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IRRATIONAL BELIEFS AMONG COMPETITIVE HIGH SCHOOL STUDENT ATHLETES: ARE THEY GENERAL OR CONTEXT-DRIVEN?

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IRRATIONAL BELIEFS AMONG COMPETITIVE HIGH SCHOOL STUDENT ATHLETES: ARE THEY GENERAL OR CONTEXT-DRIVEN?

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ABSTRACT

IRRATIONAL BELIEFS AMONG COMPETITIVE HIGH SCHOOL STUDENT ATHLETES: ARE THEY GENERAL OR CONTEXT-DRIVEN?

Kathleen Everson

While student-athletes strive for high performance both athletically and academically, and there are a number of variables that can predict performance, understanding the role of unhealthy or irrational patterns of thinking or beliefs as it relates to objective measures of performance has not been readily studied (Turner & Barker, 2013) and even less so among youth. This research examined if irrational beliefs that are context specific to performance settings (academic vs. athletic) are more predictive of academic and athletic performance than those more general irrational beliefs among 30 high-school student athlete basketball players. While both general and context-specific irrational beliefs were predictive of athletic performance as measured by performance analysis from game video footage and academic performance as measured by Grade Point Average (GPA), there were no differences in terms of their predictive ability. Implications for researchers and practitioners are provided to guide the scholarly research and applied implications regarding the role of specific beliefs as it relates to performance with this population.

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Chapter I

Literature Review

Clinical Issues among Student-Athletes

Athletes are vulnerable to experiencing a mental illness due to contextual demands of their sport (i.e., large time commitments, level of high effort, heavy exertion of energy) and athlete burnout due to overtraining (Hughes & Leavey, 2012). Some athletes experience a loss of autonomy and disempowerment as symptoms of burnout, which has been found to be strongly correlated with affective disorders, such as depression (Cresswell & Eklund, 2007). Further, contextual factors of being an athlete such as, experiencing injuries, overtraining, excessive stress and competitive failure can also increase the risk of affective disorders (Frank et al., 2015). In a study working with 465 National Collegiate Athletic Association (NCAA) student-athletes, the authors reported that the prevalence rate for clinically elevated levels of depressive symptoms was approximately 24% with females having a higher prevalence rate of about 1.8 times the risk (Wolanin et al., 2016).

While the aforementioned research focuses on collegiate athletes, many secondary school student-athletes have also reported higher levels of negative affect than non-student-athlete adolescents (Neal et al., 2015). According to Neal et al. (2105), secondary-school student-athletes have been "identified as having higher incidence rates for sleep disturbances, loss of appetites, mood disturbances, short tempers, decreased interest in training and competition, decreased self-confidence and inability to concentrate" (p. 235).

Student-athletes face dual demands of academic and athletic responsibilities. Secondary-school student-athletes may experience pressures to win (games, competitions, athletic scholarships) and often adopt professional training methods to ensure winning outcomes, which may lead to overtraining (Neal et al., 2015). Many secondary-school student-athletes compete year-round, often with multiple teams (i.e., travel team, school team) and train and compete with each of their respective teams' multiple times per week (Neal et al., 2015). Secondary-school student-athletes face a multitude of stressors ranging from physical (i.e., injuries, physical conditioning), mental (i.e., meeting coaches' expectations, attention from fellow students, time commitment, game strategy, community-service requirements, less personal and family time) and academic (i.e., classes, study time, papers, exams, attaining and maintaining required grade point average to remain on the team, earning and maintaining a collegiate or academic scholarship) (Neal et al., 2015).

Time spent on athletics can take away time from academics which can affect academic performance. A California high school reported many students miss class time at the end of the day during sixth and seventh period due to athletic commitments (Zou & Zou, 2018). The impact of missed classroom time on student stress and academic burnout cannot be understated. As a result of missed classroom time, students may have difficulties completing missed classwork and difficulties re-scheduling exams and assignments, especially when student-athletes already have large time-commitments, it can be difficult to find time to re-schedule missed work into their packed daily schedules (Jolly, 2008). However, academic achievement is stressed at the high-school level. The NCAA has set specific academic guidelines for high school student-athletes who want to

compete in their sport in college. For high school students who want to compete at the highest level of collegiate athletics, the Division I level, the NCAA requires:

> "Completion of 16 core courses: four years of English, three years of math (Algebra 1 or higher), two years of natural/physical science (including one year of lab), one additional year of English, Mathematics or natural/physical Science, two year of Social Science, four additional years of English, Math, natural/physical Science, Social Science, Foreign Language, comparative Religion or Philosophy. Complete 10 core courses including seven in English, Math, or natural/physical Science before your seventh semester. Once you begin your seventh semester, you may not repeat or replace any of those 10 courses to improve your core-courses GPA. Earn at least 2.3 GPA in core courses. Earn an SAT combined score or AC sum score matching your core-course GPA on the Division I sliding scale, which balances test score and core-course GPA" (NCAA, 2020).

While the NCAA provides those criteria for participation in Division 1 athletics, many high-school student-athletes will not continue to compete in their sport after high school at the Division I level. However, academic performance is stressed at the secondary-school level as well. Many high schools have enforced academic eligibility standards to ensure academic achievement in their student-athletes (Lumpkin & Favor, 2012). In 2008, 48 state athletic associations recommended academic eligibility requirements for high-school student-athletes ranging from requirements of being enrolled in a minimum number of classes, passing each class, a minimum grade-point average and an attendance policy (Bukowski). Student-athletes face a multitude of

stressors including athletic and academic responsibilities and can be susceptible to experiencing a mental illness, which stresses the importance of understanding and evaluating such a niche population. Understanding what variables predict which student-athletes may experience stress and then provide preventative or supportive services may be very important to their overall well-being.

Theory and Practice of REBT

Given the mentioned mental health challenges experienced by many student-athletes, it is important to consider what student factors may contribute to the experience of stress and other affective conditions that may impact academic and athletic performance. While there are a number of external factors (i.e., athletic demands, academic demands etc.) to the student that can be considered to be contributors to experienced stress of student-athletes (Frank et al., 2015), it may be important to consider internal factors. One internal factor that may be important to consider are the types of thoughts or beliefs that a student-athlete engages in which may lead to stress. Consideration of theories of development of emotional states serve as the basis of a number of effective clinical interventions that will be described below.

Rational Emotive Behavior Therapy (REBT) is a psychotherapeutic technique that is considered to be one of the original forms of Cognitive Behavior Therapy (CBT) (DiGiuseppe & Doyle, 2019). REBT was developed by Dr. Albert Ellis, on the premise that individuals hold certain beliefs in life adversities (e.g., relation to failure, rejection, and poor treatment) that will then mediate his/her perception of events which in turn subsequently influences his/her emotional and behavioral responses (Ellis & Dryden,

1997). That is, the way that one thinks about a situation may impact how they feel and how they respond/behave to the situation.

The theoretical model of REBT is based on the premise that individuals possess two types of beliefs: irrational beliefs and rational ones. The irrational beliefs are considered to be rigid and extreme thoughts which invoke dysfunctional, maladaptive emotions such as anxiety, depression, anger and/or guilt. Alternatively, rational beliefs are considered to be flexible, non-extreme beliefs that invoke healthy, functional, adaptive emotions such as concern, sadness, frustration, and regret (DiGiuseppe et al., 2014; Turner, 2016). The main idea of the theory, and as a result the clinical approach, is that these beliefs drive our emotions and behaviors.

The model of REBT may be best explained through an ABC framework as when one has to face an activating event, which may be a type of adversity (A), we have beliefs about the event (B) which then direct our emotional and behavioral responses, which are considered to be a consequence of our beliefs (C) (Davis & Turner, 2019). Clinically, the primary focus of change within REBT are the irrational beliefs that lead to unhealthy/maladaptive (emotional and/or behavioral) reactivity. The clinical model of REBT focuses on four main irrational beliefs to target for change: demandingness, awfulizing, frustration tolerance and global evaluations of human worth of self-and/or others (DiGiuseppe & Doyle, 2019). Each of the different beliefs are briefly discussed below and linked to athletic performance.

Demandingness is considered to be reflective of "unrealistic and absolute expectations of events or individuals" (DiGiuseppe et. al., 2014). Alternative language used that reflects demandingness may involve rigidly held ideas like: have to, need, or

should. An example of the irrational belief of demandingness would be when a student-athlete forms a rigidly held demand based on the belief: "I *have* to succeed/ I *need* to do well." According to REBT theory, this demanding belief (B) may lead the athlete to feeling anxious (emotional C) and behaviorally impact their performance perhaps by missing a shot (behavioral C). Clinically, in REBT the belief would be targeted for change as it is not the activating event (sporting event/competition) that *caused* the student-athlete to become anxious, but rather the irrational belief which may lead the student to experience anxiety which in turn would affect their behaviors (Turner & Barker, 2014).

Awfulizing, frustration intolerance and global evaluations of human worth also are proposed to have an impact affectively and behaviorally on student-athletes. The concept of awfulizing is when one believes that if something negative happened/will happen that "it would not just be bad, but *terrible* and *awful*" (DiGiuseppe et. al., 2014). For example, student-athletes might believe that if they lose a game or do not play to a high standard, it would be the *worst* thing possible.

An additional irrational belief within the REBT framework is that of frustration intolerance or low frustration tolerance. Here, the individual believes that the potential discomfort that they would experience would be unbearable and that they could not stand it/do not have the endurance to survive the discomfort (DiGiuseppe et. al., 2014). For example, during an activating event (i.e., running extra sprints after practice), one might think "I can't stand wind sprints" (Goldman, 2003). Another example that student-athletes may experience occurs after a loss, when student-athletes might think "I can't stand to lose."

The final of the core irrational beliefs in the REBT model is global ratings of worth which may be depreciation of self-and/or others. That is, here an individual doesn't rate their behavior or performance but rather rate themselves or others more globally in terms of their worth or value. For student-athletes the cognition may be "If/When I fail, it means I am a loser" or "If/When I fail, everyone will think I am bad" (Turner and Barker, 2014). This implicitly suggests one's self-worth is contingent upon his/her performance.

The aim of REBT is to work with clients to reduce their irrational beliefs and collaboratively replace them with rational beliefs which decreases unhealthy negative emotions and increases healthy negative emotions (Ellis & Dryden, 1997). This is typically done through the technique of disputation, where the therapist collaboratively works with the client to assess the empirical accuracy of one's beliefs as well as to what degree they are functionally adaptive and logically consistent (DiGiuseppe et al., 2014).

Efficacy of REBT

REBT is one of the most widely practiced forms of CBT (Matweychuk et al., 2019). Research has supported the efficacy of REBT in both clinical and non-clinical populations in both youth and adult populations (David, 2015; David et. al., 2005). Studies have shown the use of REBT to be effective with school-aged children in improving psychological and behavioral problems (Banks, 2011). REBT has been utilized effectively within multiple settings including clinical, educational, and organizational settings (David et al., 2018). However, relatively speaking there has been a lack of research of the use of REBT in a sport setting (Turner, 2016; Turner & Barker, 2013). Most research with the use of REBT with athletes focuses on case studies and single-case designs (Turner, 2016). However, these studies have reported REBT as an

effective intervention and treatment with athletes (e.g., Marlow, 2009; Turner & Baker, 2013).

Studies have also shown the use of REBT to be more effective than other interventions and/or treatments. For example, a meta-analysis consisting of 19 studies with children and adolescent samples found that REBT was more effective than alternative treatment methods and more effective than no-treatment control groups (Gonzalez et al. 2004). This is consistent with results obtained by Esposito (2009) in her meta-analytic review of 72 studies of children and adolescents that compared REBT to control or comparison groups. The results indicated REBT as an effective psychotherapy approach with a large positive within-group effect ($M = 0.85$) and moderate positive effect size between REBT and control groups ($M = 0.63$) (Esposito, 2009).

While REBT has shown effectiveness over other treatment modalities with children and adolescent samples, in multiple domains, there has been a lack of research in the use of REBT linked to athletic performance among this age group (Turner & Barker, 2013). That is, historically objective performance outcomes have not been researched enough to show the impact of REBT on athletic performance through short and long-term attainment (Turner, 2016) and it appears to be even less so among youth.

Beliefs to Performance

The student-athlete population is vulnerable to multiple stressors and mental health challenges (Hughes & Leavey, 2012); however, this population also strives for high performance both athletically and academically. It may be possible that student-athletes' irrational beliefs not only have the capability of leading to stress and mental

health challenges but can impact performance as well which may continue a cyclical pattern for student-athletes of stress.

Academic Performance

Academic performance is often synonymous with school readiness, academic achievement, and school performance (Psicología &Lamas, 2015). Often times academic performance is defined by outcome measures such as school grades and/or cumulative grade point average measured throughout the school-year (Jayanthi et al., 2014). As such, the current study defined academic performance as synonymous with academic achievement and through the use of outcome measures (i.e., grade-point-average).

In relation to beliefs to academic performance, research with student populations have shown that students who report a greater experience of irrational beliefs typically experience more negative affect (Allen, et al., 2017) and negative affect has been consistently linked to poor academic achievement (Callaghan & Papageorgiou, 2014). This is an important factor to consider when working with students; that negative affect is linked to poor academic achievement and therefore the focus should be on what leads to negative affect, in this case irrational beliefs. Irrational beliefs have been linked to experience more negative affect among a student population (David, et al., 2005). In high-school settings, Çırak examined the thoughts and feelings of high school students preparing to take a university entrance exam and found that the main emotional responses students felt was anxiety which was often associated with their endorsed level of irrational beliefs. For example, one participant reported feeling "fear and anxiety" and reported thinking, "this is a very important exam, I need to get a high score" (Çırak, 2016, p. 180) which reflects the "demands" within the REBT theory and practice.

While the previously mentioned research linked irrational beliefs to negative affect, it cannot automatically be assumed that the negative affect, caused by irrational beliefs, will lead to poor performance. However, a meta-analysis using adolescent samples and the use of REBT as a clinical intervention has demonstrated a moderate positive effect of REBT as an intervention on academic performance, as measured by grade point average (Gonzalez et. al., 2004). This meta-analysis serves as an indicator that irrational beliefs may negatively affect academic performance.

Athletic Performance

Performance in the realm of athletics can be defined as an event where an individual or group/team is expected to execute specific skills, knowledge and abilities that are then compared, judged, or evaluated to a specific standard (Portenga et al., 2016). When it comes to athletic performance, Fullagar et al. (2015) define athletic performance as the context and magnitude in which an athlete completes a certain task within their sport. The most valid measure of athletic performance is through game statistics (Piedmont et al., 1999). The current study defined athletic performance in accordance with Portenga et al. (2016) and Fullagar et al., (2015) as execution of specific skills and abilities while participating in a sport and more specifically, in game performance.

In considering beliefs as they relate to athletic performance, there is a lack of research correlating irrational beliefs to athletic performance (Turner & Barker, 2013). Most studies investigating the effects of REBT on athletic performance use small sample sizes or rely on case studies, which can make it difficult to generalize findings across all sports and athletes. However, these studies have demonstrated positive effects of using REBT as a clinical intervention. For example, a study done with six gymnasts found

enhanced performance in three gymnasts after applying REBT (Elko & Ostrow, 1991) and a case-study that applied REBT to an archery athlete found improved competitive performance (Wood et al., 2016). Two similar studies using golfers found that the use of rational self-talk led to more accurate performance in a putting task than when irrational self-talk was used (Turner et al., 2018) and the second study found golfers putting performance improved after a REBT intervention (Turner et al., 2018). While the research is building, again the work for beliefs and performance among high school students is lacking.

While there may be some gaps in the literature linking beliefs to performance, it is important to examine the relationship with sport settings as they are typically performance-driven settings (Turner, 2016). Irrational beliefs are unfavorable as they lead to maladaptive emotional and/or behavioral consequences (Turner, 2016), which has been consistently linked to mental health challenges (Turner, 2016). The severity of mental health challenges that student-athletes can face warrant further investigation.

Implications of Practice

Student-athletes are a unique population that face multiple stressors both athletically and academically (Hughes & Leavey, 2012). Previously mentioned research has described the implications for student-athletes mental health due to these contextual demands and their thoughts/beliefs, specifically their irrational beliefs. REBT has shown effectiveness in treating a wide variety of disorders among adolescent samples across different domains, with this information in mind, sport psychologist and related personnel (i.e., coaches) as well as school psychologist and related personnel (i.e., teachers) should consider the use of REBT with their student-athletes.

The use of REBT in sport settings is a new practice. Pain and Harwood (2004) suggest that REBT is less commonly used in sport settings due to coaches and sport science staff concerns that if the use of REBT is adopted in sports, then it insinuates those athletes require therapy. However, REBT was not established as means to diagnose and treat mental illness, but rather as a way to understand human function and dysfunction (Turner & Bennett, 2017).

The use of REBT in sports can help student-athletes manage the stressors that are placed upon them within the contextual demands of their role as a student and as an athlete. In sports, results are deemed the most important factor with a heavy emphasis on winning however, this could lead to athlete's mental health to be forgotten in the chase of winning competitions (Turner, 2016). REBT can be useful as it is also a preventative approach and its use can change athlete's mindset to assist the athlete in facing many sport and life situations with more helpful thoughts, healthy emotions, and functional behaviors that the athlete will be able to self-manage (Turner, 2016).

REBT can be delivered in time-constricted settings, with effectiveness demonstrated for some clients in as little as five sessions (DiGiuseppe et al., 2014). This can be an advantage when using REBT in sport settings as these settings are typically fast-paced, time-constricted and access-restricted (Turner, 2016). Another advantage of REBT within a sport-setting is that REBT can be delivered in group settings (DiGiuseppe, et al., 2014). This would be beneficial as it can be administered to a whole team, which can help limit time-constraints from seeing each player individually.

While the use of REBT can be beneficial in sport settings, it can also be useful in academic settings as these athletes are student-athletes and may face dual irrational

beliefs that can impact them in sport and academic performance. REBT has previously been used in academic settings and has been effective in helping students improve emotional and behavioral difficulties through classroom lessons (Banks & Zionts, 2009). An REBT curriculum in the classroom teaches two fundamental aspects of learning such as analyzing and questioning, which can generalize to academic subjects (Banks & Zionts, 2009). An REBT curriculum also allows students to better regulate and understand their emotions to help them become better learners (Banks & Zionts, 2009).

As REBT has shown effectiveness in a limited amount of session (DiGiuseppe et al., 2014), REBT can be beneficial in school settings, where time-constraints may exist trying to teach REBT skills around core subjects such as Math and English. This has shown to be effective as the use of an REBT based educational program, Rational Emotive Education (REE), demonstrated effectiveness in as little as 4 sessions (Trip et al., 2007). This program used REBT theory to drive an educational-based program (Trip et al., 2007). This same program, REE, also demonstrated more significant results when used with children and adolescents versus adult students in undergraduate or graduate school (Trip et al., 2007).

Chapter II

The Present Study and Research Hypotheses

The purpose of this study was to determine if irrational beliefs among competitive student athletes are predictive of their performance. More specifically, we wanted to determine if irrational beliefs are context specific to performance settings (academic vs. athletic) and if those beliefs predict performance differentially than irrational beliefs that are more general (i.e., power, fairness) in nature. This research will address a concern of David and colleagues (David et al., 2010) who argued that there has been a lack of distinction between general and context-specific nature of irrational beliefs. Chadha and colleagues (Chadha et al., 2019) proposed that inherent in REBT is the idea that individuals often adopt irrational beliefs in situations that are important to them. As an example, one may think "If I do poorly during the game, that would be terrible/awful" but would not have the same type of catastrophic thinking as it relates to intolerance of rules or fairness.

With regards to academic performance, REBT as a clinical intervention has demonstrated a moderate positive effect on performance (Gonzalez et. al., 2004) but historically there has been mixed findings in this area. Some studies have found irrational beliefs to be negatively related to academic achievement (Bridges & Roig, 1997), whereas, other studies did not find any associations between irrational beliefs and academic achievement (Medrano et al., 2010). One suggested explanation for the mixed findings may be a result of the type of measurement of irrational beliefs that are used in the research. That is, if studies utilize more general irrational beliefs as opposed to content specific irrational beliefs, these general irrational beliefs may not always affect

student's academic performance (Balkis, 2013). Based upon Ellis' theory that domain specific rational and irrational beliefs are better predictors of specific outcomes, such as performance, than general beliefs (1994), it is hypothesized that:

1.Context-specific irrational beliefs in performance settings, as measured by the Irrational Performance Beliefs Inventory (iPBI) (Turner et al., 2018) will be a better predictor of academic performance, as measured by grade-point-average (GPA) than general irrational beliefs as measured by the Child and Adolescent Scale of Irrationality (CASI) (Bernard & Cronan, 1999).

While case studies and studies with small samples have shown REBT is effective in enhancing performance (Elko & Ostrow, 1991; Turner et al., 2018; Wood et al., 2016) understanding to what degree are irrational beliefs related to athletic performance among adolescents appears to be an area that continues to warrant investigation. Given the focus of changing irrational beliefs in the aforementioned research of REBT as an effective intervention, it is hypothesized that:

2. Context-specific irrational beliefs in performance settings, as measured by the iPBI will be a better predictor of athletic performance, as measured by the VPS via Hudl, than general irrational beliefs as measured by the CASI.

While it is hypothesized that scores on a context-specific measure (iPBI) will be more strongly related to performance (academic and athletic) than more general measurements of irrationality among youth (CASI), based on previously reviewed literature of irrational beliefs (general), it is also hypothesized that student-athletes who participate in this study will demonstrate:

3. High scores on a general irrational beliefs scale (CASI) will predict performance academically, as measured by grade-point-average.

4. High scores on a general irrational beliefs scale (CASI) will predict performance athletically, as measured by the value point system (VPS) via Hudl.

Chapter III

Methods

Participants

Participants were recruited from regional high schools located near a large metropolitan area. Recruitment information was sent via email to 62 coaches, of the 62 coaches, approximately 15 coaches expressed interest and willingness to participate. Out of the 15 that expressed interest, only nine coaches and subsequently nine teams/schools participated. Multiple coaches reported difficulty participating due to not having access to Hudl Assist due to restrictive school budgets due to the COVID-19 pandemic. Out of the nine teams that participated, seven teams recorded winning overall records for the season and all nine teams placed within the top five in their respective leagues.

From the nine schools, 30 student-athletes participated in the study, however only 29 completed all measures required for this study ($N = 29$). The required criteria for participants included that they are a high school student, an active member of a competitive school-based team (i.e., being listed on the team roster on their high school Varsity girls' basketball team) and they average approximately eight minutes per game (the amount of time for one quarter in basketball). One participant in the study averaged seven-minutes per game, but was still included in the study as the time per game required was an estimate. Of the 30 participants, two reported to be in the 9th grade, seven reported to be in the 10th grade, six reported to be in the 11th grade and 15 reported to be in the 12th grade. The average reported GPA was within the higher range with minimal variation ($M = 3.85$, $SD = .22$).

Procedures

Ethical approval was received from St. John's University Institutional Review Board (IRB) prior to this study. A convenient recruitment method was utilized that included sending an email to high school girls Varsity basketball coaches (Appendix A). In order for high school student-athletes to be included in this study the student-athlete and their parent needed to consent to participate. All participants over the age of 18 completed an online consent form (Appendix B), while participants under the age of 18, participants' parents/guardian completed an online consent form to participate in this study (Appendix C) and the student-athlete completed an assent form (Appendix D). The consent form requested the high-school student-athlete to actively participate in the study by completing multiple online questionnaires (iPBI and CASI) that was accessed via Qualtrics, an on-line data collection program. The consent also provided permission to view their in-game performance statistics, generated by Hudl, that was provided by their coach. After parents' consent and participants assent to participate in the study, the participants' respective coaches were asked to provide the researcher the VPS statistic, automatically generated by Hudl, for each player on their team that consented to participate in this study for at least four games during conference play. This was measured during conference play as this is a consistent point in the basketball season, without outlier influences that may occur during the playoff season (i.e., higher stress due to nature of playoffs such as the possibility of being eliminated and the season-ending).

Measures

Demographics After parental consent and student assent to participate in the study, participants were asked to complete a short demographic section requesting information

such as ethnicity, grade-level, approximate time spent on academics and athletics during the season and grade-point average.

Irrational Performance Beliefs Inventory (iPBI) (Turner et al., 2018). The iPBI consists of 28-items measuring the four core irrational beliefs of REBT. This measure includes seven items of demandingness, seven items of awfulizing, seven items of frustration tolerance and seven items of depreciation all of which are rated in a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A high score on this measure indicates stronger irrational beliefs (Turner et al., 2018). This scale has been used to measure context-specific irrational beliefs in performance environments, such as athletic performance and academic performance (Allen et al., 2017; Davis & Turner, 2019) (Appendix E).

This measure has been used with multiple different populations from varying age ranges. For example, this measure has been used with triathletes (Davis & Turner, 2019) as well as amateur athletes and semi-professional athletes which included UK high-school aged participants with a mean age of 38.04 ± 13.80 years (Turner & Allen, 2017). This measure was also used with non-athlete populations of undergraduate students with a mean age of 20.32 ± 5.05 years.

Although this measure was created for context-specific irrational beliefs in performance environments and to be generalizable across performance settings, some of the language was adjusted for this study. For example, item four "I need my manager/coach to act respectfully towards me" was changed to "I need my teacher/coach to act respectfully towards me" to address the academic context. This item change has been used in a previous study (Allen, et al., 2017). The iPBI has demonstrated construct and concurrent

validity with strong fit indices (CFI = 0.93, NNFI = 0.92, SRMR = 0.06, RMSEA = 0.07) (Turner & Allen, 2017). The iPBI has shown construct (α reliability between .90 and .96), concurrent (medium to large correlations) and predictive (small to medium correlations) validity (Turner & Allen, 2017).

Child and Adolescent Scale of Irrationality (CASI) (Bernard & Cronan, 1999; Terjesen et al., 2017). The CASI was originally created by Bernard and Laws in 1988, however the measure was updated in 1999 by Bernard and Cronan to be more consistent with REBT theory and more reflective of children and adolescents emotional functioning (Bernard & Cronan, 1999; Terjesen et al., 2017). The newest revised edition of the CASI consists of 36-items which are rated in a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The 36-items create the Total Irrationality Scale however the measure also includes four core factors: self-downing ("I am not good enough"), intolerance of frustrating rules ("I can't stand following rules"), intolerance of work frustration ("School work is too difficult") and demands for fairness ("Others should treat me fairly") (Bernard & Cronan, 1999). Previous research reported the CASI to have good to moderate reliability of the subscales (Smidt et al., 2009). Previous research has found the CASI to have internal reliability of Cronbach's alpha of .92 (Terjesen et al., 2017) (Appendix F).

Academic Performance Measures

Course grades are important indicators of academic performance for students (Allensworth & Clark, 2020). As such, grade-point average (GPA) was used to measure academic performance. Based off previous research of Hwang and Choi (2016) and Lumpkin and Favor (2012) that showed self-report of GPA to be reliable, GPA was

collected through self-report. The participants were asked to provide their most current GPA at the time of the study, which was recorded during their current basketball season. In an effort to standardize GPA across multiple participants at varying schools, as GPA computations can vary across schools dependent on each schools' criteria, a standard metric of GPA was computed for raw GPA scores to create an average score and consistent metric. As College Board is a well-known not-for-profit of over 6,000 universities, colleges, schools and other educational institutions, the metric created by College Board to convert GPA to a 4.0 metric scale was utilized.

Athletic Performance Measures

Hudl, Value Point System (VPS) (Graff, 2006). Hudl is performance analysis company that is utilized by over 180,000 global sports teams at various levels, including high school. Hudl is a system used to store game film that also extracts performance analysis from the video footage. The Hudl technique mobile app has been utilized in previous research to measure middle-school students' knowledge of badminton and demonstrated increased understanding of rules, strategies and techniques as they relate to badminton (Yu et al., 2021).

Based off previous research of Newland and colleagues (2013) who utilized season averages of basketball performance including multiple facets of performance such as positive statistics (rebounds, assist, field goal percentages) and negative statistics (turnovers, personal fouls), a similar measure of performance was utilized in this research. Hudl has a value point system (VPS) that is a generated formula that factors multiple game statistics to produce a numerical indication of overall performance. The VPS calculates each individual player's 'positive statistics' such as in basketball, points,

rebounds, assists, charges, steals and blocks and compares it by dividing it against each individual player's 'negative statistics' such as missed free throws, missed shots, fouls and turnovers. The VPS generates a single number of overall performances ranging from 0 (needs work) to 4 (great). This overall performance ratings were provided to the primary researcher by the coaches' who consented to participate in this study. Athletic performance was measured during 'in-season' play and consisted of at least four games to accurately measure a player's performance while taking account for a 'bad game' or an 'off day.'

Chapter IV

Statistical Analyses

The present study analyzed the dataset using a statistical software package the Statistical Package for Social Sciences (SPSS). A hierarchical multiple regression analysis was utilized to evaluate whether and to what degree do different types of irrational beliefs (general and context-specific) predict performance (academic and athletic). This process was completed twice, once to predict academic performance and a second time to predict athletic performance.

Psychometric Properties of Measures

Thirty participants completed the iPBI and reported a total average score of 13.6 ($M = 13.6$, $SD = 1.55$) with scores ranging from 10.57 to 16, which is relatively low overall. The total reliability ($\alpha = .85$) of the iPBI was slightly lower than previous reported reliability of the measure of $\alpha = .90$ - .96 (Turner and Allen, 2017), which may have been due the small sample size. Twenty-nine participants completed the CASI and reported a total average score of 2.81 ($M = 2.81$, $SD = .37$) with a range from 2.06 to 3.56 on a Likert scale ranging from one to five, with five being the highest rating of irrationality (strongly agree). The total reliability ($\alpha = .83$) of the CASI was slightly lower but comparative to previous reported reliability of the measure $\alpha = .92$ (Terjesen et al., 2017), which may have been due to the small sample size. Table 1 displays the means and standard deviations of the iPBI subscales and total as well as the CASI subscales and total.

Correlations within measure and correlations among measure subscales

Both measures include the same core irrational beliefs, Demandingness, Awfulizing, Low-Frustration Tolerance and Global Ratings of Worth/Depreciation of Worth. Table 1 displays each subscale correlation to the corresponding subscale on the opposing measure, subscale correlations within the overall measure as well as the correlation of both measures (iPBI and CASI) total scores. When analyzing the strength of the relationship among the subscales that reflected similar constructs, the iPBI Depreciation subscale had the strongest statistically significant correlation to the CASI Depreciation of Self subscale. The iPBI measures overall depreciation whereas the CASI separates depreciation into depreciation of others and depreciation of self. However, the CASI Depreciation of Others subscale was not statistically significantly correlated to any iPBI subscales, including the total iPBI subscale. The measures total subscale overall was strongly correlated to each other, as to be expected as both measures are measuring the same irrational beliefs just in different setting (performance-based vs broad/general settings). When evaluating other subscale correlations some of the correlations were moderate and would most likely have been significant with a larger sample size

Table 1: *Descriptive Statistics and Subscale and Total Correlations of the Irrational Performance Beliefs Inventory and the Child and Adolescent Scale of Irrationality*

Scale/Subscale	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13
1.VPS	1.09	.42	-												
2. GPA	3.85	.22	-.375*	-											
3. iPBI LFT	4.13	.45	380*	-.297	-										
4. iPBI Demand.	3.68	.38	-.355	.430*	.305	-									
5. iPBI Awful.	3.48	.43	-.422*	.133	.390*	.643**	-								
6. iPBI Deprec.	2.35	.83	-.333	-.021	.134	.387*	.490*	-							
7. CASI LFT	2.52	.58	-.440*	-.047	-.005	.213	.433*	.578**	-						
8. CASI Demand.	3.31	.36	-.543**	.420*	.056	.320	.374*	.163	.478**	-					
9. CASI Awful.	3.23	.37	.005	-.142	.341	.345	.519**	.459*	.495*	.147	-				
10. CASI Deprec. Others	2.60	.41	.038	-.174	.219	.141	.279	.190	.271	.325	.201	-			
11. CASI Deprec. Self	2.43	.70	-.308	-.004	.016	.297	.426*	.725**	.633**	.169	.345	.178	-		
12. iPBI Total	13.6	1.55												-	
13. CASI Total	2.81	.37												.717**	

*p < .05, ** p < .01

Scores on the VPS can range from 0 (needs work) – 4 (great performance). Scores in the CASI and iPBI range from a Likert scale (strongly disagree) – 5 (strongly agree), indicating that higher scores on these scales relate to greater irrational beliefs.

GPA measures academic performance on a 0.0 to 4.0 scale with 4.0 being equivalent to an A/A+, 3.0 being equivalent to a B, 2.0 equivalent to a C and 1.0 equivalent to a D

Predicting Performance

Predicting Athletic Performance

The first analysis was computed using the criterion variable, athletic performance, measured through the VPS from Hudl. The results of this regression are displayed in table 2. For the first block analysis, the predictor variable of demographics such as, time spent on athletics versus academics and current year in high-school (freshman, sophomore, junior, senior) were entered and revealed a model not to be statistically significant $F\ (3, 25) = .613, p = .613$. Additionally, the R^2 value of [.069] associated with this regression model suggests that demographics account for only 6.9% of the variance in performance. For the second block analysis, the predictor variable of the CASI subscale scores was added to the analysis and explained an additional 48.9% of the variance in athletic performance and this change in R^2 was statistically significant contribution to the model $\Delta\ F\ (5, 20) = 4.43\ p = .007$. Additionally, the R^2 value of [.558] associated with this regression model suggests that after the second block variable of CASI subscale scores was included in the model, the model as a whole explained 55.8% of the variance in athletic performance which was a statistically significant model $F\ (5, 30) = 3.15, p = .018$.

When further evaluating CASI subscales, two subscales revealed to be statistically significant predictors of performance. More specifically, CASI global ratings of worth/depreciation of others (i.e., "Classmates who always behave and follow the rules are "suck-ups.") ($\beta = .398, p = .034$) and CASI demandingness (i.e., "I have to do well in things that are important to me") ($\beta = -.560, p = .006$) were significant predictors. The CASI demandingness subscale were strongly, negatively correlated with athletic

performance r (28) = -.54, p = .001 indicating that students who endorsed demandingness beliefs had poorer performance. Interestingly, the Depreciation of Others subscale was positively correlated with athletic performance r (28) = .04, p = .421 reflecting that when students reported rating the worth of others that this was related to high athletic performance, however, this was a small, non-statistically significant correlation.

For the third block analysis, the predictor variable of the iPBI subscale scores was added to the analysis. The results of the third block hierarchical linear regression analysis revealed the model as a whole to be statistically significant F (4,16) = 6.08, p = < .001. Including the iPBI subscales into the model accounted for an additional 26.2% of the variance in athletic performance ($\Delta R^2 = .262$) which was a statistically significant contribution to the model ΔF (4,16) = 5.83, p = .004. Additionally, the R^2 value of [.820] associated with this regression model suggests that after the third block variable of iPBI subscale scores was included in the model, the model as whole explained 82% of the variance of performance which was a statistically significant model F (4,16) = 6.08, p = <.001.

When further evaluating the third block analysis, the CASI subscales of demandingness and depreciation of others remained statistically significant (Demandingness, β = -.430 p = .008, Depreciation of Others, β = .320, p = .023). However, with the addition of the iPBI, the CASI subscale of Awfulizing now was statistically significant (β = .335, p = .038) when it was not significant during the second block analysis (p =.125). Inconsistent with results of the types of the beliefs shown in the CASI, the iPBI subscales of Demandingness (p = .361) and Depreciation (p = .188) were not significant. The subscales of Awfulizing (β = -.392, p = .032) and Low-Frustration

Tolerance ($\beta = .448, p = .003$) were significant predictors in this model. The iPBI Awfulizing subscale was moderately, negatively correlated to athletic performance r (28) = -.46, p = .006 indicating that students who endorsed awfulizing beliefs had poorer performance. Interestingly, the Low Frustration Tolerance subscale was moderately, positively correlation to athletic performance r (28) = .40, p =.018 indicating that students who endorsed low frustration tolerance beliefs correlated to high athletic performance. Scatter plot graphs were run to examine any non-linear relationships between irrational beliefs and athletic performance. However, non-linear relationships between these irrational beliefs and athletic performance were not found.

Table 2 displays results from this hierarchical regression. However, block 1, Demographics (time spent on athletics, time spent on academics and grade-level) did not contribute to the model at any step and therefore, was not included in the table.

Table 2*: Regression with VPS as criterion*

	Model 1	Model 2			Model 3		
Variable		β	*t*	Sig (*p*)	β	*t*	Sig (*p*)
Regression 2 *Demographics, CASI Subscales*				.018*			
CASI Demand.		-.560	-3.07	.006**	-.430	-3.00	.008**
CASI Awful.		.284	1.60	.125	.335	2.27	.038*
CASI LFT		-.115	-.457	.653	-.066	-.343	.736
CASI Deprec. Self		-.307	-1.48	.156	.004	.021	.983
CASI Deprec. Others		.398	2.28	.034*	.320	2.52	.023*
Regression 3 *Demographics, CASI Subscales, iPBI Subscales*							<.001**
iPBI Demands					-.136	-.940	.361
iPBI Awful					-.392	-2.36	.032*
iPBI LFT					.448	3.51	.003**
iPBI Deprec.					-.233	-1.38	.188
R^2	.069		.558			.820	
ΔR^2	-		.489			.262	
F	.613		3.15			6.08	
ΔF	-		5.83			5.83	
Sig. ΔF	-		.007**			.004**	

*$p < .05$, **$p < .01$

To test if the analyses demonstrated results to be true a block switch analysis was computed switching the order of the predictor variables of the CASI and the iPBI. Switching the order of the CASI and iPBI in the regression model helped to determine if

performance-specific irrational beliefs (iPBI) or general irrational beliefs (CASI) better explain the association in athletic performance. The results of this regression switching the order of blocks/steps is displayed in table 3. In this analysis, the same demographics (grade, time spent on athletics, time spent on academics) were still utilized as the first predictor variable. Then the iPBI subscales were utilized as the second predictor variable and the CASI subscales were added to the analysis as the third block. In the block switch analysis, utilizing the iPBI as the second predictor in the model demonstrated a model to be more statistically significant ($p = .006$) than when utilizing the CASI subscales as the second predictor in the model ($p = .018$).

Table 3: *Block Switch Regression with VPS as criterion*

	R^2	ΔR^2	F	ΔF	Sig (p)	Sig. ΔF
Regression 1 *Demographics*	.069	-	.613	-	.613	-
Regression 2 *Demographics, iPBI Subscales*	.576	.508	4.08	6.28	.006**	.002**
Regression 3 *Demographics, iPBI Subscales, CASI Subscales*	.820	.244	6.08	4.34	<.001**	.011*

*$p < .05$, **$p < .01$

Predicting Academic Performance

The first analysis was computed using the criterion variable, academic performance, measured through self-reported GPA scores. The results of this regression are displayed in table 4. For the first block analysis, the predictor variable of demographics such as, time spent on athletics versus academics and current year in high-school (freshman, sophomore, junior, senior) was analyzed. The results of the first block hierarchical linear regression analysis revealed a model not to be statistically significant (F (3, 25) = 1.19, p = .333). Additionally, the R^2 value of [.125] associated with this regression model suggests that demographics account for only 12.5% of the variance in academic performance. For the second block analysis, the predictor variable of the CASI subscale scores was added to the analysis and explained an additional 28.7% of the variance in academic performance and this change in R^2 was not a statistically significant contribution to the model Δ F (5, 20) = 1.75, p = .147. However, when evaluating specific CASI subscales, the subscale of Demandingness was a strong, statistically significant predictor (β = .638, p = .007) and was moderately, positively corelated to academic performance r (27) = .42, p = .012, indicating that high levels of the irrational belief of demandingness were predictive of high academic performance.

For the third block analysis, the predictor variable of the iPBI subscale scores was added to the analysis. The results of the third block hierarchical linear regression analysis revealed the model as a whole to be statistically significant F (4,16) = 2.67, p = .035. Including the iPBI subscales into the model accounted for an additional 25.5% of the variance in academic performance ΔR^2 = .255) which was a statistically significant contribution to the model ΔF (4,16) = 3.05, p = .048. Additionally, the R^2 value of [.666]

associated with this regression model suggests that after the third block variable of iPBI subscale scores was included in the model, the model as whole explained 66.6% of the variance of performance which was a statistically significant model F (4,16) = 2.67, p = .035.

When further evaluating the third block analysis, the CASI subscale of demandingness remained statistically significant (β = .451, p = .035). Similarly, to the CASI, the iPBI subscale of Demandingness demonstrated to be statistically significant (β = .478, p = .028). However, the iPBI subscale of Low-Frustration Tolerance also demonstrated to be statistically significant (β = -.371, p = .049). The subscale of Demandingness was moderately, positively correlated with athletic performance r (27) = .47, p = .005 indicating that students who reported demandingness beliefs correlated with higher academic performance. Scatter plot graphs were run to examine any non-linear relationships between irrational beliefs and athletic performance. However, non-linear relationships between these irrational beliefs and athletic performance were not found.

Table 4 displays results from this hierarchical regression. However, block 1, Demographics (time spent on athletics, time spent on academics and grade-level) did not contribute to the model at any step and therefore, was not included in the table.

Table 4: *Regression with GPA as criterion*

	Model 1	Model 2			Model 3		
Variable		β	*t*	Sig (*p*)	β	*t*	Sig (*p*)
Regression 2 *Demographics, CASI Subscales*				.147			
CASI Demand.		.638	3.03	.007**	.451	2.31	.035*
CASI Awful.		-.023	-.115	.910	-.055	-.273	.788
CASI LFT		-.271	-.931	.363	-.200	-.765	.456
CASI Deprec. Self		.110	.459	.651	-.080	-.322	.752
CASI Deprec. Others		-.251	-1.25	.228	-.154	-.892	.385
Regression 3 *Demographics CASI Subscales, iPBI Subscales*							.035*
iPBI Demands					.478	2.42	.028*
iPBI Awful					.098	.433	.671
iPBI LFT					.448	-2.13	.049*
iPBI Deprec.					-.371	-.040	.969
R^2	.125		.412			.666	
ΔR^2	-		.287			.255	
F	1.19		1.75			2.67	
ΔF	-		1.95			3.05	
Sig. ΔF	.333		.131			.048*	

*$p < .05$, **$p < .01$

To test if the analyses demonstrated results to be true, a block switch analysis was computed switching the order of the predictor variables of the CASI and the iPBI. Switching the order of the CASI and iPBI in the regression model helped to determine if

performance-specific irrational beliefs (iPBI) or general irrational beliefs (CASI) better explain the association in academic performance. The results of this regression switching the order of blocks/steps is displayed in table 5. In this analysis, the same demographics (grade, time spent of athletics, time spent on academics) were utilized as the first predictor variable. Then the iPBI subscales were utilized as the second predictor variable and the CASI subscales were added as the third. In the block switch analysis, utilizing the iPBI as the second predictor demonstrated a model to be statistically significant (p = .015). This is dissimilar to when using the CASI subscales as the second predictor in the model which did not demonstrate a model to be statistically significant (p = .147), demonstrating that the iPBI is a better predictor for academic performance than the CASI.

Table 5: *Block Switch Regression with GPA as criterion*

	R^2	ΔR^2	F	ΔF	Sig (p)	Sig ΔF
Model 1 *Demographics*	.125	-	1.19	-	.333	-
Model 2 *Demographics, iPBI Subscales*	.527	.402	3.34	4.46	.015*	.009**
Model 3 *Demographics, iPBI Subscales, CASI Subscales*	.666	.139	2.67	1.34	.035*	.299

*$p < .05$, **$p < .01$

Chapter V

Discussion

Student-athletes may be at risk of experiencing mental health challenges due to the combination of academic and athletic pressures in conjunction with individual factors such as how they think about or evaluate these pressures. In essence, their thoughts or beliefs. This study aimed to determine among competitive student-athletes if there is a link between irrational beliefs and performance. More specifically, based on REBT theory (Ellis & Dryden, 1997) and the competitive nature of this population to emphasis performance (Turner, 2016) this study aimed to determine if irrational beliefs that are specific to performance settings predict performance differently than irrational beliefs that are more general and/or broad in nature.

When evaluating athletic performance, results supported the hypothesis that context-specific irrational beliefs in performance settings was a slightly better predictor of athletic performance, than general irrational beliefs. The model containing the context-specific irrational beliefs scale (iPBI) and demographics demonstrated to be slightly more statistically significant ($p = .006$) than the model containing the general irrational beliefs scale (CASI) and demographics ($p = .018$). However, the difference in the variance between the models was small as the model with demographics and the iPBI accounted for approximately 57% of the variance while the model with demographics and the CASI accounted for approximately 56% of the variance. Indicating that the context-specific irrational beliefs scale with this sample are really not a better predictor of athletic performance than a general irrational beliefs scale.

However, in looking at the more general irrational beliefs, endorsement of demandingness items was negatively correlated with athletic performance. This finding is consistent with previous REBT literature, that demandingness is the primary irrational belief (Turner, 2016) and therefore expected to be significant and negatively correlated to performance as irrational beliefs typically lead to negative emotions which can impact behavioral responses such as performance. The difference here is that this measure of demandingness was of more of a general type and as such may be important for clinicians to consider in their clinical work to improve performance.

An interesting finding was that the subscale of global ratings of worth/depreciation of others on a broad measure of irrationality (CASI) was a significant predictor of athletic performance in the regression model. One possible explanation is that global evaluations/depreciation of others typically elicits anger (DiGiuseppe et al., 2014). For athletes this anger may act as a motivator, such as a basketball athlete may feel 'anger' and then go more physically/aggressively after a rebound. From an REBT theoretical perspective, it may then be important to consider if beliefs like this that are not related to poor performance but actually to positive performance are truly irrational in nature.

An interesting factor to consider as it relates to ratings of worth is that on the CASI scale depreciation is differentiated by depreciation of self and depreciation of others, whereas the iPBI does not differentiate. It may be important to determine how each specific depreciation irrational belief(s) impact performance. This finding is important for clinicians and sport psychologists to note as irrational beliefs of global

ratings of others place emphasis on external factors (i.e., other's opinions) in contributing to one's actions and self-worth.

The addition of the performance beliefs from the iPBI to the predictive models led to some of the more general irrational beliefs subscales of the CASI becoming significant predictors, when these subscales were not statistically significant on their own. This indicates that some student-athletes may have more specific irrational beliefs than general irrational beliefs, and some student-athletes may experience both general and specific irrational beliefs and the additional pressure of being a student-athlete/performance pressures may accentuate their irrational beliefs.

In looking at academic performance context-specific irrational beliefs in performance settings was a better predictor of academic performance than general irrational beliefs as general irrational beliefs was not a significant predictor. Linking a specific irrational belief scale to academic performance may be important in applied settings. That is, if clinicians and school psychologists only utilized general irrational belief measures to indicate a student's level of irrationality, they may miss a student who may have irrational beliefs as it relates to their performance but not as it relates to general life rules (fairness, power etc.). However, it is important to note that in this study GPA was utilized as a measure of academic performance and while the study included participants from varying schools, the average reported GPA was within the higher range with minimal variation. This may have misleading predictive conclusions, as with less variability in the academic measure, it cannot be as easily concluded the results would be the same for those with lower self-report GPA.

However, in looking at the more general irrational beliefs as it relates to performance, endorsement of demandingness items was the only statistically significant predictor, which is consistent with REBT literature (Turner, 2016), however the general irrational belief of demandingness was positively correlated to academic performance. This finding is inconsistent with the theory of REBT that irrationality is predictive of functional impairment, in this case academic performance Similarly, when looking at the context-specific irrational beliefs (iPBI), endorsement of demandingness was also statistically significant and positively correlated to academic performance. One possible explanation for the positive correlation of demandingness (general and context-specific) to academic performance may be explained through the Yerkes-Dodson law (1908). Yerkes-Dodson law explains that there is an optimal level of stress that correlates to performance, indicating that moderate arousal (i.e., stress) correlates to an optimal level of performance (Nickerson, 2023). Therefore, it may be possible that some stress, which may be derived from irrational beliefs, particularly demandingness as demandingness is the primary irrational belief, may benefit a student-athlete to perform well academically. That is, these beliefs may be adaptive and drive them to do well and not be truly irrational and dysfunctional in nature.

This is important for clinicians and school psychologists to consider that not 'all stress' is inherently bad and may be beneficial for student-athletes. However, future research should distinguish 'how much stress' is too much, meaning determining the point where stress no longer becomes beneficial and instead can negatively impact performance. It may also be possible that student-athletes do not view demandingness as dysfunctional. Future research should include qualitative data by interviewing student-

athletes on their thoughts about demandingness and if they view demands as dysfunctional or as a tool to help motivate them to perform.

When considering context-specific irrational beliefs to performance settings, the subscale of Low Frustration Tolerance was statistically significant and negatively correlated to academic performance which is consistent with previous REBT literature that low levels of tolerating frustration can impact academic performance as low frustration tolerance can lead to more procrastination and negative affect (Balkis, 2013).

Overall, it is evident that irrational beliefs can impact performance. While context-specific irrational beliefs to performance better predict performance, both academically and athletically, this concept should be tested throughout other performance-specific domains (i.e., work settings). Future research should also consider testing context-specific irrational beliefs to other domains that are not performance based.

Chapter VI

Implications for the Profession of School Psychology

As school psychologists' it is important to know what factors may impact a student's well-being in order to adequately provide effective interventions. Aforementioned research has linked irrational beliefs to higher levels of negative affect (Allen, et al., 2017; Neal et a., 2015) and negative affect can impact students' overall well-being as well as their academic performance (Callaghan & Papageorgiou, 2014).

While this study included student-athletes, which can be a niche population within the school system, the National Federation of State High School Associations reported that within the 2021 – 2022 school year a total of 7,618,054 students participated in sports in high-schools across the United States. Therefore, it is highly likely that a school psychologist will work with a student-athlete making this study of importance to all school psychologists.

Particularly of importance is the finding that context-specific irrational beliefs in performance settings was a better predictor of academic performance than general irrational beliefs. This is a noteworthy finding for school psychologist' because it can help guide treatment decision-making by helping school psychologist choose the most effective intervention(s). For example, a context-specific irrationality scale may be more beneficial to use with student-athletes as they may experience irrational beliefs in some areas (i.e., academia) but not in other areas of life (i.e., rules, fairness etc.).

Given this finding that irrational beliefs can be predicative of academic performance, an intervention tailored towards irrational beliefs can help improve academic performance. REBT or an REBT-based intervention, such as Rational Emotive

Education (Knaus, 1977) can be utilized with student-athletes and/or as a preventative intervention with student-athletes to help change their unhealthy negative emotion(s) and thought processes to become more rational and flexible which in turn will help change their emotion(s) to a healthy negative emotion. This is helpful for school psychologists' because REBT-based interventions have continuously demonstrated effectiveness with school-aged children (Banks, 2011) and these interventions can be completed in time-constricted settings, such as schools, as REBT has shown effectiveness in only a few sessions (DiGiuseppe et al., 2014) and in minimal sessions within the classroom-setting (Trip et al., 2007). This makes REBT and REBT interventions easy to use in academia.

Despite the current study's limitations such as a small sample size and limited variation in academic performance (GPA), the finding that demandingness was positively related to academic performance is an interesting finding for school psychologists to consider. This finding was not consistent with previous literature, which may have been due to the limitations, or it may be due to some individuals' ability to perform "under pressure" or under high arousal (Nickerson, 2023). Future research should expand upon this finding by replicating this study with a larger sample size with more academic variability. The sample in this study tended to perform well academically as the mean GPA score was (M = 3.85). Future research should consider if the same finding is true, that high levels of demandingness correlates positively with academic performance with a sample that has lower academic performance. This is important for school psychologists because school psychologist will work with students of varying academic abilities.

Appendix A
Recruitment Letter/Email

Dear Coaches,

You are being asked to participate in a research study conducted by Kathleen Everson under the supervision of Dr. Mark Terjesen, of St. John's University. The purpose of this research is to better understand the role of irrational beliefs in high school student athletes' academic and athletic performance.

Participation in this study is optional and includes the completion of a survey questionnaire, which may take up to 30-minutes to complete.

Your participation in this study completely voluntary. You may choose not to complete the questionnaire, and you can stop participation at any time. The link below includes more information regarding the study and participant involvement as well as access to the online questionnaire.

If you have any questions regarding this research study, please contact either Kathleen Everson at kathleen.everson18@stjohns.edu or Dr. Mark Terjesen at terjesem@stjohns.edu.

Your participation in this study is much appreciated and will help advance scientific knowledge about the role of irrational beliefs and performance among high school student athletes.

I appreciate your consideration.

Kind Regards,

Kathleen Everson

Doctoral student

St. John's University, Psy.D. 2023

kathleen.everson18@stjohns.edu

Appendix B
Student Consent Form

Dear Student,

My name is Kathleen Everson and I am School Psychology Doctoral Student at St. John's University. I am working under the supervision of Dr. Mark Terjesen. Right now, we are trying to learn more about the way teenagers, specifically student-athletes think and would like your help. If you agree to participate, you will be asked to answer questions about things you may think about and ways you might behave. You should only participate if you want to. It should take you about 30 total minutes. If you want to be in the study and answer questions for us, please answer the questionnaire which is attached at the link below.

If you answer questions for us, you will be helping us understand how student-athletes think. You will be asked questions about different thoughts as they pertain to your sport and school. Although unlikely, if any issues or concerns should come up about your participation in this study, you may e-mail us at either Kathleen.everson18@stjohns.edu or terjesem@stjohns.edu.

If you agree to participate, you should know that your teacher, classmates/teammates and even your parents won't know what you've said. It is important for you to know that there are no right or wrong answers. We will not tell

anyone what you've said with the following exceptions: We are required by law to report to the appropriate authorities, suspicion of harm to yourself, to children, or to others. You should also know that if you decide to help us or if you decide to say "no," your choices will not affect your grades. Being in the study is up to you and you may also decide to stop after you begin or not answer questions that you don't want to answer. You should also know that we will be asking your coach for your game-performance statistics, but your coaches will not know your responses, and your information will remain de-identified.

We want to thank you in advance for your help as this will really help us learn more about student-athletes' thoughts. If you would like to know more about the study you can e-mail us at Kathleen.everson18@stjohns.edu or terjesem@stjohns.edu. For questions about your rights as a research participant, you may contact the university's Human Subjects Review Board, St. John's University, (718)-990-1440.

Sincerely,

Kathleen Everson, M.S

Mark Terjesen, Ph.D.

Agreement to Participate:

[ ] I agree to participate in the study described above.

[ ] I do not agree to participate in the study described above.

_____ _____

Signature Date

Appendix C
Parent Consent

Introduction:

Your child is being asked to participate in a research study conducted by Kathleen Everson, under the direct supervision of Dr. Mark Terjesen of St. John's University. The decision to participate in this study is entirely up to you. You can decide to stop participating in this study at any time. If you have any questions, you may contact one of the principal investigators.

Procedures:

In order to better understand the role of irrational beliefs in regards to performance, we are utilizing various measures that we would like to administer to high school student athletes. If you agree to allow your child to participate, we request that your child complete an online questionnaire, which should take about 30 minutes. We will also be requesting from your child's coach a copy of their game-performance statistics. All information will be de-identified.

Benefits:

There are no direct benefits to you for your participation in this study. However, the

information obtained from this study will further advance the knowledge and understanding of irrational beliefs and its effect on academic and athletic performance.

Risks, Inconvenience, Discomfort:

There are no physical risks involved with participation in this study. The questions included in the survey are not of a sensitive or personal nature, and the likelihood that your child experience any psychological distress or discomfort as a result of your participation is negligible.

Alternatives:

The alternative to this study is not participating. Your decision to not participate in this study will not have any negative implications for you; you may decide to withdraw from the study at any time or choose not to answer specific questions.

Confidentiality:

All information from this study will be kept strictly confidential and only seen by the researchers. If any publications result from this study, you will not be identified. Any data from this study will be reported in aggregate form only; individual data responses will not be reported. Data will be transferred in a HIPAA-compliant manner and will be kept in de-identified, password-protected files.

Questions:

If you have any questions regarding this research study, please contact Dr. Terjesen at (718) 990-5860. For questions regarding your rights as a research participant, please contact the director of the Institutional Review Board, Dr. Raymond DiGiuseppe. He can be contacted at (718) 990-1955 or via email at diguiser@stjohns.edu.

Thank you very much for your consideration. If you agree to participate, please consent by pressing the button below. Please print a copy of this form for your records.

- I voluntarily give my consent to participate in this research study. I understand that my signing below indicates that I have read and understood the information provided here. I understand that my participation is completely voluntary, and that my name will not be tied to the information I am providing. If at any time I do not wish to further participate, I have the right to withdraw my participation.

Name: _____

Signature: _____

Date: _____

ST. JOHN'S UNIVERSITY

Appendix D
Assent Form

Dear Student,

My name is Kathleen Everson and I am School Psychology Doctoral Student at St. John's University. I am working under the supervision of Dr. Mark Terjesen. Right now, we are trying to learn more about the way teenagers, specifically student-athletes think and would like your help. If you agree to participate, you will be asked to answer questions about things you may think about and ways you might behave. Your parents have already agreed to allow us to ask you to participate, but the choice is yours. You should only participate if you want to. It should take you about 30 total minutes.

If you answer questions for us, you will be helping us understand how student-athletes think. You will be asked questions about different thoughts as they pertain to your sport and school. Although unlikely, if any issues or concerns should come up about your participation in this study, you may e-mail us at either Kathleen.everson18@stjohns.edu or terjesem@stjohns.edu.

If you agree to participate, you should know that your teacher, classmates/teammates and even your parents won't know what you've said. It is important for you to know that there are no right or wrong answers. We will not tell anyone what you've said with the following exceptions: We are required by law to report to the appropriate authorities, suspicion of harm to yourself, to children, or to others. You should also know that if you decide to help us or if you decide to say "no," your choices

will not affect your grades. Being in the study is up to you and you may also decide to stop after you begin or not answer questions that you don't want to answer. You should also know that we will be asking your coach for your game-performance statistics, but your coaches will not know your responses, and your information will remain de-identified.

We want to thank you in advance for your help as this will really help us learn more about student-athletes' thoughts. If you would like to know more about the study you can e-mail us at Kathleen.everson18@stjohns.edu or terjesem@stjohns.edu. For questions about your rights as a research participant, you may contact the university's Human Subjects Review Board, St. John's University, (718)-990-1440.

Sincerely,
Kathleen Everson, M.S

Mark Terjesen, Ph.D.

Agreement to Participate

[ ] I agree to participate in the study described above.

[ ] I do not agree to participate in the study described above.

_____ _____

Signature Date

Appendix E

Irrational Performance Beliefs Inventory (iPBI)

Beliefs Scale

Here are a set of statements that describe what some people think and believe. Read each statement carefully, and then decide how much you agree or disagree with it by selecting the appropriate response.

	Items	*Strongly Disagree*	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
1	I can't stand not reaching my goals	1	2	3	4	5
2	If I face setbacks it goes to show how stupid I am	1	2	3	4	5
3	I can't tolerate it when I fail at something that means a great deal to me	1	2	3	4	5
4	I need my teacher/coach to act respectfully towards me	1	2	3	4	5
5	I have to be viewed favorably by people that matter to me	1	2	3	4	5
6	It is appalling if others do not give me chances	1	2	3	4	5
7	If decisions that affect me are not justified, it shows that I am worthless	1	2	3	4	5
8	If I am not given opportunities, then it shows that I am not a worthwhile person	1	2	3	4	5
9	I need others to think that I make a valuable contribution	1	2	3	4	5
10	I am a loser if I do not succeed in things that matter to me	1	2	3	4	5
11	I have to be respected by the members of my team	1	2	3	4	5

12	I can't bear not getting better at what I do	1	2	3	4	5
13	I absolutely should not be snubbed by people that matter to me	1	2	3	4	5
14	If my position in my team was not secure, then it would show I am worthless	1	2	3	4	5
15	I can't bear not being given chances	1	2	3	4	5
16	It's awful to not be treated fairly by my peers	1	2	3	4	5
17	It's terrible if the members of my team do not respect me	1	2	3	4	5
18	I must not be dismissed by my peers	1	2	3	4	5
19	I couldn't stand it if my skills did not continually develop and improve	1	2	3	4	5
20	I can't stand failing in things that are important to me	1	2	3	4	5
21	It's awful if others do not approve of me	1	2	3	4	5
22	Decisions that affect me must be justified	1	2	3	4	5
23	It would be terrible to be dismissed by my peers	1	2	3	4	5
24	If my skills did not continually develop and improve, it would show what a failure I am	1	2	3	4	5
25	I can't bear not succeeding in things that are important to me	1	2	3	4	5
26	It would be awful if my position in my team was not secure	1	2	3	4	5

27	If others think I am no good at what I do, it shows I am worthless	1	2	3	4	5
28	It's awful if others think I do not make a valuable contribution	1	2	3	4	5

Appendix F

Child and Adolescent Scale of Irrationality (CASI)

When you are ready to begin, please reach each sentence below and pick your answer by ***circling a number from "1" to "5."*** The five possible answers for each sentence are:

1 = Strongly Disagree
2 = Disagree
3 = Not Sure
4 = Agree
5 = Strongly Agree

For example, if you were given the sentence "*I like to read comic books*," you would circle a "**1**" if you ***Strongly Disagree***. If you were given the sentence "*I like to keep my room neat and tidy*," you would circle a "**5**" if you ***Strongly Agree***. Please be sure to answer all of the questions.

	Strongly Disagree				*Strongly Agree*
1. Parents who are too strict are total idiots.	1	2	3	4	5
2. I think others are better than me.	1	2	3	4	5
3. The worst thing is to have your friends mistreat you.	1	2	3	4	5
4. I must get good grades.	1	2	3	4	5
5. I think I'm pathetic when people don't like me.	1	2	3	4	5
6. It's too hard to deal with teachers who have favorites.	1	2	3	4	5
7. Parents have a responsibility to be nice to children.	1	2	3	4	5
8. When my friends don't ask me to do things with them I think I'm a loser.	1	2	3	4	5
9. Just because others may do better than me in some things, doesn't mean I'm a complete loser.	1	2	3	4	5
10. It's not so bad to have to follow rules all the time.	1	2	3	4	5
11. Other kids who aren't nice to me don't deserve for good things to happen to them.	1	2	3	4	5

12. When I don't succeed in school, I'm a complete failure.	1	2	3	4	5
13. I ABSOLUTELY need my friends to like me.	1	2	3	4	5
	Strongly Disagree				*Strongly Agree*
14. Teachers who treat students differently are not bad people.	1	2	3	4	5
15. If I make a mistake in front of others I think I'm a complete screw-up.	1	2	3	4	5
16. People would like me better if I wasn't such a loser.	1	2	3	4	5
17. Too much homework is impossible to deal with.	1	2	3	4	5
18. It's terrible when I'm not the winner.	1	2	3	4	5
19. Homework should NEVER be boring.	1	2	3	4	5
20. I can't deal with having to follow rules at home.	1	2	3	4	5
21. I want my teachers to act fairly.	1	2	3	4	5
22. It's terrible when my parents get upset at me	1	2	3	4	5
23. I need to be able to do what I want when I want.	1	2	3	4	5
24. Things in my life would be easier if I wasn't such an idiot.	1	2	3	4	5
25. I think I'm totally stupid when I don't get good grades.	1	2	3	4	5
26. I can't stand having to follow rules in school.	1	2	3	4	5
27. Making mistakes are the worst things in the world.	1	2	3	4	5
28. A parent who acts badly toward his/her kids is a bad person.	1	2	3	4	5
29. When a teacher treats me unfairly, it's horrible.	1	2	3	4	5
30. Classmates who always behave and follow the rules are "suck-ups."	1	2	3	4	5
31. It's REALLY awful to have a lot of homework to do.	1	2	3	4	5

32. I can't take my parents telling me what to do.	1	2	3	4	5
33. It's awful when someone stops me from doing what I want.	1	2	3	4	5
34. I have to do well in things that are important to me.	1	2	3	4	5
35. If my friends are mean to me, I can deal with it.	1	2	3	4	5
36. Other kids should ALWAYS be fair and friendly.	1	2	3	4	5

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VITA

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