

# Who is coaching the coach? Knowledge of depression and attitudes toward continuing education in coaches

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## ABSTRACT

**Background** The rate of depression among collegiate athletes ranges from 16% to 23%, with particularly high findings of prevalence in track and field athletes (34%). Collegiate athletes have also been found to underuse mental health resources. Given this high prevalence of depression and demonstrated reluctance to seek help, it is important to explore the awareness and understanding of depression among the individuals who work most closely with this population.

**Objective** To assess coaches' knowledge and awareness of depression among their athletes and describe their level of interest in receiving continuing education.

**Method** All National Collegiate Athletic Association Division I cross-country and track and field coaches were invited to participate in an online survey. The sample consisted of 253 participants, of whom 56 (25%) identified themselves as female and 170 (75%) as male with 14 ( $\pm 10.4$ ) years of coaching experience. Respondents completed the Adolescent Depression Awareness Program (ADAP) questionnaire and related questions. Differences in depression knowledge and interest in continuing education were calculated by gender, event specialty, length of coaching experience and certification history using analysis of variance and  $\chi^2$  analysis.

**Results** The mean score on the ADAP depression questionnaire was 83%. Significant differences were not observed by gender, length of coaching experience, coaching title or certification history. Distance coaches scored significantly higher on the test than sprints coaches. Coaches estimated that 11% of their former and current student-athletes have struggled with depression. 77% of coaches indicated a 'strong interest' in receiving continuing education.

**Conclusions** The findings of this study indicate the participating coaches have a good *knowledge of depression* for individuals without formal education on the topic but may lack *depression awareness*. This hypothesis is supported by the finding that coaches in the sample found out an athlete was suffering from depression most often by the athlete self-reporting.

## INTRODUCTION

The well-being of athletes has become an important topic among the governing bodies of numerous sports. This includes the National Collegiate Athletic Association (NCAA),

## What are the new findings?

- Division I cross-country and track and field coaches significantly underestimate the rate of student-athlete depression. They generally understand depression but struggle to put knowledge into practice.
- 77% of coaches indicate a 'strong interest' in receiving continuing education in topics including injury prevention, nutrition, sport psychology and mental health.
- Coaches indicated they would most prefer to receive the education via face-to-face instruction or video modules.

## How might it impact on clinical practice in the near future?

- There is a need for additional education among coaches. The topics and delivery methods for this education were specified by coaches within the study.
- Additional education may address the issues with underestimation of depression and facilitate collaboration/communication between coaches, student-athletes and medical staff.

which has stated a commitment to protecting the well-being of its college-age athletes<sup>1</sup> and has even admonished future leaders that 'nothing... is more important than ensuring the well-being of the athletes'.<sup>2</sup> A key aspect of well-being is mental health, which has also become a national point of concern among college-age individuals in recent years. Several studies have shown that mental health disturbances are increasing among students.<sup>3-5</sup> Furthermore, the risk of depression and anxiety among college athletes appears to be just as high as in the non-athlete population.<sup>6,7</sup> Worldwide, researchers are finding depression and other mental disturbances to afflict athletes as much or more than their non-athlete peers.<sup>6,8-11</sup> Major depression episodes are most common in those ages 18-25 years, including the college student demographic.<sup>12</sup> Specifically, the rates of reported symptoms

of depression among athletes have ranged from 15.6% to 23.7%.<sup>13-15</sup> Wolanin *et al*<sup>14</sup> found track and field athletes in particular to be at an even higher risk of depression, displaying clinically relevant symptoms of depression at a rate as high as 34%.

Athletes experience unique pressures, some of which may put them at risk of developing mental health issues such as depression.<sup>16-17</sup> One such risk factor is a pressure to perform<sup>18</sup>; having one's identity defined by sport performance,<sup>19-20</sup> which can be threatened by choking<sup>8</sup> and completion of athletic career<sup>21-22</sup>; demanding schedule<sup>15</sup>; and injury.<sup>23-25</sup> Not only are injured athletes at greater risk of depression, depressed athletes are at greater risk of injury.<sup>26-28</sup> Coaches play a role in either easing or exacerbating these risk factors.<sup>18-29</sup>

Despite the fact that athletes suffer mental health difficulties at a rate similar to regular college students, research has shown that athletes historically do not use their university mental health services.<sup>30-32</sup> A recent survey of 19 733 athletes and 171 601 non-athletes showed that this trend has not changed.<sup>33</sup> This supports the findings of Eisenberg and Lipson<sup>34</sup>, who found that only 10% of athletes suffering from serious symptoms of anxiety or depression used mental health services, compared with 30% of general students.<sup>34</sup>

One reason posited as to why athletes underuse the resources available to them is that athletic staff are not well educated on signs of mental and psychological issues. Mentink<sup>35</sup> found that coaches struggled to recognise when their players displayed signs of depression. Another potential explanation is that athletic staff and/or athletes themselves consider mental distress a sign of weakness and are resistant to revealing the perceived weakness to the appropriate resources.<sup>36</sup> For athletes who do not realise what is wrong, or who do not feel comfortable seeking treatment on their own, failure of coaches and athletic trainers to recognise the athlete's need may result in the athlete continuing to suffer indefinitely.

One key group of individuals who directly influence athlete well-being is coaches. The importance of the coach-athlete relationship has long been documented.<sup>37-39</sup> Coaches have been identified as very important to their athlete's risk and management of depression.<sup>40-41</sup> Despite this high level of influence, there are currently no minimum standards of education or training for collegiate coaches. Hence, coaches may have never received any type of education regarding athlete mental health.

Given the important role of coaches and the prevalence of depression among athletes, this study aimed to examine coaches' awareness of depression and their attitudes towards receiving continuing education. The study had two primary objectives. The first was to determine how well NCAA Division I cross-country and track and field coaches understand depression in the context of their sport, in order to determine whether there is a need for further coaching education. The second was to

explore prevalent coaching attitudes towards continuing education and the overall topic of athlete well-being.

## METHODS

### Participants

All current Division I cross-country and track and field coaches with valid email addresses were invited to participate in this survey study. Email addresses were obtained through the National Association of Collegiate Directors of Athletic Directory. Once email addresses were collected, a link to the survey was emailed to each coach using Qualtrics Survey Software. One thousand three hundred and fifty-three valid email addresses were sent links to the survey. Coaches were given 8 days to complete the survey before a follow-up email was sent to coaches who had not completed the survey. Data collection was concluded 21 days following the initial email invitation to participate, at which point the survey was closed and no longer accessible to email recipients. Coaches provided consent by participating in the survey. Responses were kept anonymous, and no incentives to participate were given. The response rate was approximately 18% (n=253), which is typical for this difficult-to-reach demographic. The sample was fairly representative of the population (discussed within results), providing support for the ability for the sample to satisfactorily represent the population.

### Survey methods

An adapted version of the Adolescent Depression Knowledge Questionnaire (ADKQ) was used to determine basic knowledge of depression. The ADKQ was chosen because it has demonstrated reliability in measuring the knowledge of depression at a level expected of individuals without formal training or education. The ADKQ consists of 13 true-or-false statements, 8 of which were included directly in this survey. The remaining five statements were replaced or altered with statements more relevant to the college athlete population. Specifically, a true or false statement about the prevalence of depression among teenagers was replaced with a statement on the prevalence of depression among athletes; two statements regarding bipolar disorder were replaced with statements regarding depression and injury risk; and a statement saying that all adolescents whose parents go through divorce will develop depression was replaced with a statement comparing the likelihood of athletes and non-athletes to seek help for depression. Participating coaches were asked to list symptoms of depression. In addition, coaches were asked to describe how they dealt with a depressed athlete most recently and to estimate the percentage of the athletes they have coached who have struggled with depression.

In order to determine coaches' level of interest in continuing education, a 4-point Likert scale ranging from 'no interest' to 'strong interest' was used. Coaches were also asked to indicate the two methods they would most prefer for receiving education. Lastly, demographic

information was collected, including gender and race/ethnicity, length of coaching experience, event specialty and certification completion. The complete instrument is available in online supplementary appendix A.

### Data analysis

One-way analyses of variance were performed using SPSS V.23 to determine whether differences on mean depression questionnaire scores existed between event specialties, gender, coaching title (head vs assistant), certification completion and length of coaching career. An alpha level of 0.05 was used to determine significance.

$\chi^2$  tests of independence were run in order to determine whether a relationship exists between the level of interest in continuing education and coach gender, length of college coaching experience, event specialty, coaching title (head vs assistant) and certification ownership. Alpha level was set to 0.05 a priori. Responses to an open-ended question asking coaches how they responded to an athlete with depression were coded, and themes were identified and organised into emergent categories. On initial independent analysis, the comparison revealed a per cent agreement of 97.4% and an adjusted Scott's Pi of 0.936, which is above the generally accepted level for intercoder reliability.

## RESULTS

### Demographics

The sample consisted of 253 participants, of whom 56 (25%) identified themselves as female and 170 (75%) as male. All participants were current cross-country and/or track coaches at an NCAA Division I university. With regard to ethnicity, 179 (78%) (n=179) self-identified as white, 35 (15%) as black and 7 (3%) as Hispanic or Latino. The remaining 4% of respondents fell into another category of race and ethnicity. Four individuals selected one or more races. These sample demographics are fairly representative of the population, as each of the sample percentages fall within 10% of the Division I track coach gender and race statistics for women's teams and within 15% for men's teams.<sup>42</sup> For complete demographic information of respondents, see [table 1](#).

The mean percentage of correct answers on the depression questionnaire portion of the survey was 83% (see [table 2](#)). The lowest score was 50%, while the highest score (achieved by 24 (10%) of the coaches) was 100%. The majority (>50%) of coaches answered 10 of the 12 statements correctly. Two of the statements—'the prevalence of depression is equal among men and women' and 'Major Depression is a curable medical illness'—were correctly identified as false by less than 45% of respondents.

Common themes identified in how coaches have responded to an athlete struggling with depression are included in [table 3](#). These themes include meeting one-on-one with the athlete (39%) and referring the athlete to campus resources (33%). Only 4% (n=9) mentioned adapting their athletes' training plan.

**Table 1** Demographic information of participating coaches

	%	n
<b>Sex</b>		
Male	74	170
Female	26	59
<b>Age (year)</b>		
20–29	21	45
30–39	35	76
40–49	26	58
50–59	18	40
<b>Race</b>		
American Indian/Alaskan Native	1	3
Asian	1	3
Black, non-Hispanic	15	35
Hispanic/Latino	3	7
White, non-Hispanic	78	179
Native Hawaiian/Pacific Islander	1	2
Other	3	6
<b>Former cross-country or track participation?</b>		
Yes	99	251
No	1	2
<b>Former college student-athlete</b>		
Yes	91	230
No	9	23
<b>Coaching title</b>		
Head coach	33	82
Assistant coach	53	134
Other	14	35
<b>Event specialty</b>		
Cross-country/mid-distance/distance	44.5	110
Jumps	16	39
Sprints/hurdles	25.5	63
Throws	14	35
<b>Years of college coaching experience</b>		
0–5	22	54
6–10	24	59
11–19	29	73
20+	25	63

Mean years coaching=14, SD=10.4.

Coaches estimated that 11% of the athletes they currently coach or have coached in the past have suffered from depression, which falls below reported rates in previous research.

The vast majority of coaches (98%) indicated slight to moderate interest in receiving continuing education on at least one topic, and 64% indicated a strong interest in continuing education on at least one topic (see [table 4](#)).

**Table 2** Coach performance on depression questionnaire

	Correct		Incorrect	
	%	n	%	n
As many as 1 in 4 collegiate student-athletes suffers from depression during college. (T)	91	217	9	21
Depression runs in some families. (T)	97	232	3	8
Depression can be controlled through willpower. (F)	86	203	15	34
The prevalence of depression is equal among men and women. (F)	45	107	55	130
A change in behaviour is a symptom of depression. (T)	78	185	22	52
Injury increases a student-athlete's risk of depression. (T)	98	234	2	4
Major depression is a treatable medical illness. (T)	92	218	8	19
A person with depression always feels sad. (F)	99	236	1	3
The abuse of drugs and alcohol can be a sign of depression. (T)	98	234	2	4
Major depression is a curable medical illness. (F)	42	98	58	137
Depression increases a student-athlete's risk of injury. (T)	92	219	8	19
Student-athletes are less likely than their non-athlete peers to seek help for depression. (T)	79	187	21	49

Coaches answered a mean of ~10 of 12 questions correctly. T, true; F, false.

The topics that received the greatest interest were injury prevention (60% strong interest) and nutrition (59% strong interest). Just over half of coaches (52%) indicated strong interest in mental health education. Coaches indicated they would most prefer to receive the education via face-to-face instruction (27%) or video modules (24%) as listed in [table 5](#).

No significant differences in mean score on the depression questionnaire were observed between coaches of different genders, ages, years of coaching experience or certification history.

A significant difference in mean score between coaches specialising in distance/mid-distance/cross-country events and coaches of sprints/hurdles events ( $F(3,221)=3.54$ ,  $p=0.009$ ) was observed. Distance/mid-distance/cross-country coaches scored, on average, about six percentage points higher on the ADKQ than sprints/hurdles coaches. Interestingly, a significant difference  $\chi^2(18, N=235)=48.71$ ,  $p<0.001$  was observed in the mean scores of coaches based on how well they estimated they understand depression. Percentage of coaches who felt they understand depression only moderately well still achieved a perfect score on the depression questionnaire.

**Table 3** Coaches' response to student-athletes suffering from depression

	n	%
Meet/talk one-on-one	82	39
Provide information about campus resources	69	33
Encourage student-athlete to seek help	50	24
Alert member of medical staff (sports medicine, sports psychologist and athletic trainer)	43	21
Show support (gave my support, be there for him, here to talk and so on)	31	15
Listen	17	8
Follow-up or monitor	16	8
Alert other staff (faculty advisor, athletic dept. staff, head coach and so on)	13	6
Flexibility with student-athlete's training schedule	9	4
Share from personal experience	7	3
Remove stigma, normalise	7	3
Ask if they want to talk	6	3

n=209.

No significant differences in interest in continuing education topics or methods were observed based on age, gender, years of coaching experience or event specialty. However, a significant difference  $\chi^2(3, N=257)=13.07$ ,  $p=0.004$  was observed between coaches with differing numbers of certifications. Coaches with no certifications were significantly less likely to express interest in continuing education.

## DISCUSSION

Given the important role of coaches and the prevalence of depression among athletes, this study aimed to examine coaches' awareness of depression and their attitudes towards receiving continuing education. The study had two primary objectives. The first was to determine how well NCAA Division I cross-country and track and field coaches understand depression in the context of their sport. The second was to explore prevalent coaching attitudes towards continuing education and the overall topic of athlete well-being.

### Understanding of depression

The findings of this study indicate the participating coaches have a good knowledge of depression for individuals without formal education on the topic. The average score on the ADKQ was 83%, which demonstrates 'depression literacy' as defined by the Adolescent Depression Awareness Program.<sup>43</sup> This performance demonstrates these coaches have adequate knowledge of the symptoms and characteristics of depression.

When looking at the individual statements, the majority (>50%) of coaches identified 10 of the 12 true or false statements correctly. There were two statements



**Table 4** Interest level in continuing education topics

	None		Slight		Moderate		Strong	
	%	n	%	n	%	n	%	n
Injury prevention	3	6	5	12	32	74	60	140
Nutrition	3	7	7	16	31	72	59	137
Strength and conditioning	4	9	10	22	32	74	55	127
Legal considerations of coaching	9	20	25	57	39	89	28	65
Business/fundraising/entrepreneurship for athletics	18	41	29	68	29	68	23	54
Sports psychology	3	7	6	14	33	76	58	135
Mental health	3	6	12	27	34	79	52	120
Other	52	12	13	3	13	3	22	5

Other topics of interest included coaching/leadership (n=3), depression-related information (n=2), technique (n=1) and motor learning (n=1).

that were answered correctly only by the minority of coaches. Fifty-eight per cent of coaches identified the statement 'Major Depression is a curable medical illness' as true, when in fact it is false. According to ADAP, major depression is treatable, not curable.<sup>44</sup> Although the difference in wording is slight, it is an important one; it is important to understand that an athlete with depression may struggle with the illness for the rest of his or her life, if not given the proper treatment and attention to minimise the condition, or that it may 'flare up' when life circumstances change. Similarly, 55% of coaches incorrectly identified the statement that the prevalence of depression is equal between men and women as true, when it is false; studies in multiple countries all over the world have found women to be at a higher risk of depression than men.<sup>14 45-49</sup> It may be important, especially for coaches who work with both men's and women's teams, to know that their female athletes are more susceptible to depression.

Distance/cross-country coaches performed significantly better on the depression questionnaire than sprints/hurdles coaches. One possible explanation for this is that distance coaches have more previous experience with depressed athletes than sprints coaches, although there was not a significant difference in sprints coaches' and distance coaches' estimates of depression among their athletes. However, it could be that distance athletes are at a greater risk of depression than their

sprinter teammates. It is known that athletes who participate in sports that emphasise leanness are at a greater risk of developing an eating disorder,<sup>50-52</sup> which are often accompanied by depression.<sup>53 54</sup> While being lean is an advantage in both the sprint and distance events, there may be a greater emphasis on being light among distance athletes given that endurance is more important than explosive power in their events. Another potential reason distance athletes may be at a higher risk of depression is the racial/ethnic breakdown of those participating: a much greater percentage of collegiate cross-country runners (who often participate in distance track events) are white than are African-American, whereas the discrepancy between the two races is much smaller in track and field.<sup>38</sup> This is significant because whites have been found to be at a higher risk of depression than African-Americans.<sup>55</sup> If this explanation is in fact true, distance coaches may have had to deal with depression in their athletes more frequently than sprints coaches, which could help explain why distance coaches demonstrated significantly better scores on the depression questionnaire. Another explanation is that the culture of the sprinting events is different than that of distance events. Perhaps, 'being tough' (and thus failing to recognise depression as more than mental weakness) is embraced to a greater degree among sprinters and their coaches or conversely that mental disease is less taboo among distance runners and their coaches. Each of these potential explanations for the findings warrant future study.

An unexpected noteworthy finding from the study was the discrepancy between coaches' estimated rate of athlete depression and athlete reported rates found in previous studies. Across all sports, studies have found rates between 15.6% and 23.7%.<sup>13-15</sup> Wolanin *et al*<sup>14</sup> reported the rate of depression among track and field to be as high as 34%, three times higher than the 11% rate reported by coaches in this study. A potential hypothesis for this discrepancy between participants' estimates and previous research is that coaches may not realise how much their athletes are struggling with depression symptoms. If this is the case, then the problem may not be a

**Table 5** Preferred methods of receiving information

Preferred methods	%	n	%	n
	First choice	Second choice	First choice	Second choice
Video modules	29	67	25	57
Face-to-face instruction	29	67	16	37
Printed manual/book	14	33	30	67
Electronic manual/book	23	53	27	61
Other	4	8	1	3

Video modules were selected most for either first or second most preferred method.

lack of depression *knowledge* among coaches but rather a lack of depression *awareness*. It is likely much easier to take a 13-question test, with only two answer choices (and thus a 50% chance of being correct), than to actually identify symptoms in a living, breathing human being. This is supported by Mentink,<sup>35</sup> who found that coaches struggle to recognise when their players displayed signs of depression.

This hypothesis is supported by the finding that coaches in the sample found out an athlete was suffering from depression most often by the athlete self-reporting. Athletes may be reluctant to share symptoms with their coach because they are worried it will be perceived as mental weakness,<sup>36</sup> it will disrupt the relationship dynamic they have with their coach<sup>38</sup> or it will affect their training and/or athletic performance. Because of this, athletes may suffer in silence or turn to the department's sport psychologist, on campus counselling service, or their athletic trainer, each of whom may be obligated to keep their conversations confidential.

A lack of coach knowledge about their athlete's depression symptoms has important consequences. Athletes suffering from depression are at a greater risk of injury<sup>26–28</sup> because some of the chief symptoms of depression include fatigue, difficulty sleeping and loss of appetite, none of which provide athletes with a good foundation for intense training. Furthermore, athletes may be less likely to disclose their depression during peak competition periods, the time that they need help the most, as these parts of the season are often accompanied by stress over the pressure to perform.

In addition, it may also be beneficial for a coach to know his or her athlete has depression because it may change the way they need to relate to the athlete. For example, feelings of guilt and worthlessness are associated with depression.<sup>36</sup> Coaches who are aware of their athlete's depression may tailor their feedback after a training session to make sure it is not hypercritical, so that they are not unintentionally adding to the athlete's perceived lack of worth. Thus, it is important to work with both athletes and coaches to reduce the discomfort and stigma surrounding mental illness that is prevalent in our society.<sup>57</sup>

### Continuing education

Coaches indicated a strong interest in continuing education. Seventy-seven per cent specified a strong interest in at least one topic, with the two highest preferred methods of receiving education being video modules (27%) and face-to-face instruction (24%) with topics with the highest degree of strong interest being injury prevention (60%), nutrition (59%) and sport psychology (58%). A lack of opportunity for education was implied by the results: 16% of coaches said they had no training regarding depression, yet 98% of coaches expressed a slight interest or greater in mental health and 52% of coaches expressed a strong interest in receiving education on mental health. Considering that 74% of coaches

already hold or are currently pursuing certification, it does not seem likely that the discrepancy between desire for education and actually receiving education is due to lack of coaches' ambition or follow-through. This discrepancy indicates that there may not be enough opportunity for education or there may be barriers preventing them from taking advantage of educational opportunities. Future research should explore what barriers for educational opportunities exist.

### CONCLUSION

The survey revealed the prevalence of depression reported by coaches was below that expected based on previous research; therefore, coaches may need assistance in recognising the signs and symptoms of depression in their athletes. Supporting this conclusion, a strong, unmet interest in receiving continuing education in topics such as mental health was uncovered through the study. The significant underestimation of athlete depression given by coaches highlights a need for more collaboration and communication between coaches and athletic department medical staff and between coaches and athletes—and perhaps a culture change—in order to best keep athletes healthy and safe.

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