of 200 players were invited to complete SportCHAT, an online questionnaire comprising measures of demographic status and mental health symptoms. An optional mental health assessment was part of the annual precompetition medical assessment offered to NZ Super Rugby players. No potential participants were excluded.

Questionnaire

SportCHAT (an amended version of the eCHAT tool) was used to assess for mental health symptoms and lifestyle risk factors. The amendments (made in conjunction with the creator of the eCHAT tool) saw the removal of questions relating to physical activity and frequency of exercise as they were irrelevant to the target population in the current study. No additional questions were added. This was a self-administered online questionnaire. Positive responses to the depression and anxiety questions triggered the Patient Health Questionnaire for Depression (PHQ-9) and the Generalised Anxiety Disorder Assessment (GAD-7), respectively. Positive responses to the smoking, drinking and illicit drug questions directed participants to the WHO Alcohol, Smoking and Substance Involvement Screening Test. The tool included two questions relating to abusive and/or controlling behaviour. These are 'Is there anyone in your life whom you are afraid of or who hurts you?' and 'Is there anyone in your life who controls you and prevents you from doing what you want?'. The SportCHAT questionnaire is available for review in online supplemental Appendix B.

Procedure

During a single Super Rugby season, all male players contracted to a NZ Super Rugby franchise were invited to participate in the study by their team doctor. Participants were given an information sheet about the study's objectives, including the methodology, inclusion criteria and data protection processes. After completing a signed consent form, the participants completed the SportCHAT application on a tablet before a routine medical consultation. Any issues arising during this process were addressed using a stepped-care approach with decision

support provided (self-management, interventions from the doctor, referral to psychological or other services or hospital-based services in extreme cases).

Statistical analysis

Descriptive statistics in the form of percentages were used to determine the most dominant/prevalent mental health symptoms and lifestyle risk factors in general and across ethnicity and age groups. For each mental health symptom and lifestyle concern, we obtained 95% CIs for the differences between ethnic and age groups to determine whether these differences were statistically significant. All analyses were performed using R Statistical Software (V.4.1.2; R Core Team 2021).

RESULTS

Participant characteristics

Of the 200 rugby players invited, 105 participated in the study (response rate 52.5%). The sample comprised 44 NZ European (41.9%), 21 Māori (20%), 36 Pacifica (34.3%) and 4 players of 'other' ethnicity (3.8%). The majority, 88 (83.8%) of participants, were aged 20–29 years, with 17 (16.2%) being 30–39 years. All participants were men.

Mental health symptoms

The number and percentage of players reporting mental health symptoms and lifestyle risk factors are shown in Table One. A total of 22 (21%) participants completed the PHQ-9 questionnaire after recording that they had experienced symptoms of depression in the 2 weeks before completing the survey. All of these participants scored between 1 and 3, noting that a score of less than 4/27 in the PHQ-9 represents 'minimal depression'. Depression symptoms were more common among the younger players (25.3% of those aged 20–29 years) than older players (6.3% of those aged 30–39 years). The absolute difference of 19.1% is significantly different from zero at the 95% CI. The reported incidence of anxiety symptoms was 17.1%, with a trend towards these symptoms being more common in the older (37.5%) age group when compared with the younger age group (14.5%); however, this difference was not statistically significant.

The severity of symptoms was also generally low, with 66.7% of these players reporting 'minimal' symptoms (GAD-7 score 0–4) and 33.3% reporting 'mild' symptoms (GAD-7 score 5–9).

Substance use

The vast majority, 101 players (96.2%), reported consuming alcohol. More than half (n=54, 51.4%) reported meeting the criteria for moderate to high-risk drinking behaviour (see table 1). Despite this, only two players requested help addressing their alcohol consumption (see table 2). There were no statistically significant differences between the different age cohorts or ethnicities. Two players (1.9%) reported use of recreational drugs. Both players were in the 20–29-year age group.

Other issues

Twenty players (19%) reported engaging in gambling. Of these, five players reported problematic gambling, and one requested help with his gambling. Three (2.9%) players reported being abused or controlled, with none of these players requesting help. A total of 13 (12.4%) players reported problems controlling their anger. Three (23%) of these players requested help with anger management.

DISCUSSION

Over the past decade, there has been increased interest in the mental health and well-being of athletes, with the majority of existing data showing a similar or greater incidence of mental health symptoms when compared with those seen in the general population.^{2–10} As a result, it has become clear that strategies are needed within sports programmes to address these problems. This is to try to identify those experiencing these symptoms and those at risk of developing them to ensure that these problems can be addressed. The eCHAT questionnaire has been validated in primary care and is an effective screening tool.^{19 20 22} It may be useful in a sporting context, primarily because it involves a very short intervention (a maximum of 12 yes/no style questions if a participant does not report symptoms or engage in any risk factors) that can be incorporated into routine clinical visits. Minor modifications to eCHAT to suit an athletic population led to the development of SportCHAT, the tool used in the current study. Similar tools, like the IOC Sport Mental Health Assessment Tool, have specifically been designed for use among elite athletes and have also included links to existing validated screening instruments.⁵ Unfortunately, compliance with these tools is an issue, potentially due to the length of the survey instrument.^{6 10} The SportCHAT may, therefore, be of some value in athletic cohorts as it is likely to be substantially faster to complete when compared with other tools, given the limited number of questions. Compliance almost certainly remains an issue, as highlighted by the 52.2% response rate in the current study. In addition to continuing to refine existing screening tools to improve compliance, more education

Table 1 Number and percentage of players reporting mental health symptoms and lifestyle risk factors

Variable	Number of players (%)
Smoking	2 (1.9)
Moderate/high-risk alcohol-related harm	54 (51.4)
Recreational drug use	2 (1.9)
Problematic gambling	5 (4.8)
Depressive symptoms	22 (21)
Anxiety symptoms	18 (17.1)
Being abused	3 (2.9)
Anger management problems	13 (12.4)

Table 2 Number of players requesting help with mental health symptoms or individual lifestyle risk factors

Variable	Positive response number (%)	Do not want help number (%)	Want help, but not today number (%)	Want help today number (%)
Smoking	2 (1.9)	2 (1.9)	–	–
Moderate/high-risk alcohol use	54 (51.4)	52 (96)	1 (2)	1 (2)
Problematic drug use	2 (1.9)	2 (100)	–	–
Problematic gambling	5 (4.8)	4 (80)	–	1 (20)
Major depression	–	–	–	–
Symptoms of depression	22 (21)	22 (100)	–	–
Anxiety symptoms	18 (17.1)	15 (83.3)	3 (16.7)	–
Experiencing abuse	3 (2.9)	3 (100)	–	–
Anger management problems	13 (12.4)	10 (77)	2 (15.4)	1 (7.7)

is needed to help players realise the importance of mental health screening.

Mental health symptoms

While 21% of participants in this study reported symptoms of depression, none met the criteria for clinical depression. This is surprising given the incidence of depression among the general population and in other elite sporting cohorts. In a GP setting, 16% reported experiencing symptoms of depression when completing the eCHAT tool, and 11.8% of NZ patients met the criteria for a diagnosis of clinically relevant depression.^{21 23} In Australian professional rugby league, the prevalence of symptoms of depression was similar to that demonstrated in the general population, with 12.6% of players reporting symptoms in the preseason and 10.1% reporting symptoms in-season.⁶ Some studies have shown that elite athletes have higher rates of depression symptoms than the general population.^{2 3 7–9 24} The severity of depression symptoms in the current study also appears to be substantially lower than in other athletic cohorts in NZ, where 21% of elite athletes met the criteria for moderate depressive symptoms.^{3 10} Given these findings, it is very probable that the current study's findings under-reports the burden of mental health symptoms. Part of this may relate to the structure of the SportCHAT tool and the methodology used in the current study. Most studies involving athletic cohorts have asked all participants to complete validated screening tools. In contrast, in this cohort, only those players who asked for help with their mental health symptoms were directed to a validated questionnaire, meaning that some players may not have reported symptoms that would otherwise have been captured. This issue has recently been identified with the sport mental health assessment tool (SMHAT), where a high false negative was demonstrated with the tool's initial triage step questionnaire (the Athlete Psychological Strain Questionnaire).²⁵ Given the variance from the reported incidence (using the same tool) in a GP cohort, it is also possible that the participants did not accurately report their symptoms. It is known that under-reporting is common in a sports context and that there are a variety

of reasons why athletes may under-report their mental health symptoms. Potential reasons for underreporting may include a failure to identify that their symptoms are due to their mental health, for example, mistakenly attributing symptoms of fatigue to overtraining rather than a symptom of depression.²⁶ Under-reporting is also a known problem, with athletes using various conscious or subconscious strategies to hide their psychological issues to protect themselves from stigma.²⁷ Other well-identified barriers to the reporting of mental health symptoms that may be relevant to this cohort include being men, the belief that the problem will go away or could be solved without help and a culture of self-reliance or not wishing to admit to having a disorder and stigma, including embarrassment, privacy and confidentiality concerns.²⁸ This may be more common among NZ rugby players than among athletes from other sports, given that participants are traditionally men and the gladiatorial nature of the sport, factors that might influence reporting. It is suggested that further research be conducted to try to understand better the incidence of mental health symptoms among professional rugby athletes. The use of validated surveys or a qualitative study design would be advisable.

Anxiety symptoms were also less common among this cohort of athletes than in a GP setting (17.1% vs 43.5%), where the eCHAT tool was used.²³ The reported severity of these symptoms in the current cohort was minimal or mild, while severity was not reported in the GP cohort.²⁰ The overall prevalence of anxiety symptoms is consistent with research in Australian professional rugby league; however, the severity of these symptoms appears to be significantly lower.³ In the current cohort, none of the participants met the criteria for an anxiety disorder. In contrast, 14.6% of the Australian rugby league players met the criteria for a GAD. The issues relating to the differing survey instruments outlined above may be the contributing factors. However, the tool did not appear to impact reporting in the GP cohort, suggesting that other factors may contribute to this difference. The incidence of anxiety symptoms in the current cohort also appears

to be broadly consistent with what has been reported in retired rugby players, where the combined incidence of depression and anxiety was reported to be 28%,⁴ and in professional football players, where the combined incidence of anxiety and depression was 38%.³

Lifestyle risk factors

Alcohol use was common among this cohort, with almost all of the players surveyed reporting consuming alcohol. The incidence of moderate to high-risk alcohol consumption in this cohort appears to be substantially higher than among the general population and the rates reported in previous studies of athletes, including cohorts of amateur rugby union and rugby league players.^{16 17 29} To some extent, our findings are consistent with the existing data from elite sports people in NZ (across a range of sports) who have been shown to have higher rates of hazardous drinking than non-sports people and non-elite athletes.³⁰ Our findings are consistent with data from elite rugby league players in Australia, a cohort likely to be very similar to that in the current study. Participants appear to share demographic characteristics (predominantly young men), represent a discrete cohort participating in a professional rugby code and reside in Australasia. The reported rate of hazardous alcohol use in this rugby league cohort was 68.6% in the pre-season and 62.8% in the in-season.⁶ Despite growing evidence of harmful alcohol consumption among athletes and, in particular, rugby players, there is a lack of research into the underlying motivation behind the rates of consumption. A study of British male university rugby players reported a clear drinking culture embedded within the sport at that level with a multitude of pressures that encourage alcohol consumption.³¹ It seems likely that this culture also exists within this professional cohort. Given that the vast majority of those who reported harmful levels of alcohol consumption did not want help, it is possible that these players did not perceive that there was a problem with their drinking or feel able to seek help. This is despite the known harm associated with alcohol misuse and the potential impact on athletic performance.³² Future research into the reasons behind hazardous alcohol consumption is needed, along with strategies to try to address this problem.

Twenty players (19%) reported that they gambled. Of these, five players reported that they had a problem with gambling, but only one requested help. A study using the same tool in a GP setting showed a substantially lower rate of gambling, with only 2.4% of respondents reporting gambling.²² Athletes have previously been shown to have higher rates of problem gambling than non-athletes, with other studies showing that they were 2–3 times more likely to experience this.³³ To our knowledge, the incidence of gambling behaviour has not been documented in elite professional rugby players before. This is a potentially significant finding, given the strict gambling regulations in professional sports, and the consequences of breaching these policies. It is also important because it

is known that gambling is associated with mental health issues, including anxiety, substance use and suicide.^{33 34} The high incidence of gambling reported, may reflect a culture of gambling within the sport of rugby, and ongoing work to provide education to players about gambling-related harms, including strategies to identify and support those with problem gambling, is needed.

The level of players experiencing verbal or emotional abuse among rugby players appears to be significantly lower than in the general population, with 2.9% of players responding positively to questions about abuse (compared with 19%).²¹ This is perhaps surprising given that elite and professional athletes in other studies and sports have reported significant levels of abuse.³⁵ While it is reassuring that there is no clear evidence of systematic abuse in this cohort, given the potential significance of these issues, especially among younger and more vulnerable players, it is suggested that further research is conducted in other rugby populations, where abuse may be more prevalent. This might include cohorts of youth or female players. The number of rugby players reporting problems with anger management was slightly lower than levels reported in the general population.²³

Limitations

The study only included male professional rugby players based in NZ, which may limit the generalisability of the study's results to players from other countries as well as recreational players and female players. Another potential weakness relates to the survey instrument used to collect data. The study used a self-reported questionnaire, with participants only being directed to a validated questionnaire if they reported experiencing a given issue. This likely resulted in lower reporting rates than in studies where all participants were specifically asked to complete these individual tools. As a result, the current study may underestimate the incidence of mental health symptoms and risk-taking behaviours. The high reported rate of problematic alcohol use and gambling is particularly concerning given this potential limitation. Conducting in-person interviews would have been a more effective way to evaluate for mental health symptoms, would allow a better understanding of the cause of these symptoms and may have produced different results. Finally, while the response rate in this study is relatively good compared with other studies involving elite athletes, there is still a risk of selection bias, with not all invitees completing the tool.

CONCLUSION

Mental illness and risk-taking behaviours have increasingly been recognised among elite athletes. This study highlights a high level of alcohol use and problem drinking among male Super Rugby players in NZ. There was also a high reported rate of gambling. Despite this, very few of these players want to seek help to address these issues. In addition, the current study has found a lower incidence of anxiety and depression symptoms when compared with the GP population.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics approval A project 'Scope of Review' was submitted to the Health and Disability Ethics Committee (HDEC), a Ministerial committee, whose function is to secure the benefits of health and disability research by checking that it meets or exceeds established ethical standards. The project was deemed to involve 'minimal risk' and as a result did not require formal ethical approval. The study protocol was also reviewed and supported by New Zealand Rugby's Research Advisory Committee.

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REFERENCES

- Freeman M. The world mental health report: transforming mental health for all. *World Psychiatry* 2022;21:391–2.
- Poucher ZA, Tamminen KA, Sabiston CM, et al. Prevalence of symptoms of common mental disorders among elite Canadian athletes. *Psychol Sport Exerc* 2021;57:102018.
- Gouttebauge V, Aoki H, Kerkhoffs G. Symptoms of common mental disorders and adverse health behaviours in male professional soccer players. *J Hum Kinet* 2015;49:277–86.
- Gouttebauge V, Kerkhoffs G, Lambert M. Prevalence and determinants of symptoms of common mental disorders in retired professional rugby union players. *Eur J Sport Sci* 2016;16:595–602.
- Reardon CL, Hainline B, Aron CM, et al. Mental health in elite athletes: international Olympic committee consensus statement (2019). *Br J Sports Med* 2019;53:667–99.
- Du Preez EJ, Graham KS, Gan TY, et al. Depression, anxiety, and alcohol use in elite rugby league players over a competitive season. *Clin J Sport Med* 2017;27:530–5.
- Rice SM, Purcell R, De Silva S, et al. The mental health of elite athletes: a narrative systematic review. *Sports Med* 2016;46:1333–53.
- Golding L, Gillingham RG, Perera NKP. The prevalence of depressive symptoms in high-performance athletes: a systematic review. *Phys Sportsmed* 2020;48:247–58.
- Gorczynski PF, Coyle M, Gibson K. Depressive symptoms in high-performance athletes and non-athletes: a comparative meta-analysis. *Br J Sports Med* 2017;51:1348–54.
- Beable S, Fulcher M, Lee AC, et al. SHARPSports mental health awareness research project: prevalence and risk factors of depressive symptoms and life stress in elite athletes. *J Sci Med Sport* 2017;20:1047–52.
- Mullen R, Lane A, Hanton S. Anxiety symptom interpretation in high-anxious, defensive high-anxious, low-anxious and repressor sport performers. *Anxiety Stress Coping* 2009;22:91–100.
- Neil R, D Mellalieu S, Hanton S. Psychological skills usage and the competitive anxiety response as a function of skill level in rugby union. *J Sports Sci Med* 2006;5:415–23.
- Uphill MA, Jones MV. Antecedents of emotions in elite athletes. *Res Q Exerc Sport* 2007;78:79–89.
- Rice SM, Parker AG, Rosenbaum S, et al. Sport-related concussion and mental health outcomes in elite athletes: a systematic review. *Sports Med* 2018;48:447–65.
- Britton P. Dad was a hero, says tragic rugby star's son. *Manchester Evening News*; 2016.
- Sekulic D, Bjelanovic L, Pehar M, et al. Substance use and misuse and potential doping behaviour in rugby union players. *Res Sports Med* 2014;22:226–39.
- Lawson JS, Evans AR. Prodigious alcohol consumption by Australian rugby league footballers. *Drug Alcohol Rev* 1992;11:193–5.
- Prentice C, Stannard SR, Barnes MJ. The effects of binge drinking behaviour on recovery and performance after a rugby match. *J Sci Med Sport* 2014;17:244–8.
- Goodyear-Smith F, Arroll B, Sullivan S, et al. Lifestyle screening: development of an acceptable multi-item general practice tool. *N Z Med J* 2004;117:U1146.
- Goodyear-Smith F, Coupe NM, Arroll B, et al. Case finding of lifestyle and mental health disorders in primary care: validation of the CHAT tool. *Br J Gen Pract* 2008;58:26–31.
- Goodyear-Smith F, Arroll B, Coupe N, et al. Ethnic differences in mental health and lifestyle issues: results from multi-item general practice screening. *N Z Med J* 2005;118:10.
- Goodyear-Smith F, Arroll B, Coupe N. Asking for help is helpful: validation of a brief lifestyle and mood assessment tool in primary health care. *Ann Fam Med* 2009;7:239–44.
- Goodyear-Smith F, Warren J, Bojic M, et al. eCHAT for lifestyle and mental health screening in primary care. *Ann Fam Med* 2013;11:460–6.
- Gulliver A, Griffiths KM, Mackinnon A, et al. The mental health of Australian elite athletes. *J Sci Med Sport* 2015;18:255–61.
- Anderson T, Adams WM, Bartley JD, et al. Analysis of the sport mental health assessment tool 1 (SMHAT-1) in team USA athletes. *Br J Sports Med* 2023;57:1187–94.
- Uphill M, Sly D, Swain J. From mental health to mental wealth in athletes: looking back and moving forward. *Front Psychol* 2016;7:935.
- Åkesdotter C, Kenttä G, Sparkes AC. Elite athletes seeking psychiatric treatment: stigma, impression management strategies, and the dangers of the performance narrative. *J Appl Sport Psychol* 2024;36:24–44.
- Gulliver A, Griffiths KM, Christensen H. Barriers and facilitators to mental health help-seeking for young elite athletes: a qualitative study. *BMC Psychiatry* 2012;12:157.
- Prentice C, Stannard SR, Barnes MJ. Effects of heavy episodic drinking on physical performance in club level rugby union players. *J Sci Med Sport* 2015;18:268–71.
- O'Brien KS, Blackie JM, Hunter JA. Hazardous drinking in elite New Zealand sports people. *Alcohol Alcohol* 2005;40:239–41.
- Harris M, Jones C, Brown D. A case study of alcohol use among male university rugby players. *Qual Res Sport Exerc Health* 2023;15:654–68.
- Vamplew W. Alcohol and the sportsperson: an anomalous alliance. *Sport Hist* 2005;25:390–411.
- Turk MA, Murphy C, McCaffrey J, et al. Predictors of adverse gambling behaviours amongst elite athletes. *Sci Rep* 2023;13:823.
- Grall-Bronnec M, Caillon J, Humeau E, et al. Gambling among European professional athletes. Prevalence and associated factors. *J Addict Dis* 2016;35:278–90.
- Parent S, Fortier K. Comprehensive overview of the problem of violence against athletes in sport. *J Sport Soc Issues* 2018;42:227–46.