

# Low Burnout and High Engagement Levels in Athletic Trainers: Results of a Nationwide Random Sample

Peter R. Giacobbi Jr, PhD

University of Arizona, Tucson, AZ

**Objective:** To assess the prevalence of occupational burnout, engagement, and somatic health complaints and the associations among these constructs experienced by certified athletic trainers (ATs). A secondary objective was to examine differences between men and women, those with more versus less postcertification experience, and ATs who worked in different occupational settings.

**Design:** Survey-based, stratified, proportionate random sample of full-time ATs.

**Setting:** Data were collected online from ATs employed full time in the college or university, secondary school or youth, and industrial or clinical settings.

**Patients or Other Participants:** Of 3998 invited ATs, 934 replied, for a response rate of 24%. The mean age of the participants was  $33.84 \pm 8.29$  years, and each AT worked with an average of 90 clients.

**Main Outcome Measure(s):** The dependent variables were perceived stress, occupational burnout, engagement, and somatic health complaints.

**Results:** Although 17.2% of participants were in the most advanced stages of burnout, low levels of burnout and high degrees of occupational engagement were observed. Women ATs and those working in the college or university settings scored higher for burnout, whereas men and those in the clinical or industrial settings scored higher for engagement. Women also reported significantly more somatic health complaints than men did.

**Conclusions:** The overall prevalence of burnout in ATs was relatively small, but sex and occupational-setting differences were observed and deserve greater scrutiny.

**Key Words:** stress, health, athletic training careers, psychology

## Key Points

- Female athletic trainers and athletic trainers working in college or university settings displayed more signs of burnout.
- Occupational stress was positively related to various elements of burnout and somatic health complaints but negatively related to occupational engagement.
- Compared with other health care providers, athletic trainers were relatively less burned out and exhibited higher levels of engagement.

Psychological stress is a perceived imbalance between environmental demands and one's coping resources,<sup>1</sup> whereas burnout is a state of mental weariness, emotional exhaustion, negative or cynical attitudes toward people, and a low level of job satisfaction.<sup>2,3</sup> The stress and burnout syndrome continues to have important implications for the health and well-being of employees in a variety of work settings.<sup>4</sup> Human service providers (eg, medical and health professionals, social workers, teachers) are especially likely to experience occupational stress and the symptoms of burnout, which include a callous attitude toward clients and emotional exhaustion in and out of the workplace.<sup>5,6</sup> Within the athletic training profession, stress and burnout have been studied for at least 2 decades,<sup>7-11</sup> and this empirical attention is justified due to the thousands of certified athletic trainers (ATs) who work in public and private settings (eg, collegiate, Olympic, or professional sports organizations or industry) around the country. When the health and psychological well-being of ATs are reduced as a result of occupational stress and burnout, the level of care provided to clients will likely suffer.

Although occupational stress (eg, anxiety, frustration, anger) is known to be associated with burnout symptoms,

reduced job satisfaction, and poor health, important shortcomings from the extant literature are present.<sup>7-11</sup> First and foremost, it is unclear whether burnout is as prevalent in the AT profession as in other health and human service professions. With a few exceptions,<sup>8</sup> none of the authors used random sampling procedures, which may result in biases in the data observed. Without accurate data to document the extent of burnout among ATs, intervention efforts intended to alleviate the effects of this deleterious psychological state are difficult to undertake in a methodologically sound manner.

Second, sex and other individual differences (eg, experience within the profession) have not been adequately examined by previous investigators.<sup>7-11</sup> One group<sup>12</sup> assessed sex differences in a small, nonrandom sample of athletic training students and found that women reported more overall stress symptoms than men, but sampling limitations prevent generalizations. Authors studying other health care professionals have shown that women report burnout symptoms and associated consequences (eg, sickness, absenteeism) to a greater degree than men do.<sup>2,13,14</sup> Similarly, whether burnout symptoms are associated with the number of years within the profession is unclear and will be explored here.

Finally, another interesting set of observations and hypotheses could be inferred from the very nature of athletic training and the context within which ATs work. Because ATs work and have been trained in settings in which fitness and health outcomes are highly valued, lifestyle factors (eg, exercise) may buffer them from stress and burnout symptoms. Indeed, previous investigators<sup>11</sup> have shown that athletic training students used exercise and recreation as one of many other coping responses to deal with occupational and school demands. Outside of the athletic training literature, abundant evidence demonstrates links between physical activity and reduction in stress emotions.<sup>15</sup> Therefore, one exploratory purpose of the present study was to assess the relationships among exercise behavior, perceived stress, burnout, somatic health complaints, and occupational engagement.

Occupational engagement is a positive antipode of burnout and involves energy, learning, personal or occupational development (or both), job involvement, and occupational efficacy.<sup>5</sup> According to Maslach and Leiter,<sup>5</sup> burnout is an erosion of job engagement or the closely related construct of job satisfaction. For instance, vigor is characterized by energy, effort, and persistence in work-related tasks, even when one's personal and occupational resources are diminished. Dedication to the profession is a sense of significance, enthusiasm, and pride; absorption is a psychological state characterized by fully concentrating on and being engrossed in the tasks at hand. To date, the prevalence and correlates of occupational engagement within the AT profession have not been examined.

My general objective was to assess the health and well-being of full-time ATs. Data were obtained from a nationwide, random sample of ATs who completed measures of work-related psychological stress; the independent constructs of occupational burnout, engagement, and somatic health complaints; and associations among these variables. I also intended to compare the prevalence of burnout, engagement, and somatic health complaints with published norms<sup>2,16-18</sup> and to evaluate differences between men and women, between those with more versus less postcertification experience, and among individuals who worked in various occupational settings (ie, university or college, secondary school or youth, and clinical or industrial) in these measures. Based upon the extant literature,<sup>2,13,14</sup> I hypothesized that stress appraisals would be associated with burnout symptoms and somatic health complaints and that women would report more symptoms of burnout and somatic health complaints than men. Because no authors have examined differences in stress, burnout, and engagement between individuals with more versus less postcertification experience and among those who work in different occupational settings, these assessments were exploratory in nature and no hypotheses were put forth. Similarly, no hypotheses were posited with regard to comparisons with published norms for burnout, engagement, and somatic health complaints.

## METHODS

### Study Design

Web-based survey methods were employed, and I followed established procedures for obtaining and report-

ing data in this format.<sup>19</sup> The target population was male and female ATs with various levels of postcertification experience who worked in 3 occupational settings (college or university, secondary school or youth, and clinical or industrial). Those ATs who worked with professional teams were not included due to the relatively low percentage of individuals working in these settings, especially women, compared with the college and university and secondary school and youth work contexts. Stratification based on sex and years postcertification would have yielded too few individuals for meaningful comparisons. A sampling frame (Figure) consisted of 18 subgroups from the 3 employment settings, 3 levels of postcertification experience (fewer than 5 years, 5 to 10 years, more than 10 years), and sex. The number of persons randomly chosen from each group was proportional to the group's size, according to the information provided by the National Athletic Trainers' Association (NATA). Specifically, membership information was purchased from the NATA, and 3875 members were sent e-mail invitations; print versions of the same invitations were sent to 123 members for whom e-mail addresses were unavailable. The invitations contained information about the study purposes, the length of time needed to complete all measures (approximately 1 hour), a password allowing access to the Web site designed for this study, and contact information for those with specific questions. The study Web site was embedded within my departmental Web site but required viewers to provide their username and password. The usernames and passwords were randomly coded, so that a research assistant and I could link the names of participants with their coded usernames. The study Web site also randomized the presentation of the survey measures in an effort to prevent ordering effects. After the login prompt, the next page of the Web site was an informed consent form approved by the institutional review board that required respondents to indicate their agreement and understanding of the study procedures. Only those who agreed were given access to the remaining pages. After the informed consent page, subsequent surveys appeared on individual screens, and prompts were built into the computer program to alert respondents to missing data. Respondents entered data by checking the appropriate Likert-scale response, and it was impossible to go back and change one's answers. Participants were offered \$15.00 of remuneration in the form of gift certificates once all study measures were completed. Three e-mail reminders were sent to participants who did not complete the study and those who completed only a portion of the surveys. Before sending out invitations, all study measures were tested by me, a computing staff member, and a research assistant for clarity and ease of use. All study procedures were approved by the university institutional review board.

The shaded boxes in the Figure show the number of individuals invited to participate, while the unshaded boxes in the lower portion of the figure reveal the number and percentages of ATs who completed the surveys.

### Measures

**The Demographic Questionnaire.** A demographic section on the Web site assessed age, sex, racial or ethnic background, number of clients served, and how many

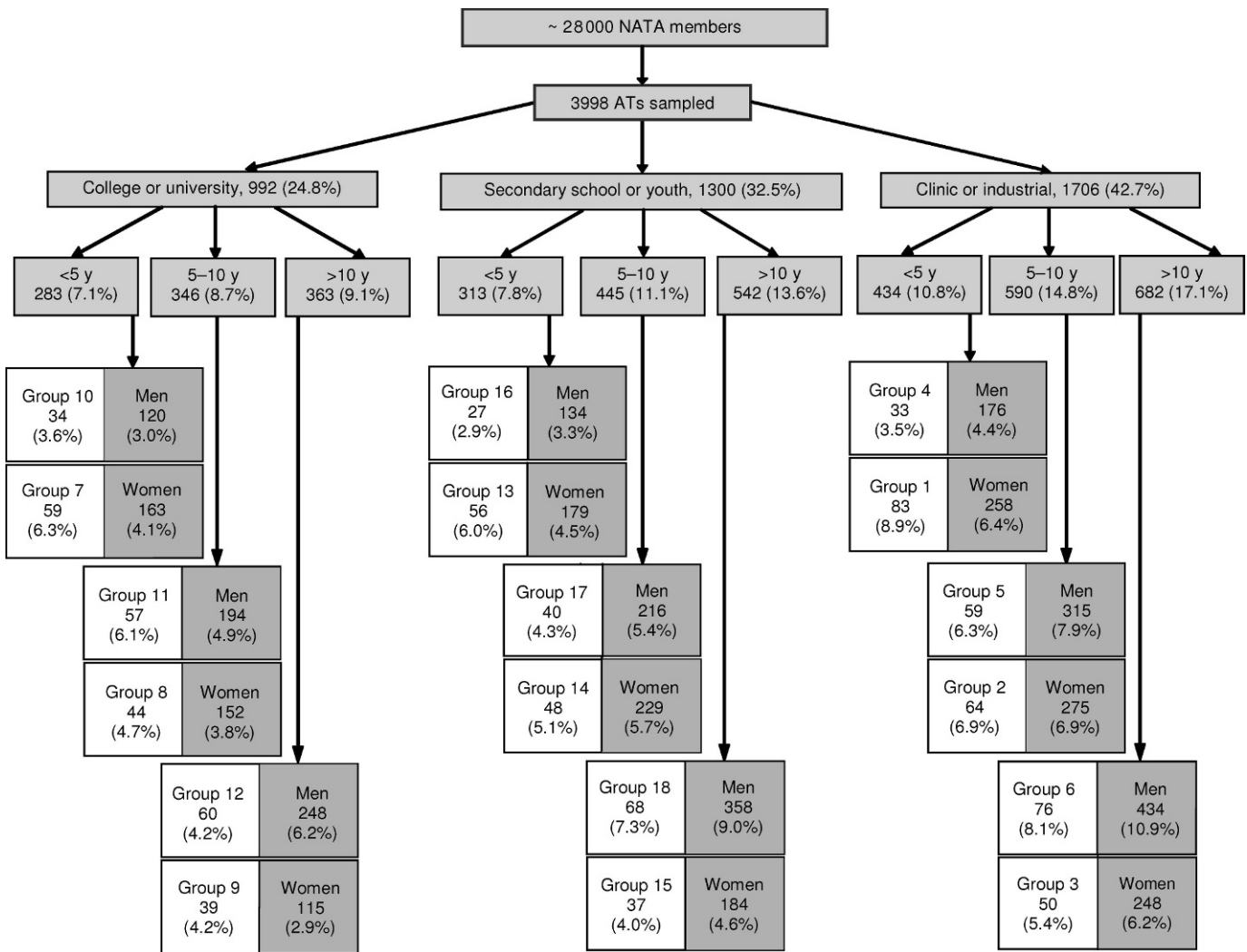


Figure. Sampling frame describing number of individuals from each stratum represented. Abbreviations: NATA, National Athletic Trainers' Association; ATs, certified athletic trainers.

other ATs worked at the respondent's work site. The participant's tobacco usage, alcohol consumption, counseling or psychotherapy received, and current or previous suicidal ideation were evaluated also.

**The Stress Appraisal Measure.** The stressfulness subscale of the Stress Appraisal Measure (SAM)<sup>20</sup> consists of 4 items that measure total stressfulness (eg, *Does this situation tax or exceed my coping resources?*) that results from a specific situation. The participant responded to each item after identifying a work-related situation that caused significant stress in the last 2 weeks and was appraised as taxing or exceeding his or her resources. Responses were given on a 5-point Likert scale from 1 (*not at all*) to 5 (*extremely*). Across 3 validation studies, Peacock and Wong<sup>20</sup> reported average internal consistency estimates greater than 0.70 for all subscales of the SAM. In addition, the convergent validity of the SAM was supported by theoretically meaningful correlations with measures of locus of control, psychological symptoms, and dysphoric mood.

**The Maslach Burnout Inventory.** The Maslach Burnout Inventory (MBI)<sup>16</sup> is a 22-item measure of occupational burnout that consists of 3 subscales: emotional exhaustion

(eg, *I feel emotionally drained from my work*), personal accomplishment (eg, *I have accomplished many worthwhile things in this job*), and depersonalization (eg, *I worry that this job is hardening me emotionally*). Respondents answered each question based upon 2 dimensions: how often and how strongly or intensely they experienced a given thought or feeling on a scale from 0 (*never*) to 7 (*very strongly*). The MBI is the most widely used measure of occupational burnout, and reliability and validity have been established.<sup>4</sup> In the original validation study,<sup>16</sup> factor analyses supported the 3 factors, estimates of internal consistency exceeded 0.70 for each subscale, and associations between scores on the MBI and peer ratings of burnout symptoms were observed. Also noted in these studies were theoretically derived associations among burnout scores, health outcomes, job demands, and satisfaction.

**Occupational Engagement.** Occupational engagement was assessed with the Occupational Engagement Survey (OES).<sup>18</sup> This measure consists of 24 items and 3 subscales: vigor (eg, *When I get up in the morning I feel like going to work*), dedication (eg, *I'm enthusiastic about my job*), and absorption (eg, *When I'm working I forget about everything*).

around me). Items are scored on a 7-point frequency scale from 0 (*never*) to 6 (*always*). Reliability and validity of the OES have been established with confirmatory factor analysis; estimates of internal consistency for all 3 subscales exceeded 0.70, and expected negative associations were observed with burnout scores.<sup>18</sup>

**Health Complaints.** Health status was measured with the 12-item somatization subscale of the Symptom Checklist (SCL-90-R).<sup>21</sup> The SCL-90-R is a widely used self-report measure of current psychological and physical health symptoms and has been used in other occupational stress and burnout research.<sup>22</sup> The somatization subscale consists of 12 items that reflect distress arising from perceptions of body dysfunction related to the cardiovascular (eg, *Pains in heart or chest*), gastrointestinal (eg, *Nausea or upset stomach*), and respiratory (eg, *Trouble getting your breath*) systems and other symptoms of autonomic function. Each survey item is rated on a 5-point scale of distress that ranges from 0 (*not at all*) to 4 (*extremely*). This instrument also has established reliability and validity using factor analyses and estimates of internal consistency greater than 0.70. Validity of this scale has been established by observed correlations with measures of mood, depression, and psychosis.

**Exercise Behavior.** The Leisure-Time Exercise Questionnaire (LTEQ) is a 3-item scale that asks respondents to indicate how often they engaged in mild (ie, minimal effort, not sweating), moderate (ie, not exhausting, light sweating), and strenuous (ie, heart beats rapidly) bouts of exercise for 20 minutes or longer during a typical week.<sup>23</sup> The LTEQ allows investigators to calculate a total metabolic equivalent score (MET) by weighting the intensity level and summing for a total score using the following formula: MET = 3 (*mild*), +5 (*moderate*), and +9 (*strenuous*). Previous researchers have supported the validity and reliability of the LTEQ in adult populations, as meaningful associations between this measure and measures of fitness have been observed.<sup>24,25</sup>

**Data Analyses.** Survey data from stratified random samples typically yield discrepancies between strata in the probability that a given item response is selected from the target population. Also, the likelihood that responses on a given item are homogeneous within a given stratum is increased. Statisticians have demonstrated that, under these conditions, population variables, standard errors, and variances are biased when estimated from sample data.<sup>26</sup> These potential type I errors can be ameliorated by calculating sampling weights with the Taylor series approximation and incorporating these sampling weights into subsequent analyses.<sup>27</sup> Missing data imputation was unnecessary, because the study Web site prevented participants with missing responses on a given measure from proceeding to subsequent measures in the protocol. However, missing cases did occur when participants logged off the Web site in the middle of a specific measure and did not return to complete subsequent measures. Under these circumstances, I used listwise deletion procedures for all measures except the demographic questions.

Pearson correlations and multivariate analysis of variance (MANOVA) were used to address the main purposes. For all MANOVAs, sex, experience in the profession, and occupational setting were treated as fixed factors, whereas burnout, engagement, and somatic health complaints were

dependent variables. The Box M and Levene tests also were computed to assess basic assumptions of the MANOVA technique. Finally, 2-tailed *t* tests were calculated to assess potential differences between published norms and the observed data for burnout, occupational engagement, and health complaints.

## RESULTS

### Participants

As noted on the sampling frame (Figure), 480 female and 454 male ATs (24% response rate) participated. Mean age was  $33.84 \pm 8.29$  years. A total of 293 were employed in colleges or universities, 276 in secondary schools or with youth athletes, and 365 in clinical or industrial settings. With regard to years as a certified AT, 292 had fewer than 5 years, 312 had 5 to 10 years, and 330 had more than 10 years. Most of the participants were white (88%), and they worked with an average of  $90.11 \pm 284.21$  clients, along with  $2.98 \pm 6.11$  other colleagues who were also ATs.

**Preliminary Analyses and Normative Comparisons.** Estimates of internal consistency ( $\alpha$ ) for somatic health complaints were .78; for depersonalization, .73; for emotional exhaustion, .90; for personal accomplishment, .79; for vigor, .81; for absorption, .69; and for dedication, .81. The descriptive results and correlational analysis for all study measures are shown in Table 1. The expected associations between stress appraisal, burnout, engagement, and health complaints were supported, because stress was moderately associated with depersonalization ( $r = 0.30$ ), emotional exhaustion ( $r = 0.46$ ), and somatic health complaints ( $r = 0.33$ ). Vigor was negatively related to depersonalization ( $r = -0.27$ ) and emotional exhaustion ( $r = -0.33$ ). Personal accomplishment was associated with all 3 subscales of the OES. Somatic health complaints exhibited a moderate relationship with depersonalization ( $r = 0.27$ ) and emotional exhaustion ( $r = 0.44$ ), whereas exercise behavior was positively associated with vigor ( $r = 0.15$ ) and personal accomplishment ( $r = 0.18$ ).

Burnout scores of 24 or greater on emotional exhaustion, 19 and higher for depersonalization, and 27 and above for personal accomplishment (reverse scored) are considered high.<sup>4</sup> As observed, the mean weighted scores for depersonalization and emotional exhaustion were below those considered high for these subscales at 6.21 and 16.34, respectively. The average score on the personal accomplishment subscale of the MBI was also higher than the normative data. An independent-samples *t* test comparing the observed scores and published norms for the MBI indicated differences on all 3 subscales ( $P < .01$ ), with the participants in this sample scoring lower on depersonalization and emotional exhaustion and higher on personal accomplishment. For occupational engagement, comparisons between the observed scores and published norms indicated differences on all 3 subscales ( $P < .01$ ), with the participants in this sample scoring higher on dedication, vigor, and absorption.

A phase model of the burnout syndrome recently has gained acceptance within the occupational burnout literature.<sup>4</sup> This model makes use of all possible patterns of scores that can be obtained with the MBI<sup>16</sup> and posits a progressive sequence of psychological experiences (ie,

Table 1. Descriptive Statistics and Correlations Between Study Measures

Scale	Mean ± SD (Unweighted)	Mean ± SD (Weighted)	Published Norms	Depersonalization	Emotional Exhaustion	Personal Accomplishment	Vigor	Absorption	Dedication	Somatic Health Complaints	Stress	Metabolic Equivalent (MET)
Depersonalization	6.35 ± 5.20	6.21 ± 5.11	8.73 ± 5.89	—	—	—	—	—	—	—	—	—
Emotional exhaustion	16.94 ± 10.44	16.34 ± 10.24	20.99 ± 10.75	0.66 <sup>a</sup>	—	—	—	—	—	—	—	—
Personal accomplishment	36.77 ± 7.06	36.45 ± 7.14	34.58 ± 7.11	-0.23 <sup>a</sup>	-0.20 <sup>a</sup>	—	—	—	—	—	—	—
Vigor	4.59 ± 1.89	4.62 ± 0.94	3.82 ± 0.86	-0.27 <sup>a</sup>	-0.33 <sup>a</sup>	0.65 <sup>a</sup>	—	—	—	—	—	—
Absorption	3.80 ± 2.57	3.80 ± 1.11	3.53 ± 1.00	0.00	0.04	0.40 <sup>b</sup>	0.57 <sup>a</sup>	—	—	—	—	—
Dedication	4.71 ± 2.29	4.73 ± 1.06	3.74 ± 1.29	-0.30 <sup>a</sup>	-0.31 <sup>a</sup>	0.68 <sup>a</sup>	0.75 <sup>a</sup>	0.57 <sup>a</sup>	—	—	—	—
Somatic health complaints	4.87 ± 4.90	0.40 ± 0.41	0.36 ± 0.42	0.27 <sup>a</sup>	0.44 <sup>a</sup>	-0.16 <sup>a</sup>	-0.21 <sup>a</sup>	0.08	-0.16 <sup>a</sup>	—	—	—
Stress	11.68 ± 3.53	11.56 ± 3.49	N/A	0.30 <sup>a</sup>	0.46 <sup>a</sup>	-0.08 <sup>b</sup>	-0.19 <sup>a</sup>	0.03	-0.16 <sup>a</sup>	0.33 <sup>a</sup>	—	—
Metabolic equivalent (MET)	41.41 ± 30.64	41.14 ± 29.71	N/A	-0.07 <sup>b</sup>	-0.10 <sup>a</sup>	0.18 <sup>a</sup>	0.15 <sup>a</sup>	0.02	0.09 <sup>b</sup>	-0.04	0.07	—

Abbreviation: N/A, not applicable.

<sup>a</sup>  $P < .01$ .

<sup>b</sup>  $P < .05$ .

subscale scores on the MBI) related to the burnout construct. The burnout syndrome begins with depersonalization (considered the least potent); the erosion of personal accomplishment is an intermediate step; emotional exhaustion occurs last and is the most potent characteristic of burnout. Indeed, emotional exhaustion is considered most detrimental to the health and well-being of employees.<sup>4</sup> Lower levels of emotional exhaustion are experienced by individuals in the first 4 phases and higher levels by those in the last 4 phases. The rationale, reliability, and overall utility of the phase model of burnout has been established<sup>4</sup> and will be used here as an analytic heuristic. As shown in Table 2, the majority of my sample was in the early or nondeleterious phases of the burnout syndrome, because 632 individuals simultaneously scored low on emotional exhaustion and depersonalization and high on the personal accomplishment subscales. At the opposite end of the phase model were 151 participants who scored in the most advanced stages of burnout.

The participants' scores on the somatization scale of the SCL-90-R were within 1 SD above normative data for nonclinical populations.<sup>21</sup> Using an independent-samples *t* test, I found that the sample data were not different from the normative values.

The participants reported an average of 2.5 bouts of strenuous exercise per week, and I calculated an average MET score of  $41.42 \pm 60.64$ . Additionally, 97.8% ( $n = 887$ ) of the sample reported being nonsmokers, and 31.3% ( $n = 278$ ) did not drink alcoholic beverages. The remaining 68.7% ( $n = 610$ ) of the sample consumed an average of  $1.93 \pm 1.36$  drinks per sitting on  $2.58 \pm 1.78$  occasions per week. With regard to mental health, 15.3% ( $n = 136$ ) of the participants reported having been in counseling or psychotherapy at the time data were collected (82 women, 44 men), 1.1% ( $n = 10$ ) had been hospitalized for psychiatric reasons sometime in the past, and 5.7% ( $n = 51$ ) had suicidal ideation at some point during their lives. These descriptive findings support my expectation that ATs generally engage in healthful habits.

**Group Differences.** Two separate MANOVAs were computed using time since certification, sex, and occupational setting as fixed factors and subscale scores on the MBI<sup>16</sup> and OES<sup>18</sup> as dependent variables (Table 3). An analysis of variance also was computed with the somatization scale<sup>21</sup> of the SCL-90 as a dependent variable using the same fixed factors described above. The Box M and Levene tests for all 3 models were nonsignificant, indicating acceptance of multivariate assumptions that the observed covariance matrices and error variances were equal across groups. Initial  $\alpha$  values were set at .05, but to reduce the probability of type I errors, I used Bonferroni adjustments, resulting in  $\alpha$  being .01.

The first model tested for differences in depersonalization, emotional exhaustion, and personal accomplishment. Main effects for sex (Wilks  $\Lambda = 0.97$ ,  $F_{3,859} = 9.63$ ,  $P < .001$ ) and occupational setting (Wilks  $\Lambda = 0.97$ ,  $F_{6,1718} = 4.31$ ,  $P < .001$ ) were noted but not for time since certification (Wilks  $\Lambda = 0.99$ ,  $F_{6,1718} = 1.87$ ,  $P = .08$ ). The interactions between sex and occupational setting (Wilks  $\Lambda = 1.00$ ,  $F_{6,1718} = 0.58$ ,  $P = .75$ ), sex and time since certification (Wilks  $\Lambda = 0.99$ ,  $F_{6,1718} = 1.44$ ,  $P = .20$ ), and time since certification and occupational setting (Wilks  $\Lambda = 0.99$ ,  $F_{12,2272} = .44$ ,  $P = .95$ ) also proved nonsignificant.

**Table 2. Participants in Each Burnout Phase by Sex<sup>a</sup>**

Burnout Phase	Depersonalization	Personal Accomplishment	Emotional Exhaustion	Men Mean, %	Women Mean, %	Total Mean, %
1	Low	High	Low	326, 37.42	306, 35.13	632, 72.55
2	High	High	Low	0	0	0
3	Low	Low	Low	29, 3.32	24, 2.75	53, 6.07
4	High	Low	Low	0	0	0
5	Low	High	High	0	0	0
6	High	High	High	9, 1.03	7, .80	16, 1.83
7	Low	Low	High	7, .80	12, 1.37	19, 2.18
8	High	Low	High	57, 6.54	94, 10.79	151, 17.33
Total				428, 49.14	443, 50.86	871, 100.00

<sup>a</sup> A total of 63 participants did not complete 1 or more items on the Maslach Burnout Inventory and were listwise deleted. Percentages are based upon the number of individuals who completed all items.

Between-subjects analysis for the sex main effect revealed differences between men and women on the emotional exhaustion subscale ( $F_{1,877} = 11.59, P < .01, \eta^2 = 0.01$ ) only, with women scoring higher than men.

With regard to the occupational setting main effect, differences were seen for the depersonalization ( $F_{2,877} = 10.81, P < .001, \eta^2 = 0.03$ ) and emotional exhaustion subscales ( $F_{2,877} = 9.18, P < .001, \eta^2 = 0.02$ ). Pairwise comparisons on the depersonalization subscale for the occupational setting effect revealed differences between college or university and industrial or clinical ATs (mean = 2.03,  $P < .05$ ) and college or university and secondary school or youth ATs (mean = 1.76,  $P < .05$ ); those employed within college or university settings scored higher than individuals in the other 2 employment contexts. With regard to emotional exhaustion, the same trends were observed, because college or university ATs scored higher than industrial or clinical ATs (mean = 3.07,  $P < .05$ ) and secondary school or youth ATs (mean = 3.56,  $P < .05$ ).

The second model, with occupational engagement as the dependent variable, revealed main effects for sex (Wilks  $\Lambda = 0.98, F_{3,862} = 6.10, P < .001$ ) but not occupational setting (Wilks  $\Lambda = 0.98, F_{6,1724} = 1.83, P = .09$ ) or time since certification (Wilks  $\Lambda = 0.99, F_{6,1724} = 0.81, P = .57$ ). The interactions between sex and occupational setting (Wilks  $\Lambda = 0.99, F_{6,1724} = 1.50, P = .17$ ), sex and time since certification (Wilks  $\Lambda = 0.99, F_{6,1724} = 2.01, P = .06$ ), and time since certification and occupational setting (Wilks  $\Lambda = 0.98, F_{12,2280} = 1.61, P = .08$ ) also proved nonsignificant. Between-subjects analysis for the sex main effect revealed differences between men and women on the vigor ( $F_{1,880} = 15.88, P < .01, \eta^2 = 0.02$ ) and dedication ( $F_{1,880} = 6.77, P < .01, \eta^2 = 0.01$ ) subscales of the OES.<sup>19</sup> In both cases, men scored higher than women.

Finally, analysis of variance testing for differences in somatic health complaints proved significant only for sex ( $F_{1,884} = 21.81, P < .001, \eta^2 = 0.03$ ). Women scored higher than men on this measure.

## DISCUSSION

The results reported here were derived from a stratified random sample of ATs who completed assessments of selected health behaviors and complaints, psychological stress, occupational burnout, and engagement. The sample was stratified proportionate to NATA membership data by sex, 3 occupational settings (college or university, secondary school or youth, industrial or clinical), and years of postcertification experience (fewer than 5 years, 5 to 10 years, more than 10 years). Given the nature of the study design, generalizations to the larger population of ATs (except to those working in professional athletic settings) are possible and will be elaborated below.

The present findings extend the literature on stress and burnout in the AT profession in several ways. First, previous authors have demonstrated contradictory results with regard to the precise prevalence of burnout among ATs. For instance, Campbell et al<sup>7</sup> distributed author-developed questionnaires in the packets of the 1500 attendees at the 1984 NATA annual conference.<sup>7</sup> Of this nonrandom sample of 221 individuals, the authors concluded that 60.3% ( $n = 133$ ) of their sample was burned out and that burnout symptoms were associated with various medical or health concerns (eg, depression, high blood pressure). In contrast, Capel<sup>8</sup> randomly surveyed ATs working in the western part of the United States and reported means of 25.56, 9.75, and 41.60 on the emotional exhaustion, depersonalization, and personal accomplishment subscales, respectively, and concluded that burnout was lower in athletic training than in other health professions. My findings generally support Capel's conclusions and indicate that ATs are relatively less burned out than health care providers in other occupational settings.

The second important contribution presented here concerns the sex and occupational setting main effects. Women and those working in college or university settings scored higher on measures of burnout. The female

**Table 3. Maslach Burnout Inventory and Occupational Engagement Subscale Scores by Sex and Occupational Setting (Mean  $\pm$  SD)**

Subscale	Men	Women	College or University	Secondary School or Youth	Clinical or Industrial
Depersonalization	6.51 $\pm$ 5.18	6.19 $\pm$ 5.21	7.71 $\pm$ 5.71	5.95 $\pm$ 4.95	5.68 $\pm$ 4.81
Emotional exhaustion	15.52 $\pm$ 9.93	18.10 $\pm$ 10.61	19.13 $\pm$ 10.71	15.56 $\pm$ 10.53	16.06 $\pm$ 9.69
Personal accomplishment	36.59 $\pm$ 7.23	36.12 $\pm$ 6.93	35.98 $\pm$ 6.96	36.50 $\pm$ 6.91	36.53 $\pm$ 7.30
Vigor	4.73 $\pm$ 0.90	4.45 $\pm$ 0.98	4.53 $\pm$ 0.91	4.68 $\pm$ 0.95	4.57 $\pm$ 0.97
Absorption	3.83 $\pm$ 1.11	3.75 $\pm$ 1.10	3.81 $\pm$ 1.06	3.82 $\pm$ 1.10	3.76 $\pm$ 1.14
Dedication	4.80 $\pm$ 1.04	4.61 $\pm$ 1.07	4.58 $\pm$ 1.07	4.80 $\pm$ 0.99	4.73 $\pm$ 1.10
Somatic health complaints	0.34 $\pm$ 0.38	0.48 $\pm$ 0.44	0.42 $\pm$ 0.38	0.41 $\pm$ 0.44	0.40 $\pm$ 0.41

participants scored higher on emotional exhaustion, the most potent characteristic of burnout, than men did, whereas those in college or university settings scored higher on depersonalization and emotional exhaustion. Although these findings should be tempered by the relatively low effect size estimates and the surprising lack of an interaction between sex and occupational setting, the sex differences confirmed previous research and raise questions that deserve scrutiny by future investigators.<sup>2,13,14</sup> The occupational setting differences also confirmed previous research<sup>28</sup> and suggest that individuals in college or university settings have different experiences and demands and perhaps fewer support systems available from athletic departments or administrators than ATs in other occupational settings. Speculation about potential causes linked to these differences is best left to readers, but clearly more research is needed to explore why these subgroups of ATs are more burned out.

The third contribution from this study concerns the level of occupational engagement present among ATs. The negative relationships between subscale scores on the OES<sup>18</sup> and the MBI<sup>16</sup> support previous findings indicating that occupational engagement and burnout are indeed independent and opposite constructs.<sup>18</sup> In the validation study, OES scores of 3.82, 3.74, and 3.53 on the vigor, dedication, and absorption subscales, respectively, were observed in a sample of employees in public and private organizations. In my dataset, scores were higher for all 3 subscales, indicating that these ATs, on average, exhibited higher levels of engagement within the profession than those in previous studies.<sup>19</sup> These findings are encouraging but should be qualified by the sex main effect: men scored higher on vigor and dedication than women did. Similar to the findings presented above concerning burnout, it would appear that women within the AT profession have, or perceive, different occupational experiences from men. Precisely why women and those in college or university settings experience less vigor and heightened symptoms of burnout is worthy of further empirical scrutiny.

Although the relatively lower average burnout scores are encouraging for the profession, a more critical analysis is warranted in light of contemporary approaches to burnout theory and research. The most important contribution offered here concerns the use of the phase model of burnout<sup>4</sup> applied to the AT profession. This model predicts a specific sequence or progression of psychological experiences that evolve over time and lead to reductions in job satisfaction, callous attitudes toward others, and poor health. In the latter stages of burnout, individuals experience high levels of depersonalization and emotional exhaustion and low levels of personal accomplishment. Surprisingly, no authors to date have used the phase model with ATs, although it can easily be applied retrospectively to previously published data if researchers are so inclined. I observed that a relatively small percentage of individuals were in stage 8 of the phase model, compared with more than 60% in Japanese respondents<sup>29</sup> and 23% in Canadian police managers.<sup>30</sup> These findings suggest that many ATs possess certain individual and contextual resiliencies that enable them to ward off burnout and the associated negative consequences. I hypothesized that healthy behaviors might contribute toward this end, and the descriptive data supported this contention, because most participants

were nonsmokers and a large percentage abstained from drinking alcoholic beverages. These percentages for smoking and drinking alcohol are substantially lower than United States population-based estimates<sup>31</sup> and suggest that athletic training attracts, or perhaps encourages, health-conscious behaviors. With regard to mental health, approximately 15% of the United States population has received help from mental health professionals,<sup>31</sup> whereas 15.3% ( $n = 136$ ) of my sample reported receiving counseling or psychotherapy in the past. The ATs reported engaging in 2.5 bouts of strenuous exercise per week, which is higher than public health recommendations.<sup>31</sup> This information is noteworthy, but other factors, such as personality, coping skills, and more specific contextual or worksite variations, likely explain why only 17.33% ( $n = 151$ ) of the current respondents were in phase 8 of the burnout syndrome. Discovering precisely why and how such a large percentage of ATs were resilient in the face of occupational stress could prove fruitful, theoretically and practically.

This study also confirms the findings of previous investigators, who demonstrated relationships among occupational stress, burnout, and other relevant constructs.<sup>7-11</sup> One group<sup>9</sup> noted associations between perceived stress and all 3 elements of burnout: emotional exhaustion ( $r = 0.59$ ), depersonalization ( $r = 0.43$ ), and personal accomplishment ( $r = -0.27$ ), whereas another investigator<sup>8</sup> showed that role conflict was the strongest predictor of burnout frequency ( $\beta = .36$ ).<sup>8</sup> My data revealed that occupational stress was positively related to the various elements of burnout and somatic health complaints but negatively related to occupational engagement. Thus, burnout is indeed a syndrome that involves cognitive, emotional, behavioral, and health indices, and individuals who are burned out are likely to experience health problems, worksite absenteeism, and reduced quality of life.<sup>28</sup> In contrast, occupational engagement might provide individuals with a certain level of resilience in the face of occupational stress, but as suggested elsewhere, too much engagement might not be healthy either.<sup>19</sup>

I strongly recommend that burnout continue to be studied and addressed on a practical level within the athletic training profession. A cursory examination of the PubMed and PsycINFO databases revealed thousands of studies focused on nurses, medical students, doctors, social workers, psychiatrists, and many other health care providers, yet ATs are vastly underrepresented. This is startling due to the sheer number of ATs working with diverse groups of clients. The data presented here should be viewed as a call for more research, education, and evaluation. For instance, it is important to understand how and why female ATs and those working in college or university settings experienced greater burnout, whereas men and individuals in the clinical or industrial and secondary school or youth contexts experienced more vigor and less burnout. Creating and evaluating prevention programs for women and for those in college or university settings through education, peer networks, or technological programs will help those in need. Indeed, a plethora of models and programs is available in other health delivery settings that could serve as basic frameworks,<sup>32</sup> so I hope that scientists and practitioners will form collaborative partnerships to more systematically address burnout in ATs. Perhaps administrators or those in NATA positions

of authority can advocate stress-reduction educational experiences within established curricula. These experiences do not have to be full-semester classes but perhaps periodic discussions, lectures, or facilitated discussions with qualified personnel to encourage the development of coping skills. Finally, peer mentoring has been previously identified as a way to enhance the professional development of male ATs.<sup>33</sup> In this study, 7 male ATs with extensive experience in the profession were interviewed to understand major influences in their career development. Richly detailed quotations documented the importance of mentoring within and outside the profession. Based upon these findings and studies in other domains,<sup>34</sup> it seems reasonable to apply peer mentoring for ATs at risk for or experiencing burnout.

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*Address correspondence to Peter R. Giacobbi Jr, PhD, University of Arizona, Mel and Enid Zuckerman College of Public Health, PO Box 245209, Tucson, AZ 85724. Address e-mail to Giacobbi@email.arizona.edu.*