Prevalence of Clinical Depression Symptoms Within High-School Level Student Athletes Residing in East Tennessee

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Abstract

In order to determine whether sport participation has an effect on the amount of Clinical Depression symptoms exhibited by a participant, a comparison of Beck's Depression Inventory (BDI) scores of East Tennessee high school student athletes was compared to East Tennessee high schoolers that did not participate in a sport. Three groups were investigated for comparison purposes. Participants were gathered to answer the questionnaire through a convenience sample: Instagram and Snapchat Stories. After the data collection period was over, the participant's total levels of depression were calculated along with the mean BDI Score of each population. The mean scores of each group were compared in order to determine if Clinical Depression symptoms were more prominent across different groups. Group 1 had a mean BDI score of 16.87, while Group 2 had a mean BDI score of 15.06, and Group 3 had a mean BDI score of 12.36. Groups 1 and 2 fell under the same BDI scoring legend of "Borderline Clinical Depression" and Group 3 fell under "Mild Mood Disturbance". East Tennessee high schoolers show a greater amount of Clinical Depression symptoms than high schoolers that do not participate in a sport, allowing for the conclusion that participating in a sport increases the amount of Clinical Depression symptoms expressed.

Introduction

Student athletes are a highly praised population. They balance sport practices and games on top of coursework. They can receive scholarships and even pursue a career in these sports; however; collegiate level athletes have been found to exhibit high levels of depression and anxiety. Despite student-athletes receiving praise for appearing to balance sports and school on the outside, on the inside, student athletes may find themselves mentally deteriorating from depression (Daltry et al, 2021). This increase in collegiate level depression has also caused a growth in suicide rates. Athletes are raised with the mentality of "No pain, no gain," or a concept labeled as *mental toughness*, which ultimately deters student athletes from seeking mental help in an effort to not appear weak (Stamatis, 2020). Madison Holleran, a track student athlete that competed for Pennsylvania State University, found suicide more appealing than telling her coach that she was feeling overly-stressed and wanted to quit (Fagan, 2017). The concept of *mental toughness* is one that dictates how an athlete views themself. Mental toughness teaches that admitting pain is essentially the same as quitting; because of this, athletes have a difficult time distinguishing psychological pain in comparison to physical pain, often resulting in an ignorance of depression symptoms (Bird et al, 2020). The common stigma that is applied to individuals suffering from mental illnesses is larger for student athletes due to the concept of *mental toughness*. Athletes live with the fear that their teammates will be disappointed when they admit to suffering from depression symptoms and cannot bring themselves to practice (Oramas, 2021). Athletes specifically train to not accept loss, whether it be on the field, court, track, pool, classroom, or mind.

When looking at only the negatives of being a student-athlete, it would be easy for an outsider who is hoping to develop a healthier lifestyle to be deterred from starting a sport. They may prefer to stay stationary, thereby resulting in obesity and its negative mental and physical health implications, which may appear to be a more favorable option than succumbing to the pressure of sports, schooling. On the contrary, if student athletes were allowed extensions on their assignments in accordance with the time taken up by busy sport schedules, the pressure from coursework would lessen and student-athletes would be less likely to feel as much pressure, ultimately healing their mental health.

Previously, scholars have only investigated Clinical Depression within college students that do not participate in a sport, collegiate student athletes, or high schoolers regardless of sport participation. Never before has a researcher investigated the prevalence of Clinical Depression in student athlete high schoolers. The scholarly climate surrounding collegiate student athlete mental health has come to the common conclusion that being a student does have an effect on mental health, and it is negative.

This study's purpose is to determine if East Tennessee, seeing as it is an area that has not been extensively studied, high school student-athletes are more likely to showcase symptoms of Clinical Depression, according to the Beck Depression Inventory, compared to their peers who participate in more than 5 non-sport extracurricular hours weekly and those who spend less than 5 hours weekly on an extracurricular. This study is the first of its kind due to the fact that it focuses on the age group of high school student-athletes, one that contains no scholarly research in the first place; the study is limited to the East Tennessee area; the study additionally utilizes the Beck Depression Inventory, an instrument that is commonly used to unveil the existence of depression by measuring the amount of depressive symptoms present in a subject. All of these variables combine to make this study the first of its kind. The data for this study will be collected through a RedCap survey distributed to high schoolers attending school

in the East Tennessee area. The high school students will be exempted from the study if they have previously been previously diagnosed with Clinical Depression, seeing as this will skew data. Three groups will be studied, a group of student athletes and two groups of non-student athletes that vary depending on time spent on extracurriculars weekly.

LITERATURE REVIEW

In comparison to the general population, college athletes have been found to have a significantly high chance of showcasing symptoms of depression, anxiety, and suicidal thoughts or actions (Oramas 2021). In her TedTalk, Victoria Garrick, a former Division 1 college volleyball player, discusses her struggles that she faced as a college athlete. Garrick explains that student athletes are “supposed to be on top of everything”, and “physical injury is treated more serious than a psychological injury” (Garrick, 2017). Garrick’s speech highlights the external pressures put on a student athlete; they are meant to perform in sports and school, and coaches have a difficulty believing a psychological injury in comparison to a physical one. Additionally, a survey distributed by the NCAA found 30% of collegiate student athletes report feeling overwhelmed by anxiety or depression symptoms (Garrick, 2017). A survey created by Garrick was distributed to student athletes of multiple Division 1 colleges and discovered that 69% of student athletes attested to having experienced anxiety or depression and 90% felt as though they spent too much time on their chosen sport which led them to having higher stress levels. Sports are commonly described as a mental challenge in addition to being a physical challenge, and athletes’ motivation must come from within themselves (Oramas, 2021). When athletes lack self motivation their psychological needs are also negatively affected, as per Josefina E, Oramas’s peer reviewed article (Oramas, 2021). Low levels of self motivation cause athletes to be more susceptible to burnout, frustration, and exhaustion; thereby contributing to an athlete’s likelihood of developing depression (Oramas, 2021). Similar to Garrick’s findings, Rachel M. Daltry, a licensed psychologist, also discovered that student athletes’ lack of time highly contributes to prevalence of depression symptoms. Daltry additionally described collegiate student athletes as a “vulnerable population” that is not given enough attention due to their playing abilities and “privileged positions on campus” (Daltry et al, 2021). Symptoms of depression can be found within 33.2% of collegiate athletes; over 25% of female collegiate athletes struggle with an eating disorder, and almost 20% of male collegiate athletes are more vulnerable to an eating disorder (Daltry et al, 2021). These statistics show the negative effects that playing a sport has on all aspects of the mind. Despite the prevalence of mental disorders within collegiate athletes, 44.5% of athletes receive inadequate mental health education, thus the student athlete population is less likely to seek help for mental issues (Daltry et al, 2021). It is a common belief that exercise is associated with relatively good mental health, therefore individuals may doubt collegiate athletes’ struggle with mental illness despite being active for the majority of their time. A peer-reviewed study found that physically active college students had more stable mental health in comparison to their peers that participated in little physical activity; however, the studied population of college students consisted of all non-student athletes, hence a conclusion can be made that poor mental health of collegiate student athletes is attributed to external factors (Wang & Li, 2022). Each study and statistic presented applies only to collegiate athletes, not highschool level student athletes, leaving an expanse which the research of this paper is intended to fill.

Multiple studies suggest that the transitional period from highschool to college is emotionally taxing and heightens opportunities to create unhealthy behaviors such as: “high prevalence of smoking, sedentary behavior, binge drinking, substance use, and poor dietary habits" (Jao et al, 2019). Despite these findings, the pressure to apply and be accepted to a highly selective institution is astounding within highschool students (Redding, 2017). Shannon M. Suldo, a professor of school psychology, found through a dual factor model that academic performance has been identified as directly proportional to psychological distress, meaning that students who achieved high grades, also showed higher stress levels (Suldo, 2016). Bowman’s peer-reviewed study found that 20% of highschool students are likely to experience clinical depression by the time that they reach the age of 18 (Bowman, 2020). A major stressor for high school students is standardized tests that the majority of colleges require for acceptance, such as the ACT. The average ACT score accepted by colleges is a 24; however, the average ACT score for the class of 2022 in the United States was a 19.8 (Pitofsky, 2022; Muniz, 2022). A score difference of 4.2 is present, resulting in students having to put more effort forth in order to score above average on the ACT and therefore increasing the academic pressure placed on highschool students. While investigating the correlation between the effects of depression on student’s ability to flourish later in life, “Effects of Depression, Suicidal Ideation, and Gratitude on Flourishing of High School Students: A Moderated Mediation Model of Growth Mindset”, a peer-reviewed study found that depression and subjective well-being are negatively correlated while suicidal intent is positively correlated with depression and negatively correlated with happiness (Choi et al, 2022). The pressure that is placed upon high school students has been found to increase depression rates, therefore increasing the probality of a student commiting suicide. Suicide is the third leading cause of death within teenagers according to the CDC, so judging from the relationships derived from Suldo and Choi’s studies the conclusion that academic pressure leads to depression and suicide is supported.

In reviewing the existing research and understanding the poor mental health of collegiate level student athletes in addition to the declining mental health of non-athletic high school students due to academic pressure, there is a significant gap in current data surrounding the mental health of high school level student athletes. This gap raises the question: To what extent does being a student athlete high schooler affect the likelihood of expressing symptoms of Clinical Depression?

METHOD

This study investigates the prevalence of Clinical Depression symptoms within high school student athletes through a distribution of Beck’s Depression Inventory for the purpose of concluding if the trend of Clinical Depression within college student athletes and the high stress and pressure of performing well in high school -presented in the literature review- apply to high school student athletes. If high school student athletes are found to have a higher likelihood of Clinical Depression, then this study hopes to serve as a reference for teachers when assigning deadlines to their student athletes. Flexibility in deadlines will lower the stressors being placed on student athletes and diminish the prevalence of stress as a symptom of Clinical Depression in addition to making sport-playing more attractive to non-athletes.

A quantitative study was conducted through the distribution of an online survey in order to collect differing populations of high school students’ perceptions of their own feelings in regards to Clinical Depression symptoms. This study is not the first of its kind to utilize an online questionnaire in order to measure Clinical Depression symptoms, or one that uses the Beck’s

Depression Inventory; however, a study catered specifically to high school student athletes has not been configured as of yet.

Participants

For the purpose of discovering the likelihood of high school student athletes showing symptoms of Clinical Depression compared to their non-student athlete counterparts, three groups of participants -from East Tennessee high schools- will be questioned.
Group 1: Student athletes of a High school level that spend over 5 hours[1] on their sport weekly
Group 2: High school students which participate in an extracurricular that consumes greater than or equal to 5 hours weekly
Group 3: High school students with no extracurriculars or an extracurricular that does not consume more than 5 hours weekly.

Individuals with pre-diagnosed Clinical Depression were excluded from the study seeing as their Clinical Depression symptom scores would be higher and possibly skew data. When the questionnaire was distributed, each participant confirmed their belonging in a certain group through their agreement to the assent form. These assent forms are featured in the Appendices A,B, and C. Student athletes are the direct group being studied and the other two groups are present for the purpose of comparison, seeing as without a control group there would be no valid way to distinguish if sport participation has an effect on the amount of Clinical Depression symptoms expressed by a high school student. In order to avoid any unreliable results, Groups 1 and 2 were separated in order to account for the “lack of time” stressor that Groups 1 and 2 share. Additional external factors that a highschool student who spends more than 5 hours on an extracurricular weekly -for example a high school student working a part time job or in marching band- might experience could also contribute to Clinical Depression symptoms, hence the separation.

Instruments

The questionnaire which was distributed to participants consisted only of the Beck’s Depression Inventory, a pre-validated questionnaire approved for measurement of Clinical Depression Symptoms. The Beck’s Depression Inventory consists of 21 questions which ask the participant to answer on a scale of 0-3, 3 being most similar to a Clinical Depression symptoms and 0 being the least similar. After the 21 questions are answered, the “Levels of Depression” are added together to determine if a prevalence of Clinical Depression is present. The scores in relation to Clinical Depression are as follows: 1-10; these ups and downs are considered normal, 11-16; mild mood disturbance, 17-20; borderline clinical depression, 21-30; moderate depression 31-40; severe depression, and a score of over 40 is considered extreme depression (Beck, A.T., Steer, R.A., & Brown, G.K.,1996). However, to diminish psychological distress of participants, a question regarding suicidal intent was elimiated making the total number of questions 20 and the new scoring values: 1-7; these ups and downs are considered normal, 8-13; mild mood disturbance, 14-17; borderline clinical depression, 18-27; moderate depression 28-37; severe depression, and a score of over 37 is considered extreme depression. A value of three was subtracted from each score in order to compensate for the 0-3 score that the suicidal

[1] According to Fredrick’s study, the average time spent on extracurriculars by sophomores is 5 hours per week, but for the sake of this study, 5 extracurricular hours weekly will be applied to all grades.

intent question carried. The modified Beck's Depression Inventory and scoring legend can be found in the Appendices D and E as well. These values are not to be considered a formal diagnosis of Clinical Depression, but rather a prevalence of symptoms. The purpose of this study is to investigate the amount of Clinical Depression symptoms expressed by high school student athletes in comparison to high school students that do not participate in a sport, not to diagnose participants without the aid of a licensed psychologist.

Procedure

The questionnaire was created using a public four-year university's RedCap software. In order to protect participants' identities and confidentiality of answers, participants' anonymity was promised. A public four-year university's IRB approval was obtained to ensure that the rights of the participants were not infringed upon. Through IRB approval, a parental consent waiver was acquired and participants were only required to confirm that they agree to an assent form. Participants were made aware that their participation was voluntary and had the opportunity to exit the survey at any time without finishing the survey. The survey consisted of 20 questions answered on a 0-3 scale, following the Beck's Depression Inventory layout. Participants were asked to base their answers on the amount of Clinical Depression symptoms they felt during their sport's season (Group 1), during their extracurriculars (Group 2), and on an everyday basis (Group 3). These participants volunteered to answer the questionnaire through a convenience sample: an Instagram Story, Snapchat Story, and the reposting of. The questionnaire link was able to be accessed for 2 weeks after the first posting in order to allow for as much participation as possible. After the completion of data collection, the participant's score was calculated and added with other participant scores within the same group. The number found by this calculation was then divided by the number of participants within a group in order to find the mean BDI score. The mean scores of each group were compared in order to determine if Clinical Depression symptoms are affected by sport participation.

RESULTS

Demographics

This study accumulated a total of 101 responses from East Tennessee High School students; however, after incomplete responses were eliminated, 69 survey responses remained. The survey was produced and distributed using a public four-year university's RedCap server. Results were analyzed through exportation into a Google From. The number of responses per population are as follows: 41 (59.4%) responses were collected from Group 1, 18 (26.1%) responses were collected from Group 2, and 10 (14.5%) responses were collected from Group 3. A participant's belonging to each group was confirmed through agreement with the abiding assent form.

BDI Scores

The purpose of this study is to investigate if high school student athletes are at greater risk of Clinical Depression compared to non-student athletes and this was measured through the use of a modified Beck's Depression Inventory (BDI) -as mentioned previously, the modification of this scale was necessary in order to adjust the scoring legend to the omission of a question regarding suicidal intent, this question was omittied in order to protect participants, lower the possibility of psychological distress, and adhere to the ethical responsibilities of a researcher. The Beck's Depression Inventory is a pre-validated instrument used commonly by licensed professionals in order to identify possible depressive behaviors (I. E., Y., & T., J., 2020). The

purpose of the BDI scoring legend is to categorize takers into the Clinical Depression level that best fits the amount of depression symptoms exhibited, so in order to measure the prevalence of Clinical Depression symptoms of Groups 1, 2, and 3, the mean BDI score for each group was calculated. The relationship between symptoms of Clinical Depression and mean BDI score is as follows: the higher the mean BDI score, the higher the prevalence of Clinical Depression.

Table 1. *Significance of Depression Symptoms Within Varying East Tennessee High School Populations*

Groups	Mean BDI Score	Translation
Group 1	16.87	Borderline Clinical Depression
Group 2	15.06	Borderline Clinical Depression
Group 3	12.36	Mild Mood Disturbance

Questions followed the same structure as the BDI, meaning that questions were structured on a scale of 0-3. 3 carrying the highest prevalence of depressive symptoms in regard to a certain topic and 0 carrying the least. Out of 20 questions, the answer of 0-3 was recorded and added together to calculate the participant's overall BDI score. The mean BDI score for each group was calculated by adding up all of Group 1 participants' BDI scores and dividing by the total number of Group 1 participants, this process follows the general formula for calculating mean and was performed on Groups 2 and 3 as well. Judging by the BDI scores collected from each population, the student athlete group showed the greatest prevalence of Clinical Depression symptoms. While Group 1 and Group 2 both fell within the same group according to the modified BDI scoring legend, Group 1 had a greater average BDI score than that of Group 2. This study's purpose is to investigate the amount of Clinical Depression symptoms within East Tennessee high school student athletes, so regardless of the finding that both Group 1 and Group 2 fall within the same BDI scoring legend, the higher mean calculated in Group 1 attests that high school student athletes show a greater amount of Clinical Depression symptoms compared to high school students that do not participate in a sport. Out of the student athletes that were surveyed, 36.59% fell within the BDI guidelines as clinically depressed, 33.33% of high schoolers with more than 5 extracurricular hours qualified as clinically depressed, and 20.00% of students with less than 5 extracurricular hours/no extracurriculars were discovered to be depressed. These percentages provide the same insight that the calculated mean BDI scores do, high school student athletes as a group are a more depressed population compared to high schoolers that do not participate in a sport.

DISCUSSION

This study focuses on investigating the impact of being a high school student athlete on prevalence of Clinical Depression symptoms. Based on the results calculated from a comparison of the mean BDI scores from each group, East Tennessee high school student athletes are more likely to show a greater prevalence of Clinical Depression symptoms than their peers who do not participate in a sport. This means that sport participation does in fact have an effect on the amount of Clinical Depression symptoms expressed, and it is negative.

While this study is the first of its kind to investigate the prevalence of Clinical Depression and its symptoms within high school student athletes, the results are uncannily similar to the findings of multiple studies that investigated Clinical Depression and its relations to collegiate athletes.

In this study's literature review, Dr. Rachel M. Daltry's study was discussed. Daltry concluded through her study that 33.2% of collegiate athletes showed a significant amount of Clinical Depression symptoms, which is strikingly similar -a difference of only 3.39% is present- to the results of this study which uncovered that 36.59% of high school student athletes show a significant amount of Clinical Depression symptoms, or enough to qualify as clinically depressed, meaning that the participant's BDI score fell within Moderate, Severe, or Extreme Depression on the BDI scoring scale. While this study did not investigate possible reasoning for the high prevalence of Clinical Depression symptoms within high school student athletes, the similarities between college and high school student athletes allows for possible relations to be drawn from the depression inducing factors found within collegiate student athletes. The depression inducing factors found within collegiate student athletes from prior literature are as follows: lack of time (Garrick, 2017), burnout, frustration, and exhaustion (Oramas, 2021), and lack of mental health education (Daltry et al, 2021). However, none of these factors include the pressure to be accepted into a reputable college that was discussed in the literature review (Redding, 2017). Future research should be done in order to investigate if these factors affect the depression severity that is found in high school student athletes. Another factor that should be considered is the pressure and stress levels that collegiate and high school student athletes are under seeing as in Shannon M. Suldo's study discovered the psychological distress (stress) is directly correlated to Clinical Depression. If the stress levels within high school student athletes were to be measured, this could provide future insight and instruction to combat the factors negatively influencing a student athlete's mental health. This study stayed true to its purpose of uncovering the prevalence of Clinical Depression symptoms in high school student athletes by only focusing on the extracurricular status of participants, so the use of demographic questions was irrelevant to this study. Participants confirmed that they attended high school in East Tennessee through agreeing to the assent form. Seeing as this study is the first of its kind, the replication of this study should be completed in different locations in order to provide further evidence for correlation. Certain sports are more popular in different areas of the United States: hockey is more popular in the North than in the South. The extra emphasis on a certain sport could lead to Additionally, adding demographic questions will provide evidence that can be used to further investigate prevalence of Clinical Depression symptoms in high school student athletes of a specific race, gender, sexuality, or grade in high school. While this study's results prove that high school student athletes show the greatest amount of Clinical Depression symptoms compared to high schoolers that do not participate in a sport and align closely with the findings of studies on collegiate athletes; however, there is still room for future research in the areas of location, demographic questions, and possible reasoning for severity of depression levels.

IMPLICATIONS

The hope of this study is to inform teachers and coaches of the pressure that high school student athletes are under and to urge them to adjust accordingly in order to best protect the mental health of these athletes. This protection can be accomplished through providing extended deadlines and being more flexible. If extended deadlines were provided to student athletes, this would in turn encourage more teenagers to begin participating in sports. A rise in

sports participation would allow for healthy habits to reach more high schoolers. Childhood obesity has tripled since the 1970s and only continues to rise each year (Cînpeanu, O.-C., Sălcudean-Czinege, M., & Tarcea, M., (2019). Childhood obesity has become so severe in the United States that it has been termed a "pandemic" (Ruskin, P., & Sangeetha, S., 2019). As per the Mayo Clinic, obesity can lead to further complications in life such as: heart disease and strokes, type 2 diabetes, certain cancers (uterus, cervix, endometrium, ovary, breast, colon, rectum, esophagus, liver, gallbladder, pancreas, kidney and prostate), digestive problems, sleep apnea, and osteoarthritis (Mayo Clinic Staff, 2021). Making sport participation appear more desirable would aid in deterring high schoolers from developing a sedentary lifestyle and the negative health effects that follow obesity; these high schoolers would instead be building healthier, more active habits by playing sports. If high school sports coaches were to accept the results of this study, the discontinuation of ideals such as mental toughness, the idea of no pain no gain, would follow. Due to concepts such as mental toughness, collegiate student athletes have been found to be less likely to seek mental help (Daltry et al, 2021). Collegiate athletes specifically struggle with identifying mental issues seeing as they are more difficult to identify than physical pain (Garrick, 2017). If coaches were to fully acknowledge mental pain in addition to physical pain, Clinical Depression levels within all student athletes would decrease.

Overall, the acceptance of the results of this study aim to raise the awareness of high school student athletes' fragile mental health and high stress situations that they are under. In order to lower the prevalence of Clinical Depression symptoms in high school student athletes, efforts should be made to lessen the workload of and stigma surrounding mental health within student athletes. Increasing the desirability of being a high school student athlete will aid in preventing obesity and the illnesses that follow.

Limitations

Length of assent form and number of participants: these are limitations present within this study. The assent form that required for the button *I AGREE* to be clicked before advancement to the survey totaled in 329 words, essentially 1 ½ pages when doubled spaced on a computer screen. All data included on the assent form was required in order to attain a public four-year university in East Tennessee's IRB approval. The hypothesized medium that was used to complete the survey is by cell phone, seeing as the survey was distributed through social media, which is primarily used on a cell phone. The previously mentioned amount of words is likely to have appeared clustered on a small phone screen, possibly deterring potential participants or causing participants to not fully read and comprehend the assent form. This is a possible reason for the 32 uncompleted responses and it puts participants at further psychological risk seeing as they may be uncomfortable with questions present in the survey, but unaware because the assent form was not read due to its length. The second limitation present in the study is the number of participants. A total of 69 responses were used to calculate the results of this study, which is not a valid representation of all East Tennessee high school students. The replication of this study on a larger population would increase this study's credibility. Despite these limitations, the results of this study are still profound seeing as it provides valuable information on the fragile mental health of student athletes.

CONCLUSION

This study is the first of its kind to investigate the correlation between exhibiting symptoms of Clinical Depression and being a high school student athlete. After analysis, the

data collected from the distributed surveys provide evidence to discern that student athletes showcase more symptoms of Clinical Depression compared to high schoolers that do not participate in a sport. These results agree with the results of prior studies conducted on collegiate student athletes, both showing student athletes as a population containing a statistically significant depressed population. Acceptance of this study's results may result in the lowering of psychological pressures placed upon student athletes by their coaches and teachers. This study should be built upon in future research by including demographic questions, completing the study in different locations, and collecting greater responses for analysis.

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Appendix A

Group 1 Assent:
Hello Participant!
The survey you are about to take will ask potentially triggering questions relating to:

- Body and self image
- Weight and eating habits
- Depressive behaviors

If any of these subjects are triggering or will make you uncomfortable, you are of **NO** obligation to take this online survey. This survey will be taken at your own risk. Please know that you can exit the survey at any time with no penalties. You will not be allowed to skip questions, as it will affect the overall score and result in untrue data being collected. If you come across a question that makes you uncomfortable, simply exit the survey.

If you are comfortable with the topics mentioned above and plan to participate in this survey, please ensure that you fall within the following criteria:

- High School student-athlete that spends more than 5 hours per week on their sport (including practices, games/matches/meets, and travel time)
- Not previously diagnosed with Clinical Depression
- Attending High School in East Tennessee
- Currently present in the United States
- Your parent consented to your participation
- You have read and understand the above information

If you fall within this criteria you are fit to participate! If you are not currently in your sports season, please answer the questions based on how you felt during the sports season to the best of your ability.
By clicking I AGREE you are confirming that you belong to the population stated above and are willing to participate in the survey

- ☐ I AGREE

Appendix B

Group 2 Assent:
Hello Participant!
The survey you are about to take will ask potentially triggering questions relating to:

- Body and self image
- Weight and eating habits
- Depressive behaviors

If any of these subjects are triggering or will make you uncomfortable, you are of **NO** obligation to take this online survey. This survey will be taken at your own risk. Please know that you can exit the survey at any time with no penalties. You will not be allowed to skip questions, as it will affect the overall score and result in untrue data being collected. If you come across a question that makes you uncomfortable, simply exit the survey.

If you are comfortable with the topics mentioned above and plan to participate in this survey, please ensure that you fall within the following criteria:

- High School student that spends more than 5 hours per week on their extracurricular that is not a sport
- Not previously diagnosed with Clinical Depression
- Attending High School in East Tennessee
- Currently present in the United States
- Your parent consented to your participation
- You have read and understand the above information

If you fall within this criteria you are fit to participate! If you are not currently participating in your extracurricular at the moment, please answer the questions based on how you felt during the extracurricular to the best of your ability.
By clicking I AGREE you are confirming that you belong to the population stated above and are willing to participate in the survey

- ☐ I AGREE

Appendix C

Group 3 Assent:
Hello Participant!
The survey you are about to take will ask potentially triggering questions relating to:

- Body and self image
- Weight and eating habits
- Depressive behaviors

If any of these subjects are triggering or will make you uncomfortable, you are of **NO** obligation to take this online survey. This survey will be taken at your own risk. Please know that you can exit the survey at any time with no penalties. You will not be allowed to skip questions, as it will affect the overall score and result in untrue data being collected. If you come across a question that makes you uncomfortable, simply exit the survey.

If you are comfortable with the topics mentioned above and plan to participate in this survey, please ensure that you fall within the following criteria:

- High School student that spends less than 5 hours per week on their extracurricular that is not a sport/has no extracurriculars
- Not previously diagnosed with Clinical Depression
- Attending High School in East Tennessee
- Currently present in the United States
- Your parent consented to your participation
- You have read and understand the above information

If you fall within this criteria you are fit to participate! If you are not currently participating in your extracurricular at the moment, please answer the questions based on how you felt during the extracurricular to the best of your ability.
By clicking I AGREE you are confirming that you belong to the population stated above and are willing to participate in the survey

- ☐ I AGREE

Appendix D

Modified Beck's Depression Inventory Questions

1.
    0 I do not feel sad.
    1 I feel sad
    2 I am sad all the time and I can't snap out of it.
    3 I am so sad and unhappy that I can't stand it.
2.
    0 I am not particularly discouraged about the future.
    1 I feel discouraged about the future.
    2 I feel I have nothing to look forward to.
    3 I feel the future is hopeless and that things cannot improve.
3.
    0 I do not feel like a failure.
    1 I feel I have failed more than the average person.
    2 As I look back on my life, all I can see is a lot of failures.
    3 I feel I am a complete failure as a person.
4.
    0 I get as much satisfaction out of things as I used to.
    1 I don't enjoy things the way I used to.
    2 I don't get real satisfaction out of anything anymore.
    3 I am dissatisfied or bored with everything.
5.
    0 I don't feel particularly guilty
    1 I feel guilty a good part of the time.
    2 I feel quite guilty most of the time.
    3 I feel guilty all of the time.
6.
    0 I don't feel I am being punished.
    1 I feel I may be punished.
    2 I expect to be punished.
    3 I feel I am being punished.
7.
    0 I don't feel disappointed in myself.
    1 I am disappointed in myself.
    2 I am disgusted with myself.
    3 I hate myself.
8.
    0 I don't feel I am any worse than anybody else.
    1 I am critical of myself for my weaknesses or mistakes.
    2 I blame myself all the time for my faults.
    3 I blame myself for everything bad that happens.
9.
    0 I don't cry any more than usual.
    1 I cry more now than I used to.
    2 I cry all the time now.

3 I used to be able to cry, but now I can't cry even though I want to.

10.

0 I am no more irritated by things than I ever was.
1 I am slightly more irritated now than usual.
2 I am quite annoyed or irritated a good deal of the time.
3 I feel irritated all the time.

11.

0 I have not lost interest in other people.
1 I am less interested in other people than I used to be.
2 I have lost most of my interest in other people.
3 I have lost all of my interest in other people.

12.

0 I make decisions about as well as I ever could.
1 I put off making decisions more than I used to.
2 I have greater difficulty in making decisions more than I used to.
3 I can't make decisions at all anymore.

13.

0 I don't feel that I look any worse than I used to.
1 I am worried that I am looking old or unattractive.
2 I feel there are permanent changes in my appearance that make me look unattractive
3 I believe that I look ugly.

14.

0 I can work about as well as before.
1 It takes an extra effort to get started at doing something.
2 I have to push myself very hard to do anything.
3 I can't do any work at all.

15.

0 I can sleep as well as usual.
1 I don't sleep as well as I used to.
2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3 I wake up several hours earlier than I used to and cannot get back to sleep.

16.

0 I don't get more tired than usual.
1 I get tired more easily than I used to.
2 I get tired from doing almost anything.
3 I am too tired to do anything.

17.

0 My appetite is no worse than usual.
1 My appetite is not as good as it used to be.
2 My appetite is much worse now.
3 I have no appetite at all anymore.

18.

0 I haven't lost much weight, if any, lately.
1 I have lost more than five pounds.
2 I have lost more than ten pounds.
3 I have lost more than fifteen pounds.

19.
0 I am no more worried about my health than usual.
1 I am worried about physical problems like aches, pains, upset stomach, or constipation.
2 I am very worried about physical problems and it's hard to think of much else.
3 I am so worried about my physical problems that I cannot think of anything else.

20.
0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I have almost no interest in sex.
3 I have lost interest in sex completely.

Derived from Beck's Depression Inventory (Beck et al, 1996)

Appendix E

Updated scoring legend:

1-7: These ups and downs are considered normal
8-13: Mild mood disturbance
14-17: Borderline clinical depression
18-27: Moderate depression
28-37: Severe depression
over 37: Extreme depression