Perceptions of Athletic Training Services by Collegiate Student-Athletes: A Measurement of Athlete Satisfaction

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Objective: I evaluated the perceptions student-athletes had of their athletic trainers and of the medical coverage provided to them by the athletic departments at their institutions. My intent was to assess differences between male and female athletes, between athletes of high-profile and low-profile sports, and between athletes who competed at the NCAA Division I and Division II levels. The research design was also directed at identifying any subgroup of student-athletes who demonstrated a significantly different perception toward their athletic trainer(s).

Design and Setting: Questionnaires were sent to 32 athletic training programs at 28 NCAA Division I and II institutions. Eighteen of the 32 programs participated, yielding a 56% response.

Subjects: A total of 343 student-athletes from 18 selected athletic programs at both the NCAA Division I and II levels participated. One questionnaire contained response errors and was not included in the analysis.

Measurements: A questionnaire was developed and pilot tested at 3 collegiate settings apart from those participating in the study. Validity and reliability analyses were conducted and confirmed by additional professionals in the field of athletic training. Cumulative mean perception scores between groups were measured using independent t tests. Differences in scores between subgroups were measured using a 1-way analysis of variance.

Results: I observed significant differences in mean cumulative perception scores between sex and sport-profile groups. Male athletes and athletes in high-profile sports demonstrated a higher mean perception score than did females and athletes in low-profile sports. There was no difference in scores when compared across athletic divisions. Subgroups of all the athletes participating were identified. Several subgroups demonstrated significant differences in mean cumulative perception scores.

Conclusions: Males and females in low-profile sports at Division II schools and females in high-profile sports at Division II schools had significantly lower mean perception scores than did other subgroups of athletes.

Key Words: relationship, attitude, responsibility, quality

Professionals in the field of athletic training uniformly agree that they are valuable members of the sports medicine team. The prevention of injuries and illness related to athletic participation has traditionally been the responsibility of the athletic trainer. Athletic trainers are also the primary link between the athlete and the medical community.1,2 Results from the Role Delineation Study3 conducted by the National Athletic Trainers’ Association identified injury prevention, evaluation, the rehabilitative process, administrative duties, and professional development as fundamental responsibilities of the athletic trainer. While conducting activities associated with injury assessment and rehabilitation, the athletic trainer must maintain a quality relationship with the athlete in order to facilitate the process. In fact, the importance of the relationship between the athletic trainer and the athlete has been identified as being of fundamental importance in providing medical services to athletes.4 Most athletic trainers would agree that it is important to develop a strong rapport with their athletes. There are, however, questions about how the athlete perceives the athletic trainer and views the medical services he or she provides. Do athletic trainers assume they are respected by their athletes while providing them with a variety of health care services? Do athletes accept the professional nature of an athletic trainer’s service? Do athletes respect the athletic trainer’s knowledge and the way in which the delivery of health care service is provided? Do athletic trainers take it for granted that an athlete is expected to respond favorably and without question to their presumed expertise? Do athletes favorably perceive their athletic trainer as having the skills necessary to provide them with a quality health management system? Answers to questions such as these are pertinent when addressing how student-athletes view the medical services provided them by the athletic program at their institution.

It has been suggested that collegiate athletes enjoy access to a medical delivery system far surpassing that at many other competitive levels.5,9 Directing the sport health care system at the college level is the athletic trainer. How the collegiate student-athlete perceives the delivery of medical services can assist the athletic trainer in providing quality medical care. The perception athletes have of the injury evaluation process has been demonstrated in the literature.5 How an athlete’s perception of treatment influences rehabilitation adherence has also been documented.5-8 The athlete’s perception of the medical
delivery system has been shown to significantly affect the relationship between the athlete and the athletic trainer.1–8 I felt that further examination of the perceptions athletes have of their athletic trainers was indicated and that the athletic training environment at the collegiate level offered the best model for this study.

A thorough investigation of the athlete's view of the medical delivery system provided by athletic trainers has not been conducted. My purpose was to investigate whether athletes of different subgroups demonstrated differences in perceptions of their athletic trainers' medical delivery service by measuring differences in cumulative perception scores by sex, sport profile, and level of competition (NCAA Division I versus Division II). These results may offer the professional athletic trainer an understanding of the athlete's perception of how the athletic trainer does his or her job. Knowledge of the level of an athlete's satisfaction and whether or not the athlete has a positive perception of the athletic trainer's service could assist athletic trainers in providing an environment that will enhance health care delivery to all their athletes.

**METHODS**

**Subjects**

Fourteen athletic training programs from 12 institutions that were members of the Southeastern Conference, an NCAA Division I athletic conference, were selected to participate. Seventeen athletic training programs at institutions that were members of the Gulf South Conference, a conference at the NCAA Division II level, were identified and used as a comparative group. Two athletes from each male and female sport at the institutions identified for participation were systematically selected as subjects from the alphabetic rosters for each team. The specific chronologic number for each athlete on every roster was identified for selection. I acquired approval by the University of Arkansas Institutional Review Board for Protection of Human Subjects before requesting subject participation. Eighteen of the 31 programs invited to participate responded, yielding a 58% response rate. One hundred sixty-five male athletes and 178 female athletes (n = 343) participated in the study. One questionnaire contained response errors and was not included in the analysis.

**Instrumentation**

I developed a questionnaire for the data collection process in this study. A description of the questionnaire and directions for administration were also developed. The questionnaire, consisting of 2 sections, was consistent with the method of summated ratings for Likert scale questionnaires.9–11 The questionnaire comprised 36 questions designed to collect responses along a Likert-type scale and 14 questions designed to obtain “yes” or “no” responses. Questions were developed from subject matter contained in each section of the Role Delineation Study conducted by the National Athletic Trainers' Association.3 The role delineation outline provided a description of the duties an athletic trainer is required to perform. Each question was constructed to elicit responses reflective of how the student-athletes perceived their athletic trainers' performance of the duties identified in the Role Delineation Study.3 Also included were questions designed to elicit responses representative of the athletes' perceptions of the general medical coverage provided by the athletic trainers at their institutions.

I conducted a pilot study of 3 athletic programs at institutions not involved with the actual study to validate the questionnaire. The pilot test sites were representative of the sample identified for participation in the study. By initiating a pilot test of the research instrument, I was able to acquire face validity from professionals in the field of athletic training. Content validity was established by constructing questions that addressed issues related to each domain of the athletic trainer's professional responsibility as established by the NATA Role Delineation Study.3

I conducted reliability testing by using 2 forms of reliability analysis. A split-half test for internal consistency was conducted for the initial evaluation of measuring test reliability. The split-half test yielded a 0.8211 correlation coefficient for measuring the relationship between equally divided portions of the test. A Cronbach coefficient α test was conducted in order to establish further internal stability from a variety of internal comparisons of the instrument. A 0.9017 coefficient was produced by the test, demonstrating a strong measure of internal consistency for the questionnaire.

**Data Collection**

I developed a scoring procedure for the purpose of measuring and tabulating the responses each student-athlete provided for every statement in the questionnaire. Measuring positive statements along a scale originally developed by Likert has been demonstrated in the literature.9,10 In order to quantify student-athlete response, a point value was assigned to each response. “Strongly agree” was given a point value of 4, “moderately agree” a point value of 3, “neutral” a point value of 2, “moderately disagree” a point value of 1, and “strongly disagree” a point value of 0. A response written in by the subject as “not applicable” or that was not answered was weighted the same as if a “neutral” response had been chosen, equaling a score of 2 for that particular question. The section of the student-athlete response form that required a “yes” or “no” response was also scored. A “yes” response was weighted with a score of 1, and a “no” response elicited a score of 0. Questions that initiated a “yes” or “no” response directly addressed specific points related to the research intent. Cumulative scores elicited by completion of the questionnaire were used for analysis between groups and for determination of differences between subgroups. Analysis of responses to the
“yes” or “no” questions was conducted in order to identify differences in responses by subgroup.

Data Analysis

Male athletes who competed in football, basketball, or baseball and female athletes who played basketball were classified as participating in high-profile sports. All other athletes were grouped in the low-profile category. I was able to classify sports into high and low profile by conducting a survey of sports information directors before the data collection process. Participating sports information directors were asked to list the sports for which they received the most requests for information from either media representatives or the fan base. Football, men’s and women’s basketball, and baseball were clearly identified as sports that all the directors reported as receiving the largest number of requests for information. From the substantial difference in demand or requests for information about these sports, I identified them as high profile.

To examine differences among sex, sport profile, and athletic division, I used a t test for independent measures to compare the cumulative mean scores for each group. Subgroups of athletes were created by combining sex, sport profile, and athletic division (Table). To determine whether any subgroup of athletes was identifiable as having a significant difference in cumulative mean scores, a 1-way analysis of variance (ANOVA) was performed. A post hoc test for least significant difference was used to identify the significance by subgroup for the results obtained by the 1-way ANOVA.

RESULTS

I calculated cumulative mean scores for each subject. Each score represented a general rating for student-athletes’ perceptions of their athletic trainers and the services they provided at their institutions. The mean scores for male and female athletes were tabulated and compared by conducting a t test for independent samples. The mean cumulative response score for male athletes was 137.1394, compared with the mean score of 130.6685 for female athletes. One hundred and sixty-five males and 178 females participated in the study; therefore, an unequal t test for equality of means was used to determine a level of significance. The results revealed a significant difference in cumulative mean scores between male and female athletes ($t_{324.27} = 3.91$, $P < .001$). The mean score for males was higher than that of females, from which I inferred that male athletes viewed their athletic trainers more favorably than did female athletes.

I also compared the mean cumulative scores for athletes who competed in high-profile sports and athletes who competed in low-profile sports. The cumulative mean score for the 120 athletes of high-profile sports was 138.1833, and the mean score for the 222 athletes of low-profile sports was 131.3288. The $t$ test for equality of means revealed a significant difference in cumulative mean perception scores when compared by sport profile ($t_{307.01} = 4.26$, $P < .001$). Results showed that athletes who participated in high-profile sports possessed a more favorable perception of their athletic trainers and the medical services provided than did the athletes who participated in low-profile sports.

Of the student-athletes participating in the study, 224 were at NCAA Division I programs. The remaining 118 student-athletes were from programs at the Division II level. The mean score for subjects in Division I programs was 134.8, compared with the mean score of 131.8 for athletes in Division II programs. An unequal $t$ test for equality of means demonstrated no significant difference in perceptions held by athletes in Division I athletic programs and athletes in Division II athletic programs ($t_{206.87} = 1.60$, $P > .05$).

I determined differences between cumulative mean scores of subgroups by conducting a 1-way ANOVA. Significant difference between subgroups was indicated by delineation of subjects in data uncovered by earlier comparisons of mean scores among sex, sport profile, and athletic division. A 1-way ANOVA revealed a significant difference in cumulative mean scores of the 8 subgroups of athletes participating in the study ($F_{8,334} = 3.92$, $P < .0004$).

There was a significant separation in mean scores for subgroups 4, 7, and 8 versus the remainder of the subgroups within the sample (post hoc for least significant difference, $P > .05$). Females in low-profile sports at both the Division I and Division II level (subgroups 7 and 8) demonstrated a considerably lower cumulative mean score in their perception of athletic trainers and medical services provided at their institutions. Males in low-profile sports at Division II institutions (subgroup 4) also demonstrated a significant difference in mean scores when compared with other subgroups. The only subgroup of athletes who competed in low-profile sports and had a mean score that was in the top half of the rankings was males who compete at the Division I level (subgroup 3).

DISCUSSION

Results of the comparison between sex and sport profile identified females and athletes in low-profile sports as demonstrating a lower cumulative mean perception score. The lower cumulative perception score indicated that females and most athletes in low-profile sports perceived their athletic trainers less favorably than did most male athletes and athletes in

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high-profile sports. Additionally, females in low-profile sports at Division II schools (subgroup 8) were identified as having the lowest mean cumulative perception score. Females in low-profile sports at Division I (subgroup 7) institutions and men in low-profile sports at Division II institutions were also identified as having significantly lower cumulative mean scores when compared with other subgroups (Table).

Generally, the results of this study suggest that there were student-athletes at the collegiate level who did not view their athletic trainers as positively as did others. Athletes in low-profile sports accounted for the 3 lowest perception scores when compared with other subgroups of athletes. Two of the subgroups in the lowest percentile were female athletes, both at Division I and Division II schools. The only subgroup of low-profile sport athletes that did not differ significantly from others and whose mean score did not reflect a lower perception rating was male athletes in low-profile sports at Division I institutions. A collective analysis can be made that females in low-profile sports at both Division I and Division II schools, as well as men in low-profile sports at Division II schools, demonstrated that they had a significantly less favorable perception of their athletic trainers than did the rest of the sample. Also, females and athletes (both male and female) in low-profile sports collectively demonstrated a lower perception rating than did male and female athletes in high-profile sports.

The results of this study suggest that female athletes and most athletes in low-profile sports did not perceive their athletic trainers as positively as did other athletes. The perception rating acquired from these subjects may be an indicator of athletes' satisfaction with the medical services provided by the athletic departments for which they compete. Results from studies of patient satisfaction with health care delivery within the medical community support the theory that the higher the level of satisfaction with health care, the better the perception the patient had of the health care provider, thus enhancing the treatment or consultation experience.\(^{11}\) Other findings of consumer (patient) satisfaction suggest that understanding the perception of the patient (in this case, the athlete) of the medical delivery personnel can assist in improving the quality of health care delivery.\(^{6,7,12}\) Further understanding of the athlete's perception and satisfaction with athletic training services might enhance the communication between the athletic trainer and the athlete. Results of this study suggest that athletic trainers may not have demonstrated to all student-athletes from all sports at all levels the same emphasis in providing their medical services. At the very least, the results suggest that not all student-athletes hold the same perception of the medical delivery provided for them by their athletic trainers. The perception athletes have of their athletic trainer provides an initial evaluation of their level of satisfaction with their health care delivery. It can be suggested that the more satisfied the athlete is with his or her health care, the more trust the athlete will place in the athletic trainer. Most athletic trainers would agree that maintaining a good level of trust between the athlete and the athletic trainer is important in providing consistent management of the health care system within the athletic arena. Further, the NATA Code of Ethics\(^{2}\) and the NCAA Sports Medicine Handbook\(^{13}\) offer statements that support equal quality of health care across the athletic population without regard to sex, sport profile, or level of competition. The results of this study suggest that there are student-athletes who perceive some of their athletic trainers as having not demonstrated an equal level of treatment toward all their student-athletes. In addition, by addressing the perceptions athletes have of their services, athletic trainers can both maintain and strive to improve the already high level of quality medical services without regard to sex, sport, or level of competition.

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REFERENCES