

General

Prevalence of stress amongst high school athletes (v2)

Tavish Ward, Thor Stead, Rohan Mangal, Latha Ganti^a

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Objective

This study sought to 1) ascertain the severity of the stress experienced by high school athletes due to playing a sport, 2) understand how these athletes deal with their stress, and if these athletes desire help from someone and 3) determine whether athletes consider their stress a debilitating factor.

Methods

200 high school athletes between the ages of 16 and 17 were surveyed using an anonymous online survey platform to discover the relationship between stress and sports. The survey examined both male and female athletes from a variety of sports, different locations, and different ethnicities.

Results

Approximately 91% of all the cohort experienced some level of stress due to sports. Interestingly, about a third claimed stress positively affected performance. Fear of failure and self-pressure were the most common causes of stress. About 27% who were experiencing moderate to extreme stress wanted, but did not receive, help from a medical professional. However, of all the participants who experienced some level of stress, only 18% believed that receiving help from a medical professional would not be beneficial for them.

Conclusion

While it is easy to overlook and minimize the stress of a high school athlete, doing so may cause future problems such as anxiety and depression, both of which have been steadily increasing among that same population. It is important that, if needed, these athletes have access to medical professionals to adequately manage their stress.

INTRODUCTION

Approximately 57% of all high school students participate in one or more sports.¹ Some of the more prevalent sports among student-athletes include track and field, football, and basketball. These sports require an intense amount of training and physical exertion. Studies have proven that there is a direct correlation between exercise and improved health.² Nevertheless, athletes seem to experience mental health problems more frequently than many people acknowledge. These mental health problems are often a result of factors such as stress. Stress is the body's response to pressure, and can be triggered by unexpected experiences or feeling overwhelmed. A limited amount of stress can be helpful, but an excessive amount can be a catalyst for ad-

verse psychological effects, such as depression and anxiety.³ Symptoms of unhealthy stress often present as increased heart rate, hyperventilation, sense of panic, sweating, and nausea.⁴ Stress doesn't only affect college and professional athletes, but is also impacting athletes in high school. Anxiety and depression have been steadily increasing among high school athletes for the last 10-15 years.⁵ Even worse, athletes often have trouble addressing their mental health difficulties, with a study revealing that only 10% of college athletes experiencing mental health problems try to receive help.⁶

^a Corresponding author:

Latha Ganti MD, latha.ganti@ucf.edu, 6850 Lake Nona Blvd, Orlando, FL, 32827, USA

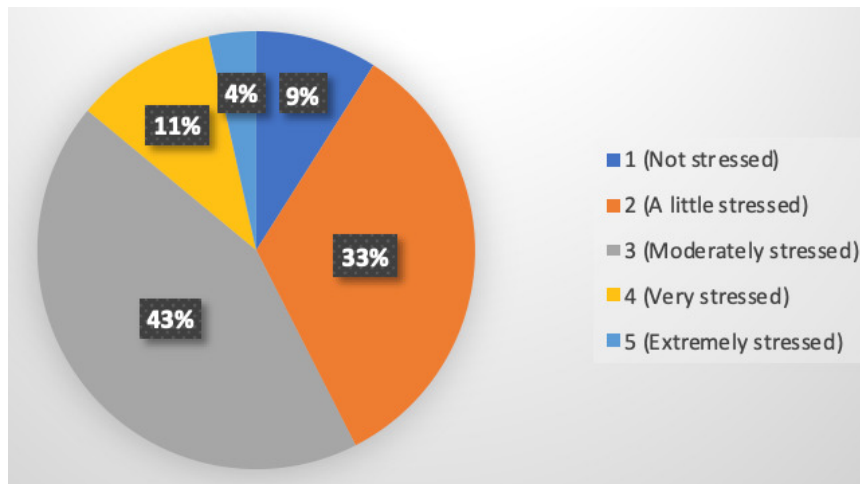


Figure 1. Stress level due to sports

METHODS

Two hundred domestic U.S high school athletes ages 16 and 17 were surveyed through a survey research platform that uses organic sampling built on Random Device Engagement. The use of artificial intelligence and algorithms prevents fraud from single users on multiple accounts and illogical or suspicious responses to specific questions. One screening question was used to establish survey eligibility. The question asked what extracurricular activities the cohorts participated in, and they were only accepted into the survey if sports was selected. The survey consisted of 10 multiple-choice questions. For certain questions, multiple selections amongst the multiple choices were allowed, therefore percentage totals were often above 100%. The first question asked what sport the cohorts played, and the following questions were all related to athletes and their stress. Data was analyzed using JMP statistical software (Cary, North Carolina, USA). Weighting was used to match the univariate dissemination of gender, age, and geographic region. For comparing 2x2 contingency tables, chi-square tests were used. This study was issued an exempt determination (study #2022-585) by our institutional review board.

RESULTS

Approximately 91% of the cohort reported experiencing some level of stress due to playing a sport. Respondents rated their stress on a Likert scale from 1 to 5, with 1 being not stressed, and 5 being extremely stressed (Figure 1).

About a third of the cohort (34%) reported stress positively affecting performance, while around a quarter (25.5%) reported stress negatively affecting performance (Figure 2).

For the question: “Why do you think sports cause you stress?” several answers were permitted. Fear of failure (64%) and self-pressure (66.5%) were the most common causes of stress among the cohorts; 45% reported fearing judgment from others, 35% reported having impractical ex-

pectations of themselves, 34% reported coach pressure, and 21.5% reported parental pressure as being other factors that led to stress. Females were significantly more likely to experience stress due to fear of failure [$p=.0041$], parental pressure [$p=.01428$], impractical expectations of themselves [$p=.00596$], and fear of being judged by others [$p=.00714$].

The most common symptoms experienced by the cohort were an increased heart rate (49%), sweating (45.5%), and a sense of panic, doom, or dread (40%) (Figure 3).

For the question that asked about strategies to help with stress, several answers were permitted. Interestingly, 55% of respondents claimed that exercise was a strategy they used to help with stress caused by sports (Figure 4).

When asked who they would first approach to get help for their stress, an overwhelming 50% said they would first approach a friend, rather than a parent or a coach (Figure 5).

About a quarter of the respondents who did not already see a medical professional and experienced some level of stress due to sports desired help from a medical professional (Figure 6). Approximately 78% of respondents who were experiencing moderate to extreme stress did not receive help, and 27% of those same respondents wanted but did not receive help. Reasons for not receiving help, despite wanting it, were being unsure where to go (46%), fearing judgment from others (35% of respondents), lacking access (27%), financial difficulties (27%), and being embarrassed (14%).

Only 18% of respondents who experienced some level of stress reported they did not believe help would be beneficial to them (Figure 7).

DISCUSSION

Participating in a sport has always been one of the more prominent extracurricular activities for high school students. Often, these sports incorporate an intense amount of physical activity and exercise. It has been shown that exercise significantly improves mental health,² yet high school athletes’ anxiety has increased over the past 10-15 years.⁶

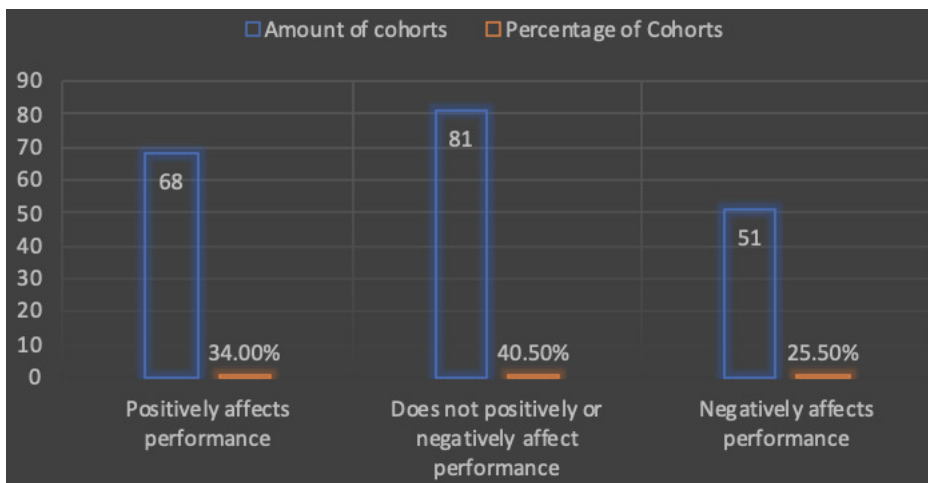


Figure 2. How stress affects performance

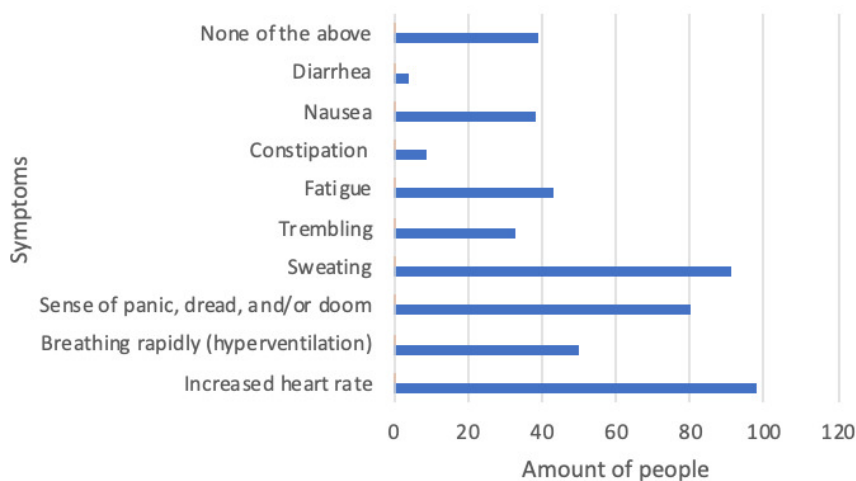


Figure 3. Symptoms caused by stress

This survey revealed that about 91% of high school athletes experienced some level of stress due to their sport, with 58% reporting a moderate to an extreme amount of stress.

There has been debate over how stress affects performance levels. One study proposed that the relationship between anxiety and performance is directly proportional, while another suggested that there is an optimal level of anxiety needed to achieve peak performance level.⁷ We found that athletes who rated their stress a two on the scale from one to five were most likely to report stress positively affecting performance. As stress got more severe, it was more likely for athletes to report a negative effect on their performance. Of those who reported being very or extremely stressed due to playing a sport, half reported that stress negatively affected their performance.

Exercise was the most common approach to dealing with stress among the cohort, which reinforces the idea that exercise is beneficial for mental health.² Interestingly, respondents who played physically challenging sports such as football, basketball, and soccer were also most likely to choose exercise. It would be interesting to know whether those athletes consider exercise during practices or games

to be a stress reliever, or if it's only exercise that's independent of their sport.

The majority of cohorts believed that if they were to go to someone for support, they would first approach an informal source (i.e friends and family), which is similar to other studies regarding this topic.⁸ Only 8% said they would first try to receive help from a medical professional. Friends and family have been shown to improve mental health through emotional support, and seeking help from them is often encouraged in mental health campaigns. However, sometimes these informal sources can also have a negative impact due to unhelpful interpretations, lack of knowledge, and occasionally criticism and ridicule. Informal sources may not be able to provide the adequate amount of help that a medical professional would be able to.⁸ This survey, however, found a lack of desire among high school athletes to seek a medical professional for help, even among those experiencing a considerable amount of stress. The most common reasons given among those who wanted help from a medical professional, but did not receive help, were being unsure where to go and fearing judgment from others. The former could be the result of a lack of knowledge or a lack of access,

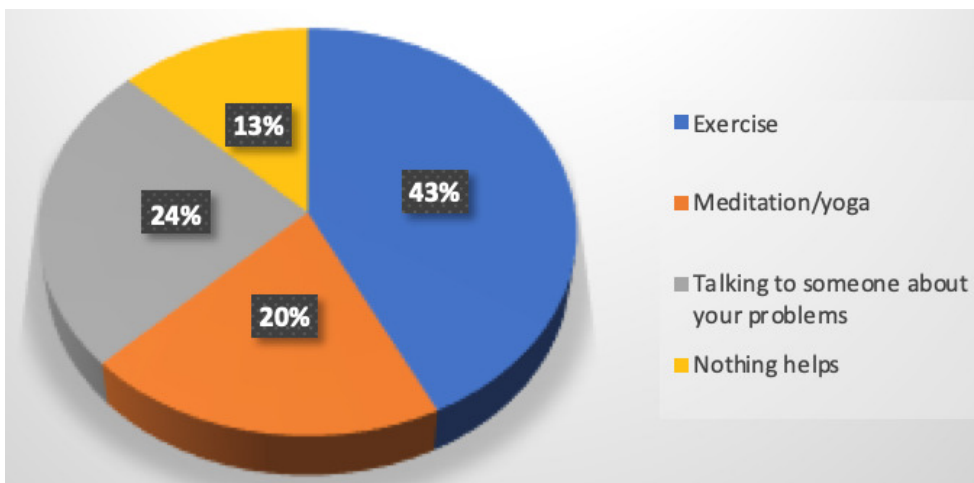


Figure 4. Strategies to help with stress

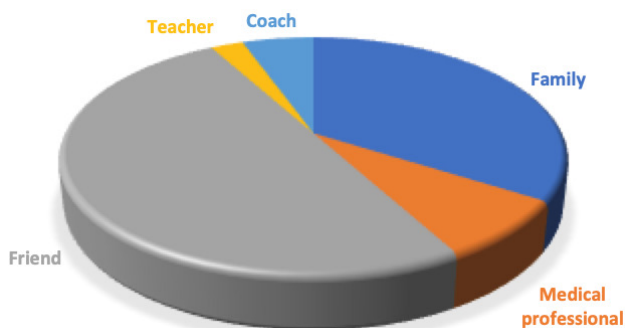


Figure 5. Whom athletes would want to receive help from

with many parts of the country being designated as Mental Health Professional shortage areas.⁹ The latter reveals that stigmas surrounding mental health problems are prevalent among teenagers in high school. However, while about 60% of cohorts who reported some level of stress did not want to see a medical professional, only about 18% said that receiving help from a medical professional would *not* be beneficial for them.

LIMITATIONS

The options for question five were restricted to four choices. Instead, this question should have either included more options for the cohorts to choose from, had an option that said “none of these”, or been a free-response. Question six should have also had a “none of the above” option. As with other survey studies, the robustness of the data is dependent on how sincerely respondents answered. The strength of our cross sectional survey was its geographic representation, weighting of responses, and sample size.

CONCLUSIONS

This study found that around 60% of all high school athletes experienced a moderate to an extreme level of stress due to their sport, and a quarter reported stress negatively affecting their performance. Sadly, many athletes wanted to receive help for their stress but did not because of unawareness regarding mental health facilities and stigmas surrounding mental health problems. While it is easy to overlook and minimize the stress of a high school athlete, doing so may cause future problems such as anxiety and depression, both of which have been steadily increasing among that same population. It is important that, if needed, these athletes have access to medical professionals to adequately manage their stress.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was conducted in accordance with the Declaration of Helsinki. This research with human subjects is deemed excluded from IRB oversight per 45CFR46.102(l). HCA Centralized Algorithms for Research. Rules on IRB Exemptions (CARRIE)/ IRB manager, issued study exemption # 2022-585. All methods were carried out in accordance with relevant guidelines and regulations.

CONSENT FOR PUBLICATION

Not applicable.

AVAILABILITY OF DATA AND MATERIALS

All data generated or analysed during this study are included in this published article

COMPETING INTERESTS

None of the authors have any competing interests

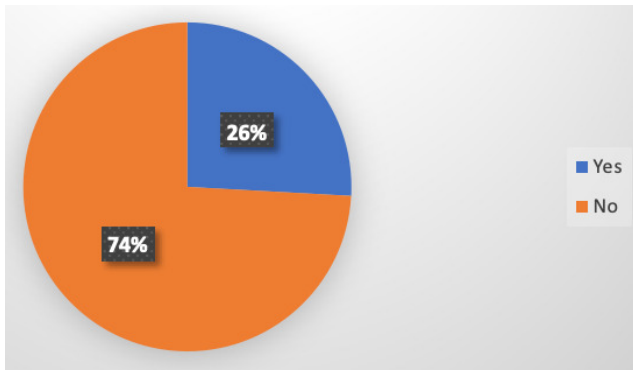


Figure 6. desire to obtain help from a medical professional

FUNDING

No funding was received for this work

AUTHOR CONTRIBUTIONS

TW and LG contributed to study concept and design; TW, TSS RKM and LG worked on the acquisition of data; TW, TSS and RKM contributed to analysis and interpretation of data; TW drafted the initial manuscripts and all authors provided critical revision of the manuscript for important

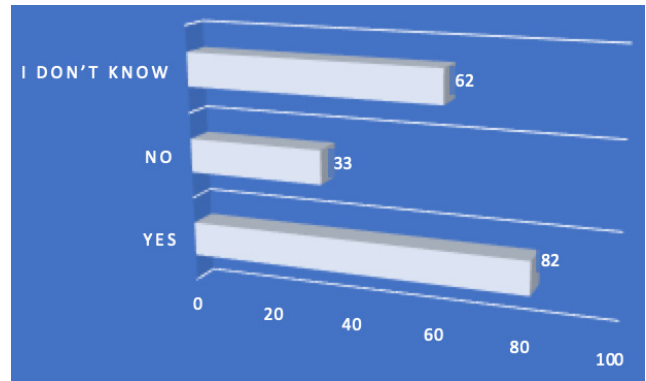


Figure 7. Would help be beneficial?

intellectual content; LG provided study supervision. The authors read and approved the final manuscript.

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