

Optimism, But Not Locus of Control, Moderates Burnout in Professional Master's Athletic Training Students

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Context: Burnout is a common concern in the field of athletic training that may affect athletic training students. They may experience burnout because of stressors related to their clinical education responsibilities and course load. Various buffers have been suggested to reduce burnout in other health care settings; however, there is a limited body of research examining the effect of locus of control and optimism as buffers against burnout in athletic training populations.

Objective: To investigate whether a perceived internal locus of control and/or optimism can provide a buffer against burnout in athletic training students.

Design and Setting: A cross-sectional observational research design via Qualtrics survey.

Patients or Other Participants: A total of 48 professional master's athletic training students enrolled in Commission on Accrediting Athletic Training Education–accredited programs.

Data Collection and Analysis: Participants were sent a survey link that included demographic questions, the Copenhagen Burnout Inventory, Life Orientation Test–Revised, and the Rotter Internal/External Locus of Control Scale. Three multiple regression analyses were conducted to examine the relationships of personal burnout, work-related burnout, and client-related burnout with optimism and locus of control. A Pearson correlation was conducted on the significant findings to determine the strength of relationship among variables.

Main Outcome Measure(s): Copenhagen Burnout Inventory, Life Orientation Test–Revised, Rotter Internal/External Locus of Control Scale.

Results: Significant relationships were identified between optimism and personal burnout ($t = -3.30$, $P = .002$) and between optimism and work-related burnout. ($t = -2.48$, $P = .02$). No significant relationships were identified between locus of control and any of the burnout-related variables ($P > .05$).

Conclusion: Optimism could be an effective buffer against student burnout in professional master's athletic training programs. Athletic training programs should implement various strategies to promote student optimism including proper social support strategies, time management, and stress management to help reduce the onset of burnout in students.

Key Words: Stress, mental health, health care, coping, social support

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Key Points

- Athletic training students reported experiencing low to moderate levels of burnout due to intensive academic and clinical demands. Specifically, the highest burnout scores reported were found in the personal and work-related subcategories.
- Optimism was effective in mediating burnout levels in professional master's athletic training students, whereas locus of control showed no relationship with burnout in this population.
- Future studies are needed to investigate burnout prevention techniques and strategies in athletic training student populations.

The concept of burnout is a prevalent concern among allied health care professionals¹ and students,^{2,3} and it is widely discussed within the field of athletic training. Burnout is characterized by 3 primary psychological responses: emotional exhaustion, depersonalization, and reduced perception of personal accomplishments.^{1,3,4} Burnout in individuals can lead to decreases in job performance, increases in substance abuse, and depression.⁵ In certified athletic trainers (ATs) a variety of factors can contribute to the development of burnout including substantial time commitment required by professionals,⁶ problems with staff coverage (ie, understaffing),^{1,4} financial concerns,^{1,4} role ambiguity,⁴ and decreased autonomy.¹

A growing concern among health care professionals is that students in athletic training programs and other health care professions are also reporting symptoms of burnout.^{3,7,8} Whereas burnout has been studied in undergraduate and postprofessional graduate athletic training students, only one study has examined burnout in professional master's athletic training students.⁵ Among postprofessional graduate-level athletic training students, inexperience as a new professional and perceived work-life balance inequity are major contributing factors for burnout.⁹ These findings, however, may not be relevant to professional master's athletic training students because many of the factors contributing to burnout are not relevant in the latter population. In other allied health care professions such as physical therapy, as many as 50% of entry-level students in graduate programs have reported experiencing burnout.⁸ Students in entry-level doctoral physical therapy programs undergo an education program similar to that of professional master's athletic training students, which requires extensive classroom learning in addition to numerous hours spent observing and engaging in supervised clinical practice. It is reasonable to assume that professional master's athletic training students may also suffer from symptoms of burnout throughout their education.

Although there are key differences between undergraduate and graduate-level professional athletic training programs, research conducted on undergraduate students may help to predict burnout-related factors present in professional mas-

ter's athletic training students. Undergraduate professional athletic training students often report that lack of respect, high demands of the clinical experience, and feelings of being overwhelmed due to the vast amount of knowledge that must be learned in a relatively short time frame all contribute to feelings of burnout.¹⁰ When compared with undergraduate programs, graduate programs typically have a shorter program length and may run consecutively over the course of 2 years despite having the same (or similar) educational requirements. The shorter program duration may lead to exacerbated feelings of burnout in professional master's athletic training students. Conversely, because students enrolled in a graduate program may have already completed a bachelor's degree, the increased age and experience in the collegiate setting may serve as a protective factor.

Previous research involving undergraduate athletic training students,^{7,11} as well as nursing and medical students,¹²⁻¹⁵ has identified that optimism and locus of control serve as buffers against burnout. *Optimism* is a positive mindset that can affect an individual's outlook on life events.¹³ People who have more optimistic outlooks on situations perceive life as less stressful^{16,17} and tend to use more proactive and effective ways of coping with and overcoming challenges.¹⁴ *Locus of control* can be defined as the amount of control that an individual perceives he or she has over a situation or experience.¹⁸ Individuals with an internal locus of control believe that events or situations in their lives are within their control.^{12,19} Conversely, individuals with an external locus of control believe that life events are out of their control or left up to chance.^{12,19} Optimism and locus of control may also serve as a protective factor for burnout in professional master's athletic training students. However, no studies have examined the relationship between optimism and locus of control with burnout in professional master's athletic training students. The purpose of this study was to investigate whether a perceived internal locus of control and/or optimism can provide a buffer against burnout in professional master's athletic training students. We hypothesized that perceived internal locus of control and optimism will both demonstrate an inverse relationship with burnout.

METHODS

Design

A cross-sectional observational research design was used to analyze the relationship between locus of control, optimism, and burnout in professional master's athletic training students. The independent variables were locus of control and optimism. The dependent variable was burnout, with subscales of (a) personal, (b) work related, or (c) client related.

Participants

Upon institutional review board approval from Texas State University, the researchers contacted the program directors of

all professional master's athletic training programs and were asked to extend an invitation to all students enrolled in their professional degree program to participate in this study. At the time of writing this manuscript 127 programs were in active, good-standing status with the Commission on Accrediting Athletic Training Education (CAATE). The program directors of these programs were contacted to participate in this study. The inclusion criteria for all participants were specified as (1) enrollment in a CAATE-accredited professional master's athletic training program and (2) actively completing clinical hours and proficiencies.

Instruments

Copenhagen Burnout Inventory. The Copenhagen Burnout Inventory (CBI) was developed to measure burnout associated with 3 different profession-related factors: personal burnout, work-related burnout, and client-related burnout in employees working in the human service sector.²⁰ The CBI is a valid (root mean square error of approximation [RMSEA] = 0.08; comparative fit index [CFI] = 0.92) and reliable (Cronbach α = .94) measure of burnout in United States health care professionals (eg, physicians, nurses/physician assistants, and other hospital staff).²¹ Although no studies have been published using the CBI with athletic training student populations, studies have been published using this measure with other student populations.^{22,23} The CBI contains 19 questions on personal burnout ($n = 6$), work-related burnout ($n = 7$), and client-related burnout ($n = 6$). In this study *client-related burnout* refers to stress that originates from interactions with patients (eg, competitive athletes, recreational athletes, occupational patients, rehabilitation patients). Questions were scored on a 5-point adjectival scale and translated into percentage scores (0% = *never/almost never*, 25% = *seldom*, 50% = *sometimes*, 75% = *often*, 100% = *always*). The question "Do you have enough energy for family and friends during leisure time?" was reverse scored.²⁰ Scores for each subscale were averaged and ranged from 0%–100%, with higher scores indicating elevated levels of burnout.²⁰

Life Orientation Test–Revised. Optimism was measured using the Life Orientation Test–Revised (LOT-R).¹⁵ The LOT-R consisted of 10 questions measured on a 5-point Likert scale (0 = *strongly disagree* to 4 = *strongly agree*). Four of the questions were distractor questions and were not used in scoring.¹⁶ Of the 6 questions that were scored, 3 assessed optimism (items 1, 4, and 10) and 3 assessed pessimism (items 3, 7, and 9).^{16,17} Scores for each question were summed and ranged^{16,17} from 0–24, with higher scores indicating more optimism.¹⁸ Although some researchers use an arbitrary cutoff score for the LOT-R, the scale was designed to reflect a continuum of pessimism to optimism. Normative scores on the LOT-R for men and women under 39 years old are 8.9 ± 2.4 and 9.0 ± 2.3 , respectively.¹⁹ In the general population, the LOT-R is a valid (RMSEA = 0.04; CFI = 0.99) and reliable (Cronbach α = .68–.69) measure of optimism.^{24,25} The LOT-R demonstrates good test-retest reliability (intraclass correlation coefficient, model not specified = 0.72) and high internal consistency (α = .69) in middle-aged adults.²⁴

Rotter Internal/External Locus of Control Scale. Locus of control was measured using the Rotter Internal/External Locus of Control scale (Rotter I-E LOC). The Rotter I-E LOC was used to assess an individual's general sense of

control towards life events.^{26–28} These events included relationships, power, politics, academics, and general life beliefs.²⁷ The Rotter I-E LOC includes 29 questions for which participants must select 1 of 2 options (for each question) that best reflects their sense of control; for example, (A) *Many of the unhappy things in people's lives are partly due to bad luck*, or (B) *People's misfortunes result from the mistakes they make*.²⁷ Participants' scores are determined on the basis of their response to each item. Six of the items are considered "filler" items and are not scored, resulting²⁸ in a maximum possible score of 23. Locus of control scores from each subscale were scored on a continuum, with higher scores indicating externality and lower scores indicating internality. Although an arbitrary cutoff score for the Rotter I-E LOC exists, the present study looked at locus of control on a continuum, as Rotter designed.²⁹ A continuum was used because the degree of perceived control can vary depending on the life context (eg, politics, relationships, academics).^{29,30} In full-time employees, the Rotter I-E LOC is a valid (RMSEA = 0.36; CFI = 0.89) measure of locus of control with good internal consistency (Cronbach α = .77).³¹ The Rotter I-E LOC has adequate test-retest reliability ($r = .82$). Normative values for the Rotter I-E LOC are 8.15 ± 3.39 .³¹

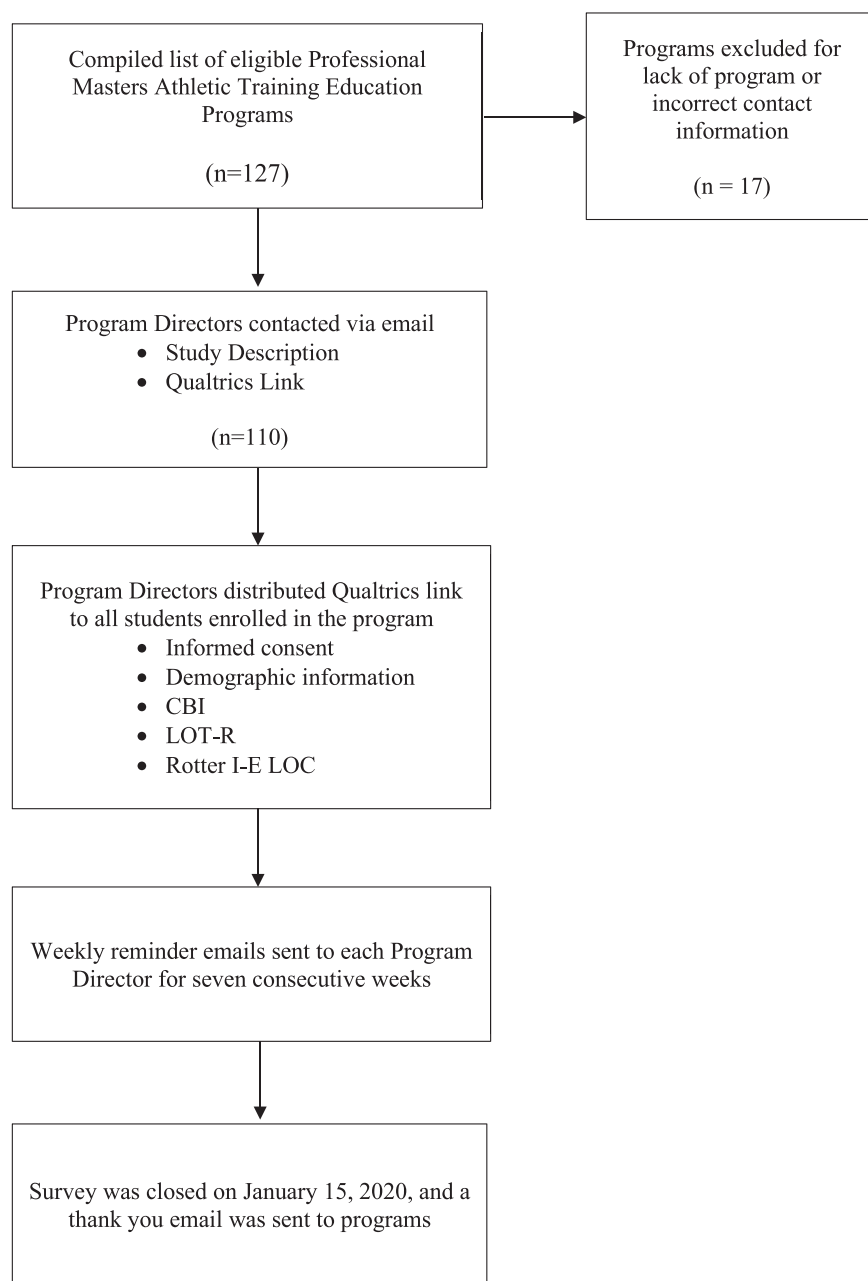
Experimental Procedures

A methodological flow chart detailing the steps of the study is provided in the Figure. An email containing a description of the study and a Qualtrics survey link was emailed to the program directors of all CAATE-accredited professional master's programs ($n = 127$). Program directors were requested to forward the email and link to all the master's athletic training students within their respective programs. The Qualtrics survey included informed consent, demographic questions pertaining to age, sex, year in the program, current clinical rotation, number of weekly clinical hours completed, and number of study hours completed. The Qualtrics survey also included the CBI, the LOT-R, and the Rotter I-E LOC. The survey took approximately 15 minutes to complete. The recruitment email with the link for the survey was sent during the fall semester of 2019. After the initial email, weekly reminder emails were sent to the program directors for 7 weeks. The Qualtrics survey closed on January 15, 2020.

Statistical Analysis

Descriptive statistics were calculated for all demographic information. Multiple regression analyses were conducted to compare the independent variables and the dependent variables. All variables were measured on a continuous scale. The first multiple regression analyzed the relationship between locus of control and optimism with personal burnout. The second multiple regression analyzed locus of control and optimism with work-related burnout. The third multiple regression analyzed locus of control and optimism with client-related burnout. A follow-up Pearson correlation was conducted to analyze the nature of the relationship between significant variables. Finally, independent *t* tests were conducted to compare burnout, optimism, and locus of control between students in their first and second years of the program. An a priori α level of .05 was used to assess all statistical tests. The statistical analysis was calculated using IBM SPSS for Windows software, version 22.0.

Figure. Method flow chart of experimental procedures.



RESULTS

Participant demographics are displayed in Table 1. A total of 58 professional master's athletic training students provided responses to the Qualtrics survey. Ten participants' responses were excluded from analyses. Among those 10 participants, 9 were excluded for failure to respond to all items and 1 participant for not being enrolled in a professional master's athletic training program. The included participants were 18 years and older and were primarily women (10 men, 38 women).

Participant responses for the CBI are provided in Table 2. Burnout was highest in the personal subcategory, followed by work-related burnout and then client-related burnout. The average optimism score was 14.0 ± 4.8 , and the average locus of control score was 12.0 ± 3.6 . No significant differences were found between first- and second-year professional

master's athletic training students for any outcome variables ($P > .05$)

Results of the multiple regression analysis assessing personal burnout revealed a significant relationship with optimism ($t = -3.30, P = .002$) but not locus of control ($t = -1.02, P = .31$). For work-related burnout, the multiple regression analysis revealed a significant relationship with optimism ($t = -2.48, P = .02$) but not locus of control ($t = 0.82, P = .42$). Finally, the multiple regression analyzing client-related burnout did not reveal a significant relationship for optimism ($t = -0.003, P = .81$) or locus of control ($t = -0.11, P = .48$).

A Pearson correlation was conducted on the optimism-related findings. Significant, moderate negative correlations were found between optimism and personal burnout and work-related burnout, respectively (Table 3). A significant, strong

Table 1. Demographic Information

| Demographic Categories | Frequency | Percentage (%) |
|---|-----------|----------------|
| Sex | | |
| Male | 10 | 20.8 |
| Female | 38 | 79.2 |
| Age, y | | |
| 18–20 | 4 | 8.3 |
| 21–23 | 32 | 66.6 |
| 24–26 | 9 | 18.8 |
| 27–29 | 2 | 4.2 |
| 30+ | 1 | 2.1 |
| Year in program | | |
| 1 | 29 | 60.4 |
| 2 | 16 | 33.3 |
| 3 | 3 | 6.3 |
| Gap years ^a | | |
| <1 | 37 | 77.1 |
| 1 | 8 | 16.7 |
| 2 | 1 | 2.1 |
| 3 | 0 | 0.0 |
| 4 | 2 | 4.2 |
| No. of required clinical hours, per week | | |
| 0–5 | 6 | 12.5 |
| 6–10 | 27 | 56.3 |
| 11–15 | 0 | 0.0 |
| 16–20 | 11 | 22.9 |
| Immersion ^b | 4 | 8.3 |
| No. of additional clinical, per week | | |
| 0–5 | 21 | 43.8 |
| 6–10 | 13 | 27.1 |
| 11–15 | 8 | 16.7 |
| 16–20 | 4 | 8.3 |
| Immersion ^b | 2 | 4.2 |
| No. of required academic hours, per week ^c | | |
| 10–15 | 11 | 22.9 |
| 16–20 | 16 | 33.3 |
| 21–25 | 14 | 29.2 |
| 26+ | 7 | 14.6 |

^a Refers to the amount of time between the completion of undergraduate coursework to the start of graduate coursework.

^b Refers to the clinical rotation that does not have an hour restriction.

^c Required academic hours reported per week including class hours and study hours.

positive correlation was found between personal and work-related burnout (Table 3). No significant findings were shown between optimism and locus of control (Table 3). A post hoc power analysis for correlations of significant findings indicated power ranged from .83–.99.

Reliability was examined for each of the scales used in this study. Internal consistency was at least fair or better for all CBI subscales: personal (Cronbach $\alpha = 0.81$), work-related (Cronbach $\alpha = 0.73$), and client-related burnout (Cronbach $\alpha = 0.88$); the LOT-R (Cronbach $\alpha = 0.86$); and the Rotter I-E (Cronbach $\alpha = 0.67$).³²

DISCUSSION

Consistent with previous research,^{5,33} the findings from this study suggest that professional master's athletic training

students are experiencing personal and work-related burnout. Previous studies have suggested that students suffering from burnout are more likely to report headaches, high blood pressure, weight concerns, indigestion, fatigue, and sleeplessness, as well as emotional problems such as irritability and depression.³⁴ Although no studies have been conducted to investigate interventions targeted at reducing burnout, it is important to understand the potential factors that can contribute to burnout. Specifically, lack of respect, work-life balance, information recall, skill performance, and preceptor relationships produce the highest levels of perceived frustration and stress among athletic training students.³⁵ Life stress coupled with academic demands increases the risk for mental health challenges, perceived burnout, and physical and psychological problems.^{7,11,36}

It is interesting that, unlike undergraduate athletic training students⁵ and graduate students from other health care-related professions,³⁷ there were no significant differences between burnout in first- and second-year professional master's athletic training students in this study. The differences in academic workload between program types may be a possible explanation for these findings. In many undergraduate programs, students begin their educational experience taking general education courses and gradually transition into major courses. On the other hand, graduate students have a more consistent and focused academic workload, which could explain the relatively similar levels of burnout between first- and second-year students. The intensive academic curriculum throughout a professional master's athletic training program could explain the lack of significant findings between first- and second-year students, which is contrary to previous research.

The strong correlations between personal and work-related burnout identified in this study could be a contributing factor to poor work-life balance, which is common among athletic training students. More than 50% of participants reported that they often felt tired, physically, and emotionally exhausted, and worn out. All participants reported feeling tired at least sometimes. Almost 80% of participants in the study indicated that they often felt worn out at the end of the workday. Furthermore, more than 50% reported that they are sometimes exhausted in the morning at the thought of another workday. In athletic training programs, a substantial commitment to clinical hours is coupled with rigorous academic demands.^{11,38} More than 20% of participants were completing 16–20 clinical hours per week, with approximately 70% of the participants spending up to an additional 10 hours beyond their required clinical hours. This indicates that some participants may have completed up to 30 hours strictly in clinical education. Participants also reported spending 16–25 hours per week on academic responsibilities (eg, class, homework, studying). These responses indicate that some participants in this study spent between 22–45 hours per week dedicated to athletic training–related responsibilities. Many of the students surveyed in the study suggested that the large number of clinical hours and other academic demands (eg, course load, research) left little time for personal activities. Social support is a protective factor against burnout in health care professionals, and the clinical and academic demands limit the students' ability to engage in activities that would allow them to build a social support network.³⁹ Bryant et al³³ found similar results suggesting that the culmination of clinical hours and academic responsibilities led to feelings of

Table 2. Copenhagen Burnout Inventory (CBI)—Items and Response Frequencies (Possible Score Range for All Scales, 0–100)

| Items | Response Category and Scoring | | | | | Score Mean ± SD |
|--|---|--|---|--|--|--------------------|
| | Always ^a or To a Very High Degree, ^b n (% Scoring 100%) | Often ^a or To a High Degree, ^b n (% Scoring 75%) | Sometimes ^a or Somewhat, ^b n (% Scoring 50%) | Seldom ^a or To a Low Degree, ^b n (% Scoring 25%) | Never/ Almost Never ^a or To a Very Low Degree, ^b n (% Scoring 0%) | |
| Personal burnout | | | | | | |
| How often do you feel tired? ^a | 18 (37.5) | 26 (54.2) | 4 (8.3) | 0 (0.0) | 0 (0.0) | 82.3 ± 15.4 |
| How often are you physically exhausted? ^a | 9 (18.8) | 20 (41.7) | 12 (25.0) | 5 (10.4) | 2 (4.2) | 65.1 ± 26.1 |
| How often are you emotionally exhausted? ^a | 17 (35.4) | 19 (39.6) | 9 (18.8) | 3 (6.3) | 0 (0.0) | 76.0 ± 22.5 |
| How often do you think: "I can't take it anymore"? ^a | 8 (16.7) | 11 (22.9) | 13 (27.1) | 14 (29.2) | 2 (4.2) | 54.7 ± 29.0 |
| How often do you feel worn out? ^a | 12 (25.0) | 23 (47.9) | 8 (16.7) | 5 (10.4) | 0 (0.0) | 71.9 ± 22.8 |
| How often do you feel weak and susceptible to illness? ^a | 4 (8.3) | 7 (14.6) | 14 (29.2) | 16 (33.3) | 7 (14.6) | 42.2 ± 28.8 |
| Total average score | | | | | | 65.4 ± 17.5 |
| Work-related burnout | | | | | | |
| Do you feel worn out at the end of the working day? ^a | 14 (29.2) | 24 (50.0) | 8 (16.7) | 2 (4.2) | 0 (0.0) | 76.0 ± 19.9 |
| Are you exhausted in the morning at the thought of another day at work? ^a | 9 (18.8) | 14 (29.2) | 16 (33.3) | 7 (14.6) | 2 (4.2) | 60.9 ± 27.2 |
| Do you feel that every working hour is tiring for you? ^a | 2 (4.2) | 7 (14.6) | 12 (25.0) | 22 (45.8) | 5 (10.4) | 39.1 ± 25.2 |
| Do you have enough energy for family and friends during leisure time? ^a (inverse scoring) | 5 (10.4) | 13 (27.1) | 21 (43.8) | 7 (14.6) | 2 (4.2) | 43.8 ± 24.5 |
| Is your work emotionally exhausting? ^b | 2 (4.2) | 5 (10.4) | 23 (47.9) | 12 (25.0) | 6 (12.5) | 42.2 ± 24.3 |
| Does your work frustrate you? ^b | 3 (6.3) | 4 (8.3) | 16 (33.3) | 4 (8.3) | 9 (18.8) | 37.5 ± 27.3 |
| Do you feel burnt out because of your work? ^b | 5 (10.4) | 10 (20.8) | 18 (37.5) | 10 (20.8) | 5 (10.4) | 50.0 ± 28.2 |
| Total average score | | | | | | 49.9 ± 15.7 |
| Client-related burnout | | | | | | |
| Do you find it hard to work with clients? ^b | 0 (0.0) | 0 (0.0) | 11 (22.9) | 18 (37.5) | 19 (39.6) | 20.8 ± 19.5 |
| Does it drain your energy to work with clients? ^b | 1 (2.1) | 2 (4.2) | 7 (14.6) | 17 (35.4) | 21 (43.8) | 21.4 ± 24.2 |
| Do you find it frustrating to work with clients? ^b | 0 (0.0) | 0 (0.0) | 8 (16.7) | 22 (45.8) | 18 (37.5) | 19.8 ± 17.8 |
| Do you feel that you give more than you get back when you work with clients? ^b | 5 (10.4) | 5 (10.4) | 10 (20.8) | 15 (31.3) | 13 (27.1) | 36.5 ± 32.2 |
| Are you tired of working with clients? ^a | 0 (0.0) | 2 (4.2) | 2 (4.2) | 12 (25.0) | 32 (66.7) | 11.5 ± 19.3 |
| Do you sometimes wonder how long you will be able to continue working with clients? ^a | 0 (0.0) | 2 (4.2) | 9 (18.8) | 9 (18.8) | 28 (58.3) | 17.2 ± 23.2 |
| Total average score | | | | | | 21.1 ± 18.2 |

^a Response categories for items denoted with ^a.

^b Response categories for items denoted with ^b.

Table 3. Correlation Matrix

| | Locus of Control | Optimism | Personal Burnout | Work-Related Burnout | Client-Related Burnout |
|------------------------|------------------|-------------------|-------------------|----------------------|------------------------|
| Locus of control | — | -.35 ^a | .02 | .24 | -.11 |
| Optimism | | — | -.42 ^a | -.40 ^a | .04 |
| Personal burnout | | | — | .72 ^a | .15 |
| Work-related burnout | | | | — | .28 |
| Client-related burnout | | | | | — |

^a Indicates statistical significance $P < .05$.

burnout in professional master's athletic training students. One of the students specifically stated that "inability to decompress" was a major contributing factor.

Due to the nature of the profession, reduction in clinical hours requirements is not a realistic solution for reducing perceptions of burnout. Inclusion of seminars to improve time management and stress coping skills among athletic training students, however, may offer a potential solution. In undergraduate students, inclusion of a short-term intervention to improve time management strategies resulted in reduced perception of stress and improved perception of time control.⁴⁰ Development and implementation of similar strategies in professional master's athletic training programs may be beneficial, especially if these are implemented during orientation or before the start of the initial academic term.

Participants in this study who demonstrated higher levels of optimism also exhibited lower levels of personal and work-related burnout, which is consistent with findings from studies investigating burnout and optimism in medical students, nurses, and athletes.¹³⁻¹⁶ Individuals with higher levels of optimism are more likely to report higher personal accomplishment and lower emotional exhaustion and depersonalization.¹³⁻¹⁵ Optimism can also serve as a protective factor, potentially improving the relationship between job-related stressors and depression levels.⁴¹ This relationship is potentially attributed to optimistic individuals using more effective coping mechanisms and exhibiting better adjustment to stressful environments.¹⁷ Optimistic individuals are also more likely to seek out coping resources¹⁴ as well as to develop social relationships.¹⁶

Lower levels of burnout in optimistic individuals can be explained by their perception of life being less stressful. This perception decreases their likelihood of experiencing chronic stress, which is a primary cause of burnout.¹⁶ Optimistic individuals feel more certain than pessimistic individuals that they will accomplish their life goals, ultimately increasing their sense of control over situations.¹⁶ The increased sense of control over situations promotes the use of successful coping mechanisms.¹⁶ Optimists tend to be more accepting of uncontrollable circumstances, whereas pessimists lean towards denial of the circumstances.¹⁶ Optimism is one of many factors that can influence an individual's coping mechanisms during times of stress.⁴¹

Gunusen et al¹² found that an internal locus of control can moderate the interaction between experienced stress and emotional exhaustion. In other words, when an individual feels more control over a situation, the experienced work stress is not as predictive of burnout as in someone who perceives less control. Perceived lack of control can leave

people feeling helpless and depleted of resources to help them cope with their stressful environment.¹⁹ It has been hypothesized that lack of perceived control can lead to inadequate coping mechanisms, ultimately leading to burnout.¹⁹ Our findings from this study, however, did not suggest any correlation between burnout and locus of control among professional master's athletic training students. The lack of significant findings could be attributed to the nature of the athletic training profession. For example, an athletic training student may have a high level of internal locus of control, but the nature of the job (eg, coaches will often make last minute schedule changes) may inherently lead to feelings of a lack of control. These schedule changes are outside the control of athletic training students who are then forced to rearrange their schedule to accommodate the changes. More specifically, a student's schedule is often dictated by practice times, game schedule, and travel requirements that may lie outside of their control.⁴² This potential lack of control may help explain the findings in this population.

Limitations

The sample size for this study was relatively low; however, results from the post hoc power analysis suggest that the study was sufficiently powered. Due to the anonymous nature of computerized survey research, participants were unable to communicate with researchers to clarify responses or questions, which could have led to biased responses due to misinterpretation of a survey question. Although the LOT-R and Rotter I-E LOC questionnaires are recognized as validated and reliable measures, these measures have not been validated specifically for professional master's athletic training students. Future studies should investigate the validity and reliability of these measures with professional master's athletic training students to ensure that responses are consistent and accurate. The question order for the combined survey was consistent for all participants. The lack of randomization of questions could have led to participant bias, fatigue, or nonresponse rate. Specifically, it has been recommended that the CBI questions should be randomized, which was not done in this case.

In this study, the survey link was sent directly to the program directors, who distributed it among the students in their programs. This may be a limitation because the program directors could have failed to distribute the survey link, therefore potentially limiting the number of responses. Furthermore, the survey was distributed between October and January. Previous literature has stated that the middle to end of the semester is a high-stress time due to midterm and final exams.^{7,36} This could have affected the results found in this study. We did not request participants to report which program they were enrolled in, given that it was not directly

related to the aim of the study. We were unable to determine response rate among programs. It is also important to acknowledge that the average burnout scores may not be an accurate reflection of this population because those experiencing high levels of burnout may not be inclined to complete a survey, especially related to their clinical or academic responsibilities. Conversely, it is possible that individuals experiencing burnout are more likely to complete a survey related to burnout to express their feelings or raise awareness. This could lead to an underrepresentation of burnout in this population. Although this study provides evidence supporting the existence of burnout in professional master's athletic training students, the significance of these findings is still relatively unknown. We were unable to determine whether the degree of burnout identified was sufficient to result in negative consequences. At the time of writing, few modern published studies have investigated the effects of burnout in athletic training populations.

Educational Implications

These findings align with previous research which speculates that professional master's athletic training students are experiencing burnout similar to that of undergraduate athletic training students.^{3,7} Educating athletic training students on selecting healthy coping mechanisms may be beneficial in reducing burnout in this population; for instance, implementing mental health education such as proper social support strategies, time management skills, and stress management skills.^{3,7} Athletic training students stated that having a social support system helped reduce stress associated with their clinical and academic responsibilities.⁷ Increasing rapport among athletic training program members (ie, clinical preceptors, instructors, and athletic training students) is important to establish a strong social support network. The clinical preceptor plays a vital role in the recognition and alleviation of burnout³; therefore, implementing a mentorship program between preceptors and students would be valuable in providing evaluation for common signs of burnout in the athletic training students.⁷ For example, clinical preceptors can provide regular, positive feedback to affirm the athletic training students' essential role in the clinic. Clinical preceptors can also alleviate burnout through flexibility in scheduling to encourage participation in personal activities, which promotes a healthy work-life balance.³

CONCLUSIONS

The professional master's athletic training students in this study reported experiencing low to moderate levels of burnout due to intensive academic and clinical demands. The highest burnout scores reported were found in the personal and work-related subcategories. Although locus of control did not show any effects on burnout, optimism was effective in mediating burnout levels in professional master's athletic training students. Due to their significant presence in athletic training students' lives, clinical preceptors and educators should consider implementing mental health education to help alleviate perceptions of burnout among students. These methods could include proper social support strategies, time management, and stress management.

Future research should investigate the correlation between optimism and burnout in larger sample sizes. Future research

should also focus on specific techniques or strategies to implement in athletic training programs that can help alleviate burnout among the athletic training students. Establishing a proactive system within the athletic training program could mitigate the onset of burnout as well as identify early signs of burnout in this population. Finally, credit load may differ between bachelor's and master's professional programs; therefore, future research should consider credit load as a potential source for stress or burnout in professional master's athletic training students.

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