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An Investigation of the Relationships Among Religiousness, Stress, and Collegiate Athlete Satisfaction

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Introduction

College sports are a crucial part of American society, and many athletes in high school look to play in the numerous divisions for the NCAA. In addition, numerous people watch and attend live collegiate sporting events of all types every year. The NCAA released that there are over 520,000 student-athletes in all divisions across the United States (*NCAA student-athletes surpass 520,000, set new record*, 2022). In addition to varsity-level sports, there are also club and intramural sports at many colleges that allow students to play the sports they love at a competitive level. Researchers found that students who participated in sports at the club level had a stronger sense of community due to the common interest, leadership opportunities, voluntary activity, and competition from playing the sports (Warner & Dixon, 2013). With the strong sense of community, there is a higher level of social support, and a greater chance of making friends that can help reduce stress at college. It can be assumed that the same level of sense of community occurs for collegiate athletes at the varsity level.

There are numerous additional stressors that arise in varsity sports as opposed to club sports, for example, having to attend required practices most every day as opposed to optional practices a few times a week in club sports. These athletes represent their teams and compete while still expecting to maintain adequate grades. In addition, there are many student athletes who do not feel valued and report high levels of mental health issues, including depression. The prevalence rate for depression in collegiate student-athletes is 44.6%, while the prevalence for non-athlete students is 54.4% (Zhou et al., 2022). Although non-athlete students appear to be at a higher risk for depression, the prevalence rates for student-athletes are still alarmingly high. In a study conducted by the NCAA in 2021, "24% of male and 36% of female athletes 'felt so

depressed that it was difficult to function'" (*College Athletics and Mental Health: Helping Student-Athletes Strike a Balance,* 2023).

According to the National Collegiate Athletic Association (NCAA), athlete satisfaction is a main focus that the association takes highly into consideration (Burns et al., 2012). However, even with the tremendous attention the athletes receive for their athletic performances, there is very little research about the satisfaction of athletes. Athlete satisfaction is important because satisfied athletes tend to feel less pressure, stress, and burnout from their sport. Especially when competing in intense matches or games, and having to prepare for hours at practice for days leading up to them, there is not a lot of time for college athletes to prioritize their social and personal lives. There has been a growing emphasis placed on the mental health of collegiate athletes (Henry, 2023), but understanding their mental health requires understanding the factors most predictive of athlete satisfaction. Unfortunately, few factors have been identified as influencing the satisfaction of athletes with their coaches, teams, etc.

According to Riemer, athlete satisfaction is an affective state that may result from positive experiences in complex facets of the experience of being an athlete (Chelladurai & Riemer, 1997). There are many potential categories of satisfaction to study when looking at college athletes, including outcomes and processes (Chelladurai & Reimer, 1997). Within each of these categories are subcategories that researchers can specifically measure. Outcomes are the specific results of both the team and individual athlete. For example, a team may win a game and there is satisfaction among the team, but an individual player may have not performed well, leading to dissatisfaction. Processes refer to the methods to achieve the desired outcomes. For example, the facilities and equipment of a team may help them best prepare and lead to success, leading to greater athlete satisfaction. However, athletes may feel less satisfied with poorer, older

equipment and facilities, which decreases athlete satisfaction. Since the facilities and equipment help the team to achieve its goals, they would be categorized as processes. Riemer used these categories to later create the Athlete Satisfaction Questionnaire (ASQ), which was intended to help future researchers cover many aspects of athlete satisfaction (Riemer & Chelladurai, 1998). Despite the ASQ's development 25-years-ago, limited research has been done to truly determine what influences athlete satisfaction.

Among the studies that have used the ASQ to predict athlete satisfaction, a popular topic is coaches' leadership styles (Kim & Cruz, 2016). Researchers using the ASQ found that certain leadership styles, such as social support, training and instruction, and positive feedback have a positive relationship with athlete satisfaction in college football players (Jawoosh et al., 2022). This shows that athletes typically respond better to more positive and motivational leadership styles. Another study used the ASQ to examine the satisfaction of international athletes participating in the NCAA. The researchers found that the athletes were satisfied, on average, as long as they viewed that they had positive relationships with their coaches (Trendafilova et al., 2010). Additionally, they found that the higher the budgets and scholarships were, the more satisfied the athletes were (Trendafilova et al., 2010).

Being a part of any team requires people with different skill-sets and weaknesses to collaborate for a common goal. This is no different in sports, and the leaders are the coaches of the teams. Coaches have a unique dynamic because they act as a boss. This can create conflict between the coaches and the team when the team does not feel heard or respected by the coaches and the ways they lead. Athletes tend to prefer a democratic style of leadership as opposed to autocratic leadership (Kim & Cruz, 2016). This means that the athletes still want to have a voice even though the coach has the power to make the final decisions on matters. This is not the way

that coaches, especially of the higher level, always act. Many coaches expect perfection, have a lot of pressure on them from the athletic department to perform, and worry about their image rather than the image of the team. Olusoga et al. (2012) studied Olympic coaches and how they manage coaching under pressure. This study found that factors such as psychological attributes, preparation, coping at the event, and emotional control most influence coaching performance in a stressful environment. These show that some facets of coaches' performances are the same that influence athletes' performances. It also shows that coaches experience stress at similar, if not heightened levels to athletes. If coaches and athletes do not collaborate under these times of stress and pressure, there can be discrepancies that could lead to lower athlete satisfaction.

Another variable that is related to athlete satisfaction is burnout. Burnout is the word used to describe the feeling an athlete gets when they are overwhelmed with athletics and numerous other priorities, such as homework, personal responsibilities, and maintaining social relationships. This leads to extreme feelings of dread, stress, and exhaustion (Raedeke & Smith, 2004). While stress likely arises in all athletes at some point, there are people who handle it better than others. The researchers found that athletes who had more social support, in terms of better relationships with teammates and other friendships, and better coping mechanisms had lower levels of self-reported perceived stress (Raedeke & Smith). An additional finding showed that stress is a mediator for burnout, and often those who do have lower levels of social support and coping mechanisms have higher levels of perceived stress and experience more burnout. Raedeke and Smith seemed to suggest that stress-induced burnout in collegiate athletes was a cyclical phenomenon. Often, either athletes can manage the stress and not feel burnout, or fall into the cycle of increasing feelings of burnout and exhaustion, which increases stress even more.

There are still many unanswered questions and potential connections that have yet to be answered in stress-burnout research.

The question remains of what other factors might reduce perceived stress in collegiate athletes, leading to increased satisfaction. One possible factor is religiousness. Religion plays an important role in many people's lives. People have different levels of religiousness, as well as different religions. In a study looking at the relationship between religiousness, perceived stress, and life satisfaction in college students, the researchers found that the higher the religiousness, the higher the participant's life satisfaction (Aftab et al., 2018). The researchers also found that higher religiousness led to lower levels of perceived academic stress (Aftab et al.). The researchers mention in their discussion that a reason this may be is due to the coping mechanisms of the religious versus the nonreligious. They believe that the religious have coping mechanisms that more efficiently reduce stress levels, which leads to higher life satisfaction for students under a lot of stress and pressure (Aftab et al.).

Other studies have examined the relationship between religious doubt and life satisfaction. Researchers found that the more religious doubt a person had, the less life satisfaction he or she had (Gauthier et al., 2006). This shows that there is a relationship between life satisfaction and religion even when measuring religiousness in different ways.

Given that no researcher has yet investigated the extent to which religiousness might predict athlete satisfaction, this study aims to answer questions regarding the relationship between religiousness, stress, and athlete satisfaction. Since there is a general trend for religiousness to be associated with general life satisfaction, this study tested the following hypothesis: Higher self-reported religiousness will be associated with higher athlete satisfaction (as measured by 11 facets of the ASQ) while controlling for perceived vulnerability to stress.

Gender will be included as a covariate given the literature that has found gender as a moderator for certain variables of athlete satisfaction (Kim & Cruz, 2016).

Methods

Participants

This correlational study examined 72 students from Bridgewater College. All participants self-identified as at least 18 years of age and as current collegiate student-athletes. Twenty-seven male athletes and 44 female athletes participated in the study from a variety of sports. Responses came from 11 different sports on campus, which included both team and individual sports. Descriptive statistics for categorical demographic variables are in Table 1.

Procedure

Participants were recruited via emails sent to coaches and team captains with a link to a Qualtrics survey. This survey contained demographic questions and measures of religiousness, perceived vulnerability to stress, and athlete satisfaction. Participants were asked to complete the survey on their own time. Participants had the opportunity to enter into a raffle to win a $50 gift card to Dicks Sporting Goods. Data collection occurred in October 2023 and was approved by the IRB at Bridgewater College.

Measures

The Duke University Religion Index (DUREL; Koenig & Bussing, 2010).

This measure consisted of 5 questions with answer choices allowing the participant to select from 5 or 6 multiple choice answers to represent how often they participated in the activity listed. It measures organizational religious activity (ORA), non-organizational religious activity (NORA), and intrinsic religious motivation (IRM). ORA and NORA both have 6-point scales, while IRM has 5-point scales. ORA examines how often participants attend church or

organizational religious meetings. The higher the number the participant marks, the more

organizational religious activity he or she indicates having. NORA focuses on private religious

practice, which includes praying, Bible study, or other religious activities the person does on his

or her own. This question also has a scale where higher numbers indicate more private religious

practice. The IRM portion focuses on questions where participants answer: 1 (definitely not true)

to 5 (definitely true of me). In the current study, the internal consistency reliability of the total

IRM was .94 (see Table 2).

Stress Overload Scale - Perceived Vulnerability subscale (PV; Amirkhan, 2018).

The next measure consisted of the 12 Stress Overload Scale questions that measure

perceived vulnerability to stress (Amirkhan, 2018). Participants responded to these questions

with a choice of 5 answers ranging from "A lot" to "Not at all." These questions ask statements

that could correspond to the participants feelings over the course of the most recent week. The

participants are instructed to answer the questions to describe how that particular feeling applies

to them. An example item is: "In the past week, have you felt: inadequate?" In the current study,

the internal consistency reliability of the total IRM was .88 (see Table 2).

Athlete Satisfaction Questionnaire (ASQ; Riemer & Chellandurai, 1998)

The next measure consisted of 11 subtests from the 56-question Athlete Satisfaction

Questionnaire (ASQ). The ASQ consists of 7 likert scale choices ranging from "Extremely

Dissatisfied" to "Extremely Satisfied." Participants are asked to answer questions that relate to

different facets of athlete satisfaction, including:

1. Individual Performance - Focuses on the way the individual feels he or she is performing

   in the sport and at practices.

2. Team Performance - Focuses on how the athlete feels the team is performing as a whole, and if they are satisfied with the results of games/competitions based on the team performance.

3. Ability Utilization - Focuses on how the athlete feels about the way that the coach uses his or her abilities to contribute to the team.

4. Strategy - Focuses on if the athlete is satisfied with the strategies of his or her coach.

5. Personal Treatment - Focuses on how the athlete feels the coach treats him or her as an individual and as a member of the team.

6. Training and Instruction - Focuses on how satisfied the athlete is with the practices and coaching feedback the coach provides.

7. Team Task Contribution - Focuses on if the athlete is satisfied with the leadership within the team (outside of the coaches).

8. Team Social Contribution - Focuses on how the athlete views the team engaging with him or her socially outside of athletics.

9. Ethics - Focuses on if the athlete is satisfied with the ethics of the team.

10. Team Integration - Focuses on how the athlete views the team and their contributions.

11. Personal Dedication - Focuses on how committed the athlete feels to the team.

Eleven facets of athlete satisfaction were included as criterion variables in this study. The additional four ASQ factors (i.e. Budget, Medical Personnel, Academic Support, and External Agent factors) were of minimal interest to the researcher. The creators of the ASQ recommend measuring the facets individually as opposed to calculating the total score of the questionnaire for the athletes (Riemer & Chelladurai, 1998). Please see Table 2 for all ASQ facet internal

consistency reliability coefficients. In addition, descriptive statistics for all model variables are in

Table 2.

Results

Since this study required 11 hierarchical linear regressions, the Holm (1979) method was

used to address the issue of potentially inflated Type 1 error rates. The Holm method adjusts the

significance level in a way that prioritizes the most significant results while maintaining control

over the familywise error rate. Before adjusting for multiple comparisons, five of the 11 models

resulted in a rejection of the null hypothesis: Team Task Contribution, Team Social Contribution,

Team Ethics, Team Integration, and Personal Dedication. However, after adjusting for multiple

comparisons, the model predicting Team Task Contribution was no longer able to reject the null

hypothesis and so will not be interpreted as a significant finding. Tables 4 through 14 present the

results of robust bootstrapping hierarchical linear regression analyses, which do not rely on

assumptions of normality or homoscedasticity (Field, 2013).

The model explained 32.7 percent of the variance in ASQ Team Integration scores ($p <$

.001; see Table 13). Religiousness explained an additional 13.1 percent of the variance ($p = .008$)

in ASQ Team Integration scores over and above the variance explained by athlete gender and

perceived vulnerability to stress (PVS). Holding all other predictors constant, NORA made a

significant contribution to the model ($p = .002$).

The model explained 25.9 percent of the variance in ASQ Ethics scores ($p = .001$; see

Table 12). Religiousness explained an additional 12.4 percent of the variance ($p = .02$) in ASQ

Ethics scores over and above the variance explained by athlete gender and perceived

vulnerability to stress (PVS). Holding all other predictors constant, NORA made a significant

contribution to the model ($p < .001$).

The model explained 33 percent of the variance in ASQ Team Social Contribution scores ($p < .001$; see Table 11), and 26.1 percent of the variance in ASQ Personal Dedication scores ($p = .001$; see Table 14). However, religiousness did not explain additional variance in ASQ Team Social Contribution or in ASQ Personal Dedication scores over and above the variance explained by athlete gender and perceived vulnerability to stress.

The model did not explain a significant percent of the variance in any other ASQ subscale score (see Tables 4-10).

Discussion

This study examined whether religiousness could help predict athlete satisfaction over and above a known robust predictor of athlete satisfaction: perceived vulnerability to stress. Religiousness, specifically Non-Organizational Religious Activity (NORA), was a significant predictor for the Team Integration and Ethics facets of the Athlete Satisfaction Questionnaire (ASQ). In addition, religiousness predicted a significant amount of variance in these facet scores over and above the variance predicted by gender and perceived vulnerability to stress.

It makes sense that these facets would play a role in predicting religiousness. Team integration refers to how the athlete views the team and its contributions. Ethics focuses on the morals of the team and how the athlete feels about them. The Team Integration questions from the ASQ include: I am satisfied with…

- How the team works to be the best.
- The degree to which teammates share the same goal.
- Team member's dedication to work together toward the same goal.
- The extent to which teammates work as a team.

The Ethics questions from the ASQ include: I am satisfied with…

● The extent to which all teammates are ethical.

● My teammates' sense of fair play.

● My teammates' 'sportsmanlike behavior.'

Religiousness makes sense as a predictor for Team Integration because it focuses on the team, rather than individuals, and how the athletes view the commitments of teammates. Many of the athlete satisfaction facets focus on the individual's performance, but Team Integration looks at how the athlete relates to the team as a whole and if he or she is satisfied with how the team works together towards its goals. Religiousness may be a predictor of this facet because someone who rates higher on NORA may have more motivation to get along with and support teammates. These athletes may also value the interactions with teammates as a higher priority than performance or winning. They may also be less judgmental of teammates and more willing to get along with the different personalities on the team. Those who are more religious, may feel more satisfied with the team, despite the performance of the team, as long as they feel a connection to their teammates.

Religiousness also makes sense as a predictor of Ethics. People who are more religious, especially when spending time in private prayer and/or meditation, may cultivate a more forgiving disposition toward others, even toward people who may act in a way that challenges their morals (Norenzayan, 2014). This could mean that those who are more religious feel more satisfied with the team's ethics because they do not wish to judge the actions of others. They may also have a more positive outlook on the behaviors of others, and do not wish to hold grudges against people who may occasionally act in a less than completely ethical manner. Especially in collegiate sports, athletes may succumb to pressure or anger and act in ways that they do not

usually behave. A more religious person may be more likely to empathize with why that person chooses to act that way and forgive them quicker due to the circumstances.

Ethics and Team Integration make sense to relate to religiousness because they both focus on how the individual perceives the team. These two facets also place more emphasis on perception of the team, rather than on performance - individual or team. These both speak to the character of the teammates and how the individual feels about the actions of others. This could mean that the level of religiousness predicts how the individual feels about the behaviors of teammates. This is just as important to athlete satisfaction in team sports as individual performance because any teammate can contribute or take away from the team's success.

Although two other facets - Team Task Contribution and Team Social Contribution - focus on the perception of the team, they differ from Ethics and Team Integration in what aspect of the team the athlete is judging. For Team Task Contribution, the athlete is rating his or her satisfaction with the leadership within the team, such as captains or older members with leadership status. This is different because it is judging the leadership specifically of team members and not how the athlete views the team overall. Team Social Contribution focuses on how the athlete feels about social relationships with team members outside the athletic context. This would not be predicted by religiousness because there are many factors that could influence who a person chooses to be friends with.

The ASQ facet that had the highest mean score was the Personal Dedication facet, with a mean of 6.31 on a scale of 1 to 7 (Table 2). Interestingly, the lowest mean for an ASQ facet was Team Performance at a 5 (Table 2). Therefore, this sample had a very high level of satisfaction across all facets.

NORA, in particular, was the religiousness variable that predicted Team Integration and Ethics as opposed to intrinsic religious motivation (IRM). This could be because those scoring higher in NORA actively make time to prioritize and *practice* their religion. On the other hand, those scoring high on IRM might value religion highly, but may not have or make time to focus on *practicing* their religion. This means there is likely a greater chance of the religious views of those who score higher on NORA carrying over to how they view their teammates and the way they behave, which predicts their athlete satisfaction (Berthold & Ruch, 2014).

The sample had a median score of 3 on NORA and a mean score of 3.48 on the IRM measure (Table 2). This shows only a moderately religious sample, even though 79.2% of the sample identified with a particular religion (Table 1). It is interesting that despite the large percentage of the sample who identified with a specific religion, their religiousness - as indicated by their NORA and IRM scores - was not especially high.

The mean of the Perceived Vulnerability to Stress (PVS) scale in the sample was 1.86 on a scale of 1 to 5 (Table 2), which is relatively low. This fits with the sample's higher athlete satisfaction scores across the ASQ facets.

Some limitations of this study are that it was a convenience sample consisting largely of white, female, Division III athletes who reported being moderately religious, well-satisfied with most aspects of their athletic life, and currently experiencing minimal perceived vulnerability to stress. Those athletes who were less satisfied or more stressed out may have chosen not to participate due to minimal motivation to take the survey. Additionally, there was only one college in the sample, which was a Division III school. Division III schools do not offer scholarships, so playing sports relies more on intrinsic motivation than extrinsic. Also, the sample had more women than men. These limitations mean the results may not be generalizable

to other collegiate athletes. Also, there was some attrition, as 43 people started the survey but did not complete it. The survey may have been too long for many athletes, given their busy schedules. Finally, the correlational design of this study prevents any cause-and-effect conclusions regarding religiousness and athlete satisfaction.

Some recommendations moving forward would be to use samples of Division I collegiate athletes. It would be interesting to investigate the athlete satisfaction of scholarship collegiate athletes. Also, looking at samples of a more diverse population would be interesting, especially with a greater diversity of religions, greater perceived vulnerability to stress, and with a greater percentage of male athletes. Finally, using a shorter survey might improve response rates.

References

Aftab, M. T., Naqvi, A. A., Al-karasneh, A. F., & Ghori, S. A. (2018). Impact of religiosity on subjective life satisfaction and perceived academic stress in undergraduate pharmacy students. *Journal of Pharmacy And Bioallied Sciences*, *10*(4), 192. doi:10.4103/jpbs.jpbs_65_18.

Amirkhan, J. H. (2018). A Brief Stress Diagnostic Tool: The Short Stress Overload Scale. *Assessment*, *25*(8), 1001–1013. https://doi.org/10.1177/1073191116673173.

Berthold, A., & Ruch, W. (2014). Satisfaction with life and character strengths of non-religious and religious people: It's practicing one's religion that makes the difference. *Frontiers in Psychology*, *5*. https://doi.org/10.3389/fpsyg.2014.00876.

Burns, G. N., Jasinski, D., Dunn, S. C., & Fletcher, D. (2012). Athlete identity and athlete satisfaction: The nonconformity of exclusivity. *Personality and Individual Differences*, *52*(3), 280–284. doi:10.1016/j.paid.2011.10.020.

Chelladurai, P. & Riemer, H. A. (1997). A classification of facets of athlete satisfaction. *Journal of Sport Management*, *11*(2), 133–159. doi:10.1123/jsm.11.2.133.

College Athletics and Mental Health: Helping Student-Athletes Strike a Balance. (2023). https://medicat.com/college-athletics-and-mental-health-helping-student-athletes-strike-a-balance/

Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th ed.). Sage Publications, Inc.

Gauthier, K. J., Christopher, A. N., Walter, M. I., Mourad, R., & Marek, P. (2006). Religiosity, religious doubt, and the need for cognition: Their interactive relationship with life satisfaction. *Journal of Happiness Studies*, *7*(2), 139–154. doi:10.1007/s10902-005-1916-0

Henry, C. (2023). College sports not immune to mental health challenges. Retrieved from

      https://www.ncaa.org/news/2023/5/4/media-center-college-sports-not-immune-to-mental-

      health-challenges.aspx

Holm, S. (1979). A simple sequentially rejective multiple test procedure. *Scandinavian Journal*

      of Statistics, 6, 65-70

Kim, H.-D., & Cruz, A. B. (2016). The influence of coaches' leadership styles on athletes'

      satisfaction and team cohesion: A meta-analytic approach. *International Journal of*

      Sports Science & Coaching, *11*(6), 900–909. doi:10.1177/1747954116676117.

Jawoosh, H. N., Alshukri, H. A., Kzar, M. H., Kizar, M. N., Ameer, M. A., & Razak, M. R.

      (2022). Analysis of Coaches' leadership style and its impact on athletes' satisfaction in

      University Football Teams. *International Journal of Human Movement and Sports*

      Sciences, *10*(6), 1115–1125. doi:10.13189/saj.2022.100602.

Koenig, H. G., & Bussing, A. (2010). The Duke University Religion Index (DUREL): A

      Five-Item Measure for Use in Epidemological Studies. *Religions*, *1*(1), 78–85. MDPI

      AG. http://dx.doi.org/10.3390/rel1010078.

NCAA student-athletes surpass 520,000, set a new record. (2022).

      https://www.ncaa.org/news/2022/12/5/media-center-ncaa-student-athletes-surpass-520-00

      0-set-new-record.aspx

Norenzayan, A. (2014). Does religion make people moral? *Behaviour*, *151*(2/3), 365–384.

      http://www.jstor.org/stable/24526014.

Olusoga, P., Maynard, I., Hays, K., & Butt, J. (2012). Coaching under pressure: A study of

      olympic coaches. *Journal of Sports Sciences*, *30*(3), 229–239.

      doi:10.1080/02640414.2011.639384.

Raedeke, T. D., & Smith, A. L. (2004). Coping Resources and athlete burnout: An examination

    of stress mediated and moderation hypotheses. *Journal of Sport and Exercise*

    Psychology, *26*(4), 525–541. doi:10.1123/jsep.26.4.525.

Riemer, H. A., & Chellandurai, P. (1998). Development of the Athlete Satisfaction Questionnaire

    (ASQ). *Journal of Sport & Exercise Psychology, 20*(2), 127–156.

Trendafilova, S., Hardin, R., & Kim, S. (2010). Satisfaction among international student-athletes

    who participate in the National Collegiate Athletic Association. *Journal of*

    Intercollegiate Sport, *3*(2), 348–365. doi:10.1123/jis.3.2.348.

Warner, S., & Dixon, M.A. (2013). Sports and Community on Campus: Constructing a Sports

    Experience That Matters. *Journal of College Student Development 54*(3), 283-298.

    https://doi.org/10.1353/csd.2013.0044.

Zhou, H., Zhang, Y., Han, X., Dai, X., Lou, L., Hou, X., Zhou, C., Liu, Z., & Zhang, W. (2022).

    Athlete students lead a healthier life than their non-athlete peers: A cross-sectional study

    of health behaviors, depression, and perceived health status among university students.

    Frontiers in psychology, *13*, 923667. https://doi.org/10.3389/fpsyg.2022.923667.

Table 1. - College Athlete Demographics (N = 72).

Demographic Variable	n	Percent
Sex		
Female	44	61.1%
Male	27	37.5%
Non-binary/third gender	1	1.4%
Race		
White	59	81.9%
Black or African American	6	8.3%
Asian	3	4.2%
Hispanic or Latino	2	2.8%
Other	2	2.8%
Year in College		
First-year	14	19.4%
Sophomore	18	25.0%
Junior	17	23.6%
Senior	19	26.4%
Fifth-year	4	5.6%
Primary Sport at School		
Basketball	5	6.9%
Field Hockey	1	1.4%
Golf	2	2.8%
Lacrosse	3	4.2%
Soccer	15	20.8%

Softball	10	13.9%
Swimming	13	18.1%
Tennis	8	11.1%
Track and Field	4	5.6%
Volleyball	4	5.6%
Baseball	7	9.7%
Starter Status in Sport		
Almost always a starter	47	65.3%
A starter in roughly half of the games/competitions	8	11.1%
Occasionally a starter	7	9.7%
Rarely/never a starter	10	13.9%
Satisfaction with Playing Time		
Extremely dissatisfied	3	4.2%
Somewhat dissatisfied	7	9.7%
Neither satisfied nor dissatisfied	9	12.5%
Somewhat satisfied	20	27.8%
Extremely satisfied	33	45.8%
Satisfaction of Relationship with Head Coach		
Extremely dissatisfied	2	2.8%
Somewhat dissatisfied	6	8.3%
Neither satisfied nor dissatisfied	10	13.9%
Somewhat satisfied	17	23.6%
Extremely satisfied	37	51.4%
Current Religious Affiliation		
Protestant (Christian)	35	48.6%

Roman Catholic (Christian)	14	19.4%
Buddhist	1	1.4%
Agnostic	1	1.4%
Something else	6	8.3%
Nothing in particular	15	20.8%
Conflicts Between Religious Activity and Sport?		
Yes	7	9.7%
No	65	90.3%

Table 2. - Descriptive statistics for all continuous model variables (N = 72).

	Possible Score Range	Mean	SD	a
DUREL NORA	1 to 6	3.00 (*Mdn*)	N/A	N/A
DUREL IRM	1 to 5	3.48	1.37	.94
ASQ Individual Performance	1 to 7	5.45	1.27	.83
ASQ Team Performance	1 to 7	5.00	1.45	.83
ASQ Ability Utilization	1 to 7	5.78	1.12	.91
ASQ Strategy	1 to 7	5.44	1.35	.95
ASQ Personal Treatment	1 to 7	5.62	1.37	.95
ASQ Training and Instruction	1 to 7	5.64	1.38	.93
ASQ Team Task Contribution	1 to 7	5.91	0.90	.83
ASQ Social Contribution	1 to 7	6.02	0.91	.77
ASQ Ethics	1 to 7	5.86	0.86	.65
ASQ Team Integration	1 to 7	5.88	0.94	.83
ASQ Personal Dedication	1 to 7	6.31	0.74	.85
Perceived Vulnerability to Stress	1 to 5	1.86	0.51	.88

Note: DUREL = Duke University Religion Index; NORA = Non-Organizational Religious Activity from Duke University Religion Index; IRM = Intrinsic Religious Motivation from Duke University Religion Index; ASQ = Athlete Satisfaction Questionnaire

Table 3. Spearman Rho correlation coefficients among all model variables (N = 72)

	IP	TP	AU	S	PT	T+I	TTC	TSC	E	TI	PD
Gender□	.25$^+$	.19	.11	.08	.08	.16	.30$^+$	.28$^+$	.28$^+$	.34*	.39**
PVS	-.02	.10	-.10	-.10	-.24$^+$	-.13	-.27$^+$	-.45**	-.25$^+$	-.25$^+$	-.33*
NORA	-.10	.12	.11	.18	.22	.21	.09	.001	.19	.28$^+$	.06
IRM	-.07	-.05	.05	.08	.16	.13	.13	-.01	.07	.20	.12

$^+$Correlation significant at *p* < .05;
*Correlation significant at *p* < .01 (2-tailed);
**Correlation significant at *p* < .001 (2-tailed).
□Point-biserial Correlation Coefficient (a positive coefficient indicates females score higher than males)
Note: PVS = Perceived Vulnerability to Stress subscale from Stress Overload Scale; NORA = Non-Organizational Religious Activity from Duke University Religion Index; IRM = Intrinsic Religious Motivation from Duke University Religion Index; IP = Individual Performance from Athlete Satisfaction Questionnaire; TP = Team Performance from Athlete Satisfaction Questionnaire; AU = Ability Utilization from Athlete Satisfaction Questionnaire; S = Strategy from Athlete Satisfaction Questionnaire; PT = Personal Treatment from Athlete Satisfaction Questionnaire; T+I = Training and Instruction from Athlete Satisfaction Questionnaire; TTC = Team Task Contribution from Athlete Satisfaction Questionnaire; TSC = Team Social Contribution from Athlete Satisfaction Questionnaire; E = Ethics from Athlete Satisfaction Questionnaire; TI = Team Integration from Athlete Satisfaction Questionnaire; PD = Personal Dedication from Athlete Satisfaction Questionnaire

Table 4. Hierarchical linear model of NORA and IRM as predictors of Individual Performance, with 95% bias corrected and accelerated confidence intervals reported in brackets. Confidence internals and standard errors based on 1000 bootstrap samples (N = 72).

	b	SE B	p
Step 1			
Constant	4.73 [3.12, 6.42]	.83	< .001
Gender	.36 [-.33, 1.07]	.36	.321
PVS	.07 [-.54, .74]	.33	.84
Step 2			
Constant	5.16 [3.36, 7.09]	.97	< .001
Gender	.38 [-.37, 1.11]	.38	.32
PVS	.05 [-.53, .71]	.32	.88
NORA	.01 [-.26, .30]	.14	.92
IRM_AVG	-.08 [-.40, .30]	.18	.66

Note: R^2 = .02 for Step 1; ΔR^2 = .02 for Step 2 (*p* = .77). PVS = Perceived Vulnerability to Stress from the Stress Overload Scale; NORA = Non-Organizational Religious Activity from the Duke University Religion Index; IRM_AVG = Intrinsic Religious Motivation Average from the Duke University Religion Index.

Table 5. Hierarchical linear model of NORA and IRM as predictors of Team Performance, with 95% bias corrected and accelerated confidence intervals reported in brackets. Confidence internals and standard errors based on 1000 bootstrap samples (N = 72).

	_b_	_SE B_	_p_
Step 1			
Constant	3.39 [1.61, 5.48]	1.00	.003
Gender	.59 [-.13, 1.25]	.34	.086
PVS	.35 [-.41, .99]	.35	.32
Step 2			
Constant	3.38 [1.19, 5.71]	1.13	.007
Gender	.73 [.01, 1.39]	.33	.035
PVS	.31 [-.45, .94]	.35	.383
NORA	.22 [-.04, .49]	.13	.098
IRM_AVG	-.44 [-.79, .003]	.20	.022

Note: $R^2 = .05$ for Step 1; $\Delta R^2 = .07$ for Step 2 ($p = .19$). PVS = Perceived Vulnerability to Stress from the Stress Overload Scale; NORA = Non-Organizational Religious Activity from the Duke University Religion Index; IRM_AVG = Intrinsic Religious Motivation Average from the Duke University Religion Index.

Table 6. Hierarchical linear model of NORA and IRM as predictors of Ability Utilization, with 95% bias corrected and accelerated confidence intervals reported in brackets. Confidence internals and standard errors based on 1000 bootstrap samples (N = 72).

	<u>b</u>	<u>SE B</u>	<u>p</u>
Step 1			
Constant	5.69 [4.17, 7.25]	.77	< .001
Gender	.22 [-.25, .73]	.24	.344
PVS	-.15 [-.80, .48]	.33	.672
Step 2			
Constant	5.71 [3.86, 7.51]	.90	< .001
Gender	.28 [-.24, .76]	.25	.294
PVS	-.20 [-.83, .44]	.33	.561
NORA	.12 [-.11, .40]	.13	.345
IRM_AVG	-.08 [-.40, .22]	.15	.575

Note: R^2 = .02 for Step 1; ΔR^2 = .02 for Step 2 (*p* = .76). PVS = Perceived Vulnerability to Stress from the Stress Overload Scale; NORA = Non-Organizational Religious Activity from the Duke University Religion Index; IRM_AVG = Intrinsic Religious Motivation Average from the Duke University Religion Index.

Table 7. Hierarchical linear model of NORA and IRM as predictors of Strategy, with 95% bias corrected and accelerated confidence intervals reported in brackets. Confidence internals and standard errors based on 1000 bootstrap samples (N = 72).

	b	SE B	p
Step 1			
Constant	5.23 [3.38, 7.30]	.96	< .001
Gender	.21 [-.41, .79]	.31	.479
PVS	-.07 [-.81, .66]	.37	.860
Step 2			
Constant	4.94 [2.71, 7.30]	1.17	.002
Gender	.31 [-.34, .88]	.32	.335
PVS	-.13 [-.85, .61]	.38	.751
NORA	.22 [-.04, .49]	.13	.087
IRM_AVG	-.19 [-.49, .20]	.17	.244

Note: R^2 = .01 for Step 1; ΔR^2 = .05 for Step 2 (p = .31). PVS = Perceived Vulnerability to Stress from the Stress Overload Scale; NORA = Non-Organizational Religious Activity from the Duke University Religion Index; IRM_AVG = Intrinsic Religious Motivation Average from the Duke University Religion Index.

Table 8. Hierarchical linear model of NORA and IRM as predictors of Personal Treatment, with 95% bias corrected and accelerated confidence intervals reported in brackets. Confidence internals and standard errors based on 1000 bootstrap samples (N = 72).

	b	$SE\ B$	p
Step 1			
Constant	6.03 [4.43, 7.88]	.89	< .001
Gender	.27 [-.33, .77]	.29	.365
PVS	-.46 [-1.16, .32]	.38	.217
Step 2			
Constant	5.70 [3.85, 7.62]	.96	< .001
Gender	.37 [-.22, .91]	.28	.202
PVS	-.57 [-1.25, .22]	.38	.134
NORA	.29 [.05, .54]	.12	.020
IRM_AVG	-.06 [-.38, .39]	.19	.750

Note: R^2 = .04 for Step 1; ΔR^2 = .08 for Step 2 (p = .11). PVS = Perceived Vulnerability to Stress from the Stress Overload Scale; NORA = Non-Organizational Religious Activity from the Duke University Religion Index; IRM_AVG = Intrinsic Religious Motivation Average from the Duke University Religion Index.

Table 9. Hierarchical linear model of NORA and IRM as predictors of Training and Instruction, with 95% bias corrected and accelerated confidence intervals reported in brackets. Confidence internals and standard errors based on 1000 bootstrap samples (N = 72).

	b	SE B	p
Step 1			
Constant	5.01 [3.20, 6.78]	.89	< .001
Gender	.46 [-.15, 1.04]	.31	.134
PVS	-.07 [-.72, .72]	.37	.841
Step 2			
Constant	4.83 [2.65, 6.88]	1.05	< .001
Gender	.56 [-.09, 1.14]	.31	.078
PVS	-.15 [-.87, .64]	.37	.698
NORA	.23 [-.03, .48]	.13	.069
IRM_AVG	-.14 [-.45, .28]	.18	.390

Note: R^2 = .03 for Step 1; ΔR^2 = .05 for Step 2 (*p* = .35). PVS = Perceived Vulnerability to Stress from the Stress Overload Scale; NORA = Non-Organizational Religious Activity from the Duke University Religion Index; IRM_AVG = Intrinsic Religious Motivation Average from the Duke University Religion Index.

Table 10. Hierarchical linear model of NORA and IRM as predictors of Team Task Contribution, with 95% bias corrected and accelerated confidence intervals reported in brackets. Confidence internals and standard errors based on 1000 bootstrap samples (N = 72).

	$\underline{b}$	$\underline{SE\ B}$	$\underline{p}$
Step 1			
Constant	6.01 [5.07, 7.11]	.54	< .001
Gender	.52 [.11, .91]	.21	.015
PVS	-.51 [-.94, -.12]	.21	.018
Step 2			
Constant	6.12 [4.76, 7.11]	.70	< .001
Gender	.54 [.13, .94]	.21	.013
PVS	-.56 [-1.03, -.15]	.23	.015
NORA	.10 [-.06, .24]	.08	.216
IRM_AVG	-.003 [-.20, .27]	.12	.980

Note: R^2 = .18 for Step 1; ΔR^2 = .02 for Step 2 (*p* = .63). PVS = Perceived Vulnerability to Stress from the Stress Overload Scale; NORA = Non-Organizational Religious Activity from the Duke University Religion Index; IRM_AVG = Intrinsic Religious Motivation Average from the Duke University Religion Index.

Table 11. Hierarchical linear model of NORA and IRM as predictors of Social Contribution, with 95% bias corrected and accelerated confidence intervals reported in brackets. Confidence internals and standard errors based on 1000 bootstrap samples (N = 72).

	b	*SE B*	*p*
Step 1			
Constant	6.82 [5.87, 7.72]	.49	< .001
Gender	.43 [.08, .82]	.19	.029
PVS	-.82 [-1.29, -.37]	.23	.004
Step 2			
Constant	7.20 [5.98, 8.41]	.62	< .001
Gender	.48 [.12, .87]	.20	.022
PVS	-.89 [-1.39, -.40]	.25	.004
NORA	.13 [-.03, .28]	.08	.104
IRM_AVG	-.06 [-.22, .15]	.09	.491

Note: R^2 = .28 for Step 1; ΔR^2 = .05 for Step 2 (*p* = .21). PVS = Perceived Vulnerability to Stress from the Stress Overload Scale; NORA = Non-Organizational Religious Activity from the Duke University Religion Index; IRM_AVG = Intrinsic Religious Motivation Average from the Duke University Religion Index.

Table 12. Hierarchical linear model of NORA and IRM as predictors of Ethics, with 95% bias corrected and accelerated confidence intervals reported in brackets. Confidence internals and standard errors based on 1000 bootstrap samples (N = 72).

	b	SE B	p
Step 1			
Constant	5.85 [4.83, 7.03]	.56	< .001
Gender	.45 [.07, .86]	.20	.024
PVS	-.40 [-.77, -.02]	.19	.044
Step 2			
Constant	5.93 [4.60, 7.18]	.66	< .001
Gender	.56 [.20, .95]	.19	.006
PVS	-.50 [-.91, -.09]	.20	.014
NORA	.25 [.09, .42]	.08	< .001
IRM_AVG	-.17 [-.41, .12]	.13	.195

Note: R^2 = .14 for Step 1; ΔR^2 = .12 for Step 2 (*p* = .02). PVS = Perceived Vulnerability to Stress from the Stress Overload Scale; NORA = Non-Organizational Religious Activity from the Duke University Religion Index; IRM_AVG = Intrinsic Religious Motivation Average from the Duke University Religion Index.

Table 13. Hierarchical linear model of NORA and IRM as predictors of Team Integration, with 95% bias corrected and accelerated confidence intervals reported in brackets. Confidence internals and standard errors based on 1000 bootstrap samples (N = 72).

	b	*SE B*	*p*
Step 1			
Constant	5.75 [4.78, 6.73]	.51	< .001
Gender	.62 [.20, 1.03]	.21	.006
PVS	-.48 [-.90, -.09]	.21	.023
Step 2			
Constant	5.73 [4.61, 6.92]	.59	< .001
Gender	.73 [.32, 1.12]	.20	.003
PVS	-.59 [-1.02, -.17]	.22	.012
NORA	.28 [.15, .46]	.08	.002
IRM_AVG	-.14 [-.40, .07]	.12	.224

Note: R^2 = .20 for Step 1; ΔR^2 = .13 for Step 2 (*p* = .01). PVS = Perceived Vulnerability to Stress from the Stress Overload Scale; NORA = Non-Organizational Religious Activity from the Duke University Religion Index; IRM_AVG = Intrinsic Religious Motivation Average from the Duke University Religion Index.

Table 14. Hierarchical linear model of NORA and IRM as predictors of Personal Dedication, with 95% bias corrected and accelerated confidence intervals reported in brackets. Confidence internals and standard errors based on 1000 bootstrap samples (N = 72).

	_b_	_SE B_	_p_
Step 1			
Constant	6.13 [5.04, 7.01]	.50	< .001
Gender	.55 [.24, .90]	.17	< .001
PVS	-.39 [-.71, -.06]	.17	.022
Step 2			
Constant	5.91 [4.61, 7.11]	.64	< .001
Gender	.55 [.24, .90]	.16	< .001
PVS	-.41 [-.74, -.06]	.18	.025
NORA	.04 [-.09, .18]	.07	.562
IRM_AVG	.07 [-.11, .28]	.10	.479

Note: R^2 = .23 for Step 1; ΔR^2 = .03 for Step 2 (p = .50). PVS = Perceived Vulnerability to Stress from the Stress Overload Scale; NORA = Non-Organizational Religious Activity from the Duke University Religion Index; IRM_AVG = Intrinsic Religious Motivation Average from the Duke University Religion Index.