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original research

Assessing Intentions to Eat a Healthful Diet Among National Collegiate Athletic Association Division II Collegiate Athletes

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Context: Many athletes fail to obtain the optimal levels of energy and nutrients to support health and performance. The constructs underlying the Theory of Planned Behavior (TPB) may help identify barriers to healthful eating that can be addressed in nutrition-education programs.

Objective: To use the TPB to examine factors regarding collegiate male and female student-athletes' intentions of eating a healthful diet.

Design: Cross-sectional study.

Setting: Online survey tool.

Patients or Other Participants: The survey was taken by 244 male and female National Collegiate Athletic Association Division II athletes, and data from 201 were analyzed. Mean age of the athletes was 20 ± 1.31 years (range, 18–24 years); most were white (86.1%) and female (78.6%).

Main Outcome Measure(s): We assessed predictive strength of attitude, subjective norms, and perceived behavioral control on behavioral intentions. Regression analysis evaluated how the variables of TPB were valued and how they predict behavioral intentions.

Results: The combination of attitude, subjective norms, and perceived behavioral controls accounted for 73.4% (R^2) of the variance in behavioral intention ($F = 180.82$, $P < .001$). Attitude had the greatest influence on behavioral intentions ($\beta = .534$, $P < .001$).

Conclusions: Understanding both the intentions of collegiate athletes to eat healthfully and how highly they value nutrition is crucial for the development of effective nutrition education and counseling programs.

Key Words: Theory of Planned Behavior, nutrition, sex differences

Key Points

- These collegiate student-athletes viewed a healthful diet as a way to improve sport endurance and concentration.
- Family, teammates, and fans influenced the athletes' intentions to eat a healthful diet.
- The athletes had a high level of perceived control over environmental factors that may affect dietary behaviors.

Many athletes fail to obtain the optimal levels of energy and nutrients to support health and performance.[1–6] The dietary behaviors of collegiate athletes are subjected to the same challenges that all college students face, including 24-hour access to low-quality, energy-dense food; schedule demands; social situations; and newly found independence.[7,8] Despite a lack of knowledge and suboptimal dietary behaviors, collegiate athletes appear to have a positive attitude overall toward nutrition and nutrition education.[7,9–12]

The Theory of Planned Behavior (TPB) stems from the Theory of Reasoned Action.[13] Extensive literature[14] has explored the role of TPB in health-related decision-making behaviors. The assumptions of TPB have been well described, with behavioral intention being considered the most influential predictor of behavior.[15] The TPB postulates that the stronger the intention, the more likely the person will perform a behavior.[16] The 3 major constructs that directly affect behavioral intention are attitude, subjective norms, and perceived behavioral control (Figure 1). *Attitudes* refer to the degree to which a person has a favorable or unfavorable evaluation of the behavior of interest. *Subjective norms* is the belief about whether most people approve or disapprove of the behavior and whether peers and people important to the person think he or she should engage in the behavior. *Perceived behavioral control* describes a person's perception of the ease or difficulty of performing the behavior of interest.[13] Collegiate athletes may change their intentions to eat a more healthful diet through educational programs based on TPB, ultimately improving their dietary behaviors. Identifying and prioritizing key beliefs that predict behavioral intentions provide guidance for developing effective nutrition-education programming.

The survey used for this study was used previously only to assess the TPB in male collegiate baseball players.[17] Pawlak et al[17] found that the combination of attitudes, subjective norms, and perceived behavioral control accounted for 70% of the variance in behavioral intention ($F = 84.06$, $P < .001$). Adding the corresponding value statement to these beliefs accounted for 72% of the variance in behavioral intentions, which was a significant increase ($F = 3.33$, $P = .023$). Only 1 behavioral-belief statement (focus and concentration: $\beta = .396$, $P = .003$) and 1 behavioral-control statement (schedule challenges: $\beta = .483$, $P = .002$) had significant effects on behavioral intention. No subjective-norms statement had a significant effect on behavioral intention.

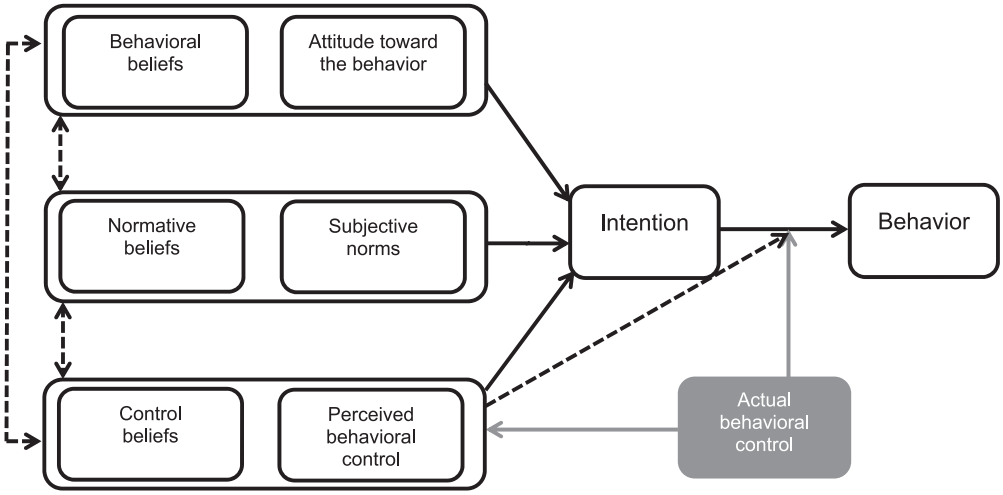

Figure 1. Theory of Planned Behavior (TPB) framework adapted from Ajzen I with permission. Constructing a TPB Questionnaire: Conceptual and Methodological Considerations. 2006. http://people.umass.edu/~aizen/pdf/tpb.measurement.pdf. Accessed June 4, 2014.

The purpose of our study was to examine National Collegiate Athletic Association (NCAA) Division II male and female student-athletes' intentions to eat a healthful diet. The 3 main aims were to use the TPB framework to (1) determine the strength of attitudinal, normative (social), and control factors on predicting intentions of eating a healthful diet; (2) assess the strength of the expectancy-component beliefs (behavioral, normative, and control) on predicting intentions of eating a healthful diet; and (3) evaluate the influence of the expectancy-component beliefs and corresponding value statements that predicted the behavioral intentions of NCAA Division II athletes. Our goal was to expand on those data to include many sports and both sexes. Additionally, we were not aware of any authors who had looked at sex differences and the TPB among collegiate athletes, and only a few investigators[18,19] had researched a similar age group with equivocal results.

METHODS

This cross-sectional study involved NCAA Division II student-athletes at 1 university. All student-athletes from 23 teams were invited to participate in this study during the fall 2012 semester. Inclusion criteria were being listed on an NCAA squad roster, at least 18 years of age, and English speaking. The research protocol was approved by the university's institutional review board.

To gain the support of the coaches, we shared the study proposal with them during meetings in the fall of 2012. During the latter part of the fall 2012 semester and with the coaches' approval, we took 15 minutes during each team's practice to explain the study. In February 2013, an e-mail containing a link to the online survey (SurveyMonkey, Palo Alto, CA) was sent to all athletes. An athlete who agreed to participate in the survey selected the *accept* option at the end of the consent form. To ensure anonymity, the participant's name was not requested, and each athlete received a unique identification number when the survey was completed. The online survey was available for 1 month.

Survey Development

A survey based on the TPB and developed by Pawlak et al[17] was used for this study. Internal consistency was established (Cronbach $\alpha = 0.90$ for behavioral intentions, 0.95 for attitude, and 0.85 for perceived behavioral control).[17] The questions included statements about behavioral, normative, and perceived behavioral-control expectancy beliefs, corresponding value statements, and behavioral intentions. All statements were structured on a 7-point Likert scale (*strongly agree* to *strongly disagree* or *much more difficult* to *much easier*). For details about the survey development and scoring methods, refer to Pawlak et al.[17] The original survey questions were written exclusively for NCAA Division I baseball players; therefore, the word *athlete* or *sport* was substituted wherever the word *baseball* appeared, depending on the context. Permission to use the survey was granted by the primary author.[17]

Statistical Analysis

Statistical analyses were performed using SPSS (version 22; IBM Corporation, Armonk, NY) with an a priori level of significance set at $P \leq .05$. We performed multiple linear regression analysis to evaluate how well attitude, subjective norms, and perceived behavioral control predicted behavioral intentions. In addition, 3 regression analyses were conducted to assess how well each of the salient beliefs (behavioral, normative, and control) predicted behavioral intention. From the 3 regression analyses, we performed a hierarchal regression analysis to assess the effect of the significant expectancy-component belief statements and their corresponding value statements. The expectancy components were entered at step 1, and the value statements were entered at step 2. The dependent variable for all regression analyses was behavioral intentions.

RESULTS

Of the 606 eligible participants, 244 completed at least 1 question on the survey. Forty participants were excluded because they failed to answer at least 10 questions. Additionally, 3 participants were removed because they

Table 1. Participants' Demographic Characteristics (n = 201)

Characteristic	No. (%)
Sex	
Male	43 (21.4)
Female	158 (78.6)
Year in school	
Freshman	61 (30.3)
Sophomore	40 (19.9)
Junior	58 (28.9)
Senior	42 (20.9)
Ethnicity	
African American	21 (10.4)
Asian	1 (0.5)
Hispanic	2 (1.0)
White	173 (86.1)
Biracial	4 (2.0)
Sport	
Baseball	7 (3.5)
Basketball: men	4 (2.0)
Basketball: women	15 (7.5)
Cheerleading	7 (3.5)
Cross-country: men	1 (0.5)
Cross-country: women	9 (4.5)
Field hockey	16 (8.0)
Football	10 (5.0)
Golf: men	0 (0)
Golf: women	3 (1.5)
Gymnastics: women	13 (6.5)
Lacrosse: women	15 (7.5)
Rugby: women	24 (11.9)
Soccer: men	2 (1.0)
Soccer: women	8 (4.0)
Softball	13 (6.5)
Aquatics: men	3 (1.5)
Aquatics: women	8 (4.0)
Tennis: men	11 (5.5)
Tennis: women	10 (5.0)
Track and field: men	6 (3.0)
Track and field: women	13 (6.5)
Volleyball: women	9 (4.5)

answered all questions with the same number and were assumed to have not actually read the questions. This left a total of 201 participants (33.2% response rate). The mean age of the athletes was 20 ± 1.31 years (range, 18–24 years); additional demographic characteristics of the athletes (sport, year in school, and ethnicity) are shown in Table 1. We conducted preliminary analyses to ensure there were no violations of the assumptions of normality, linearity, multicollinearity, and homoscedasticity for all regression analyses.

Multiple regression analysis was used to assess the effect of the TPB constructs on intention. The combination of attitude, subjective norms, and perceived behavioral controls accounted for 73.4% (R^2) of the variance in behavior intention ($F_{3,197} = 180.8$, $P < .001$). Attitude had the greatest influence on behavioral intentions ($\beta = .534$, $P < .001$; Figure 2), followed by subjective norms ($\beta = .235$, $P < .001$) and perceived behavioral control ($\beta = .279$, $P < .001$). The multiple regression analysis assessing the effect of belief statements on behavioral intentions indicated that 2 behavioral-belief statements and 3 normative-belief statements predicted behavioral intentions (Table 2).

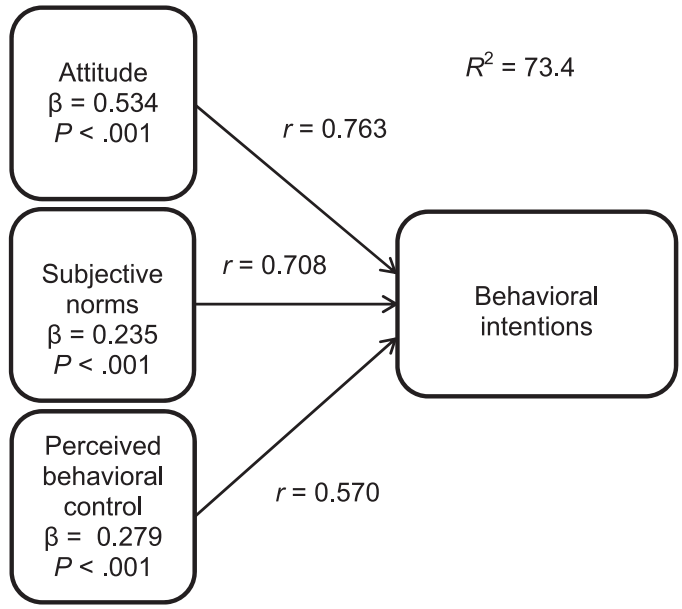

Figure 2. Results of multiple regression analysis assessing variance in behavioral intention predicted by attitude, subjective norms, and perceived behavioral control of athletes. Note: β, standardized beta.

The hierarchical regression of behavioral beliefs that influenced behavior intentions demonstrated that the expectancy components entered at step 1 (*My eating a healthy diet will improve my endurance* [question 9] and *my concentration* [question 10]) explained 25.8% of the variance in behavioral intentions. After adding the value statements *My eating a healthy diet to increase my endurance is very important to me* (question 13) and *My eating a healthy diet to increase my focus and concentration during a game is very important to me* (question 14) at step 2, the total variance explained by the model as a whole was 35.5% ($F_{2,196} = 14.63$, $P < .001$), indicating that the model was a significant predictor of behavioral intentions. After we controlled for the expectancy components, the value statements explained an additional 9.6% of the variance of behavioral intentions (R^2 change = .096; $P < .001$). The hierarchical regression of normative beliefs that influenced behavioral intentions indicated that the expectancy components entered at step 1 (*My teammates* [question 16], *My family (parents, siblings, . . .* [question 17], and *My fans. . .* [question 19] *think that I should eat a healthy diet)* explained 13.2% of the variance in behavioral intentions. After adding the value statements *My teammates* (question 21)*, My family (parents, siblings, . . .)* (question 22), and *My fans* (question 24) *think that I should eat a healthy diet*, the total variance explained by the model as a whole was 13.6% ($F_{3,194} = .301$, $P = .825$), indicating that the model was not a significant predictor of behavioral intention. After controlling for the expectancy components, we found that the value statements explained an additional 4.0% of the variance of behavioral intentions, which was not significant (R^2 change = 0.004, $P = .83$). In the final model, of the 4 expectancy components that were statistically significant (questions 9, 16, 17, and 19), only 1 value statement (question 14) for these expectancy components increased behavioral intentions (Table 3).

Table 2. Results of Multiple Regression Analysis Assessing the Effect of Belief Statements on the Behavioral Intentions of Collegiate Athletes (n = 201)

Belief Statement	Belief Score, Mean ± SD	Correlation With Behavioral Intent	Unstandardized β (B)	Standard Error	Standardized β	*P* Value
Behavioral beliefs						
7. My eating a healthy diet will give me more energy.	6.50 ± 0.74	0.378	0.075	0.384	0.090	.331
8. My eating a healthy diet will improve my stamina.	6.40 ± 0.69	0.429	−0.036	0.113	−0.040	.749
9. My eating a healthy diet will improve my endurance.	6.35 ± 0.77	0.469	0.261	0.089	0.331	.004[a]
10. My eating a healthy diet will help me focus and improve my concentration.	6.28 ± 0.73	0.441	0.171	0.077	0.205	.027[a]
Normative beliefs						
15. My coaches think that I should eat a healthy diet.	6.27 ± 0.91	0.132	0.065	0.053	0.097	.219
16. My teammates think that I should eat a healthy diet.	5.58 ± 1.21	0.022	−0.144	0.046	−0.286	.002[a]
17. My family (parents, siblings, . . .) think that I should eat a healthy diet.	6.14 ± 0.91	0.247	0.104	0.053	0.155	.052[a]
18. My friends think that I should eat a healthy diet.	5.43 ± 1.22	0.211	0.049	0.050	0.097	.332
19. My fans think that I should eat a healthy diet.	5.36 ± 1.27	0.287	0.129	0.046	0.268	.005[a]
Perceived behavioral-control beliefs						
20. In general, I want to do what my coach thinks I should do.	6.13 ± 1.07	0.093	0.056	0.047	0.097	.233
21. In general, I want to do what my teammates think I should do.	5.17 ± 1.65	−0.056	−0.057	0.030	−0.153	.062
22. In general, I want to do what my family thinks I should do.	5.82 ± 1.48	0.079	0.007	0.040	0.016	.869
23. In general, I want to do what my friends think I should do.	5.44 ± 1.52	0.127	0.031	0.033	0.078	.338
24. In general, I want to do what my fans think I should do.	5.15 ± 1.67	0.145	0.051	0.031	0.139	.097

[a] $P \leq .50$.

Sex Differences

To investigate any sex differences, we conducted the same regression analyses by splitting the dataset. The overall combination of attitude, subjective norms, and perceived behavioral controls was significant for both sexes, accounting for 80.9% (adjusted R^2) of the variance in behavioral intention for male athletes and 71.8% (R^2) for female athletes ($F_{3,39} = 55.0$, $P < .001$, and $F_{3,154} = 130.8$, $P < .001$, respectively; Figure 3). However, the influence of subjective norms alone on intent was not significant for males ($\beta = .07$, $P = .50$; Figure 3). The influence of behavioral beliefs on intentions for question 10 (focus and concentration) was significant for both male and female athletes ($\beta = .59$, $P = .02$, and $\beta = .22$, $P = .04$, respectively); however, question 9 (endurance) was significant for male athletes ($\beta = .56$, $P = .006$) but not for female athletes ($\beta = .07$, $P = .50$). The only normative beliefs that were significant were question 17 (family) for male athletes ($\beta = .41$, $P = .03$) and question 19 (fans) for female athletes ($\beta = .27$, $P = .01$). No perceived behavioral-control beliefs significantly affected intentions for either sex.

Separate hierarchical regressions were performed on the statistically significant expectancy-component beliefs and corresponding value statements for the male and female athletes. The value statements explained an additional 16.3% and 9.6% of the variance of behavioral intentions for male and female athletes, respectively (R^2 change = 16.3%, $F_{6,36} = 12.5$, $P < .001$, and R^2 change = 9.6%, $F_{4,153} = 16.2$, $P < .001$). For both male and female athletes, placing high value (question 14) on the belief *My eating a healthy diet will help me focus and improve my concentration* (question 10) increased behavioral intentions ($\beta = .58$, $P = .03$, and $\beta = .39$, $P < .001$, respectively), but male athletes' intentions were more affected.

DISCUSSION

Although the TPB framework has been mentioned in several studies[20–24] in the athletic population, we are aware of only 1 publication[17] that focused on the diet or nutrition of athletes using the TPB. Our study closely follows the work done by Pawlak et al[17] on NCAA Division I baseball players. We were interested in broadening the scope of their findings. Therefore, we (1) investigated a sample of NCAA Division II athletes, (2) included both male and female athletes, and (3) studied athletes in 23 sports. Many differences exist between the experiences of Division I and II athletes that could affect their nutritional intake, including the level of resources, provision of nutritional services, and travel schedules. We also wanted to investigate perceptions of barriers to eating healthfully in both sexes and in athletes from a variety of sports, which was not done previously.

Our first purpose was to determine the strength of attitudinal, normative (social), and control factors on predicting intentions of eating a healthful diet. Although all 3 salient beliefs affected behavioral intention, attitude had the greatest influence, followed by subjective norms and perceived behavioral control (Figure 1), which is consistent with the results of Pawlak et al.[17] Both studies appear to confirm the findings of other authors[7,9–11] who reported that athletes appeared to have an overall positive attitude toward nutrition and nutrition education. Whereas

Table 3. Results of Hierarchical Regression Analysis Assessing the Effect of Significant Expectancy Components and Corresponding Value Statements on the Behavioral Intentions of Collegiate Athletes (n = 201)

Belief Statement	Correlation With Behavioral Intention	Unstandardized β (B)	Standard Error	Standardized β	*P* Value
Step 1: Expectancy component					
9. My eating a healthy diet will improve my endurance.	0.153	0.717	0.064	0.216	.008[a]
10. My eating a healthy diet will help me focus and improve my concentration.	0.040	0.050	0.071	0.059	.487
16. My teammates think that I should eat a healthy diet.	−0.717	−0.110	0.043	−0.217	.011[a]
17. My family (parents, siblings, . . .) think that I should eat a healthy diet.	0.158	0.127	0.054	0.189	.019[a]
19. My fans think that I should eat a healthy diet.	0.200	0.138	0.046	0.285	.003[a]
Step 2: Value statement					
13. My eating a healthy diet to increase my endurance during a game is very important to me.	0.065	0.115	0.102	0.134	.259
14. My eating a healthy diet to increase my focus and concentration during a game is very important to me.	0.135	0.237	0.101	0.287	.020[a]
21. In general, I want to do what my teammates think I should do.	−0.029	−0.022	0.052	−0.046	.668
22. In general, I want to do what my family thinks I should do.	0.013	0.010	0.055	0.017	.851
24. In general, I want to do what my fans think I should do.	0.061	0.035	0.038	0.084	.360

[a] $P \leq .50$.

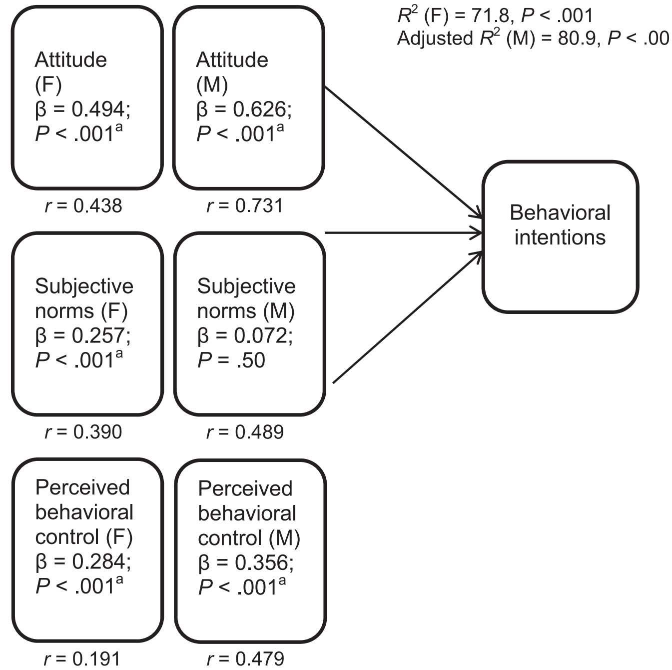

Figure 3. Results of multiple regression analysis assessing variance in behavioral intention predicted by attitude, subjective norms, and perceived behavioral control of female (n = 158) and male (n = 43) athletes. Note: β, standardized beta. Abbreviations: F, females; M, males. [a] Indicates difference.

Pawlak et al[17] found only 2 beliefs that had a significant effect on behavioral intention, we found 5. The behavioral belief *My eating a healthy diet will help me focus and improve my concentration* (Table 2, question 10) was consistent with Pawlak et al.[17] Focus and concentration are known characteristics of elite athletes.[25,26] Additionally in our study, *My eating a healthy diet will improve my endurance* (Table 2, question 9) influenced behavioral intentions. This difference might be expected because our study included athletes from many endurance-based sports, as compared with baseball, for which aerobic endurance is not a major requirement.

The second purpose of our study was to determine the strength of the expectancy-component beliefs (behavioral, normative, and control) on predicting intentions of eating a healthful diet. Three normative beliefs affected behavioral intent: *My teammates* (Table 2, question 16), *family* (Table 2, question 17), and *fans* (Table 2, question 19) *think that I should eat a healthy diet*. Of those 3 beliefs, *family* had the highest mean score, followed by *teammates* and *fans* (6.14 ± 0.91, 5.58 ± 1.21, and 5.36 ± 1.27, respectively). It is interesting that coaches had the highest mean normative-belief score, but that did not influence behavioral intention (mean = 6.27 ± 0.91, P = .219). Similarly, Pawlak et al[17] reported that coaches had the most influence within the normative-belief construct, although it was not statistically significant (mean = 5.3 ± 1.6, P = .06). These results suggest that athletes may often hear their coaches expressing the importance of nutrition, but the effect on their beliefs is not as strong as the effects of family or teammates on behavioral intention. Collegiate athletes receive nutrition and dietary supplement information from many people in their lives, including friends, family,

coaches, and athletic trainers[27–30]; therefore, it is important for the sports medicine team to know who is providing nutrition information to their athletes in order to refer them to a professional who can provide accurate and relevant information.

In this study, the participants' perceptions of the ease or difficulty of performing the behavior of interest did not affect behavioral intentions (Table 2). However, Pawlak et al[17] found the belief *My daily schedule affects my dietary intake* to have a significant influence on behavioral intentions of summer league baseball players. The difference may be due to the fact that the athletes in our study were in school and had easier access to food than the summer baseball players, who were living independently. In contrast, Rosenbloom[12] surveyed more than 200 collegiate male and female athletes and reported that reasons for missing meals included lack of time, food not being readily available, training conflicts with meal time, not being hungry, and not having enough money to buy food. We asked several questions that were associated with perceived behavioral control and addressed specific barriers to eating healthfully (see Supplemental Appendix, available online at http://dx.doi.org/10.4085/1062-6050-51.2.06.S1). Questions 25 through 29 asked how much the athletes agreed that the following affected their dietary intake (1 = *strongly agree* to 7 = *strongly disagree*): schedules, food availability, knowledge of healthful diets, cooking equipment availability. Questions 30 through 34 asked about the difficulty of eating healthfully caused by the following factors (1 = *much more difficult* to 7 = *much easier*): time, cost, convenience, and knowledge of food consumption. The mean ratings for the first 4 factors were all above 5, indicating that the athletes disagreed that these factors made it difficult to eat healthfully. The mean ratings for 3 of the last 4 factors were 5 or above, indicating that the athletes did not feel that time, cost, or convenience made eating healthfully more difficult. The only factor that the athletes rated as making eating healthfully difficult was their awareness of the nutritional value of the foods they ate (question 33). These results support the fact that this sample of athletes had a high level of perceived behavioral control. In other words, they did not feel that these barriers negatively influenced their eating behavior.

The third purpose of our study was to assess the effect of the expectancy-component beliefs and the corresponding value statements that predicted behavioral intentions. Expectancy components in the TPB are beliefs that a specific outcome will occur. Each expectancy component has a corresponding value statement that expresses the importance that the expected outcome will actually occur. As we discussed previously, 2 behavioral beliefs and 3 normative beliefs influenced behavioral intentions (Table 2). However, placing a high value on those beliefs was only significant for the behavioral belief *My eating a healthy diet will help me focus and improve my concentration* ($\beta = .287$, $P = .020$). Neither the behavioral belief *My eating a healthy diet will help me focus and improve my endurance* nor any of the normative beliefs were enhanced by the athletes placing high value on them (Table 3). Pawlak et al[17] found the same result with baseball players. This suggests that athletes place much value on maintaining optimum focus and concentration, and they believe that nutrition plays a part.

Lastly, we were interested in observing any sex differences. Several differences were observed when male and female athletes were analyzed separately. Subjective norms did not influence behavioral intentions in males, suggesting that social pressures applied by referent individuals or groups did not have as big an effect on behavioral intentions compared with the female athletes. Few researchers have assessed sex differences using the TPB to predict diet-related behaviors of adolescents and young adults. Hamilton and White[18] observed TPB constructs for physical activity among adolescents. Although they stated previous investigators had demonstrated that social support may be more influential for females, they found no differences between sexes for social norms. Blanchard et al[19] reported that among college students, females had higher instrumental attitudes, subjective norms, and intentions than males. In our study, subjective norms predicted intention similarly for males and females. These findings contribute to the equivocal body of literature concerning sex differences and the TPB.

The belief *My eating a healthy diet will improve my endurance* (question 9) influenced male athletes but not female athletes. This is interesting because male athletes tend to focus on protein and its role in building muscle.[7,31] Hinton et al[6] reported that only 15% of male collegiate athletes and 26% of female collegiate athletes consumed the recommended amount of carbohydrates. Perhaps the male athletes were under the misconception that protein is a primary source of energy for endurance.[7] The results of multiple regression and hierarchical regression analyses suggest that both sexes place high value on improving focus and concentration and that nutrition may play a key role.

Intentions for males were affected by the beliefs of their families, whereas fans affected females. The term *fans* was not defined in the survey, although fans could be thought of as those individuals who watch the sporting events and whom the athletes do not know. This suggests that female athletes may place more value than male athletes on the opinions of individuals whom they do not know. This difference may be partially explained by previous research[32,33] showing that boys in sports received greater support from their parents than girls because of the parents' higher expectations for boys to succeed. The female athletes may feel that their fans are more supportive of them because they come to watch without the obligations of family members.

Placing high value on eating healthfully accounted for an additional 16.3% and 9.6% of the variance of behavioral intentions for male and female athletes, respectively. This suggests that placing high value on a behavior has a greater effect on intention to change that behavior for male athletes than for female athletes. Therefore, nutrition-education programs should focus more on how important eating a healthful diet is for sport performance when working with male athletes compared with female athletes. Both male and female athletes placed high value on eating to increase concentration and focus. It seems that regardless of sex, athletes were realizing that focus and concentration, as well as physical strength and power, are critical components of sports performance. In fact, the number of sports supplements that promise to increase focus and concentration has increased.

Limitations

Several limitations to this research should be considered. A convenience sample of mostly white female athletes was studied with self-reports. Limitations of the TPB may have failed to account for some of our results: for example, other behavioral intentions and motivations, such as fear, threat, mood, or past experience. Moreover, we measured only behavioral intentions. Therefore, we are not able to conclude that intentions would translate into actual behaviors.

CONCLUSIONS

Motivators for this sample of athletes to eat a healthful diet included the desire to improve endurance and concentration. Sports medicine teams would benefit from understanding key attitudes of their athletes toward healthful eating and how highly they value nutrition. These findings would provide insight when counseling athletes about the relationship between nutrition and sports performance.

We identified family, teammates, and fans as influential referent individuals for this sample of athletes. Coaches did not have a significant effect on behavioral intentions, although the athletes believed they often received nutrition information from coaches. This might be a cue to coaches to refrain from providing nutrition information, as it may not be accepted by their athletes.

The dietary behaviors of collegiate athletes are subjected to many barriers to eating healthfully, including 24-hour access to low-quality, energy-dense food; schedule demands; social situations; and newly found independence.[7,8] However, this sample of athletes had a high level of perceived control over factors in their environment that may affect their dietary behaviors. Our results demonstrated variability in the factors that athletes considered barriers. If sports medicine teams are able to identify the barriers for their athletes, they can better address concerns affecting nutrition.

Our study has identified some key predictors of student-athletes' behavioral intentions to eat a healthful diet. Identifying motivators and influences of and barriers to eating healthfully is crucial for the development of effective nutrition-education and nutrition-counseling programs. Future researchers need to focus on the translation of these behavioral intentions into actual dietary changes.

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SUPPLEMENTAL MATERIAL

Supplemental Appendix. Collegiate Athlete Survey of Nutritional Diets

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