

Physical Activity and the Link Among Stress, Burnout, and Well-Being in Athletic Trainers

Christine E. Pacewicz, PhD*; Taylor W. Rowley, PhD†; Jennifer L. Savage, PhD, LAT, ATC‡

*Department of Sport Leadership and Management, Miami University, Oxford, OH; †Department of Health and Human Performance, Roanoke College, Salem, VA; ‡Department of Kinesiology, Jacksonville State University, AL

Context: Stress is a leading cause of burnout in working professionals, including athletic trainers (ATs). One consequence of burnout for ATs is lower perceptions of well-being, which have implications for mental and physical health. Physical activity is known to help reduce stress. Thus, activity may help reduce stress and burnout in ATs while enhancing well-being.

Objective: To examine a theoretically based mediating model whereby leisure time physical activity was linked to subjective well-being by way of ATs' perceived stress and burnout.

Design: Cross-sectional study.

Setting: Online survey during the fall sports season.

Patients or Other Participants: Practicing certified ATs (N = 163; mean age = 30.5 ± 6.7 years).

Main Outcome Measure(s): Via a secure link, participants completed a survey that measured leisure time planned physical activity, work-related stress, burnout, and perceived life satisfaction. Latent variable analysis was used to examine the hypothesized mediating model.

Results: Minutes spent in moderate or vigorous activity were not associated with stress. Minutes spent walking were negatively associated with perceived stress ($\beta = -0.18$, $P < .001$). Stress was positively associated with exhaustion ($\beta = 0.89$, $P < .001$), negatively associated with personal accomplishment ($\beta = -0.70$, $P < .001$), and positively associated with depersonalization ($\beta = 0.71$, $P < .001$). Exhaustion was negatively associated ($\beta = -0.57$, $P < .001$) and personal accomplishment was positively associated ($\beta = 0.31$, $P = .013$) with well-being. Minutes spent walking were positively linked to well-being via stress and exhaustion. The negative relationship between stress and well-being was mediated by exhaustion and personal accomplishment.

Conclusions: Leisure time walking was indirectly and positively linked to well-being. Walking could be a strategy to reduce stress and burnout in ATs and thereby improve well-being.

Key Words: walking, psychology, exhaustion, accomplishment, depersonalization

Key Points

- Leisure time walking was negatively associated with athletic trainers' perceived stress levels.
- Via stress and burnout perceptions, leisure time walking was indirectly associated with well-being.
- Walking may be used as a strategy to help prevent burnout and improve well-being in athletic trainers by reducing stress.

Burnout is a salient psychological health concern for working professionals.^{1,2} The importance of this health concern became more evident to employers and employees after the World Health Organization named burnout an occupational phenomenon and advocated for the study of this maladaptive outcome.³ Burnout is a psychological syndrome characterized by emotional exhaustion, a decreased perception of personal accomplishment at work, and depersonalization of patients that includes cynical attitudes toward one's clients or patients and detachment.¹ Burnout may affect the quality of care or service provided by the individual, contribute to job dissatisfaction, and add to a lack of engagement in work responsibilities, which can eventually result in job resignation.² Furthermore, burnout can lead to poor health behaviors (eg, higher alcohol consumption), family concerns (eg, marriage problems), and low psychological well-being.^{2,4} Because of these consequences, it is critical to understand how we can

mitigate perceptions of burnout and improve psychological well-being.

One primary factor leading to perceived burnout is stress, as greater perceptions of stress can intensify burnout.⁵ Vulnerability to burnout increases in contexts that are people oriented, such as the field of athletic training,⁶ because of the demands and responsibilities of these professions (ie, stressors).¹ Athletic trainers (ATs) reported high levels of stress associated with their job responsibilities, workload, and role conflict and a need for work-life balance.^{6–8} These work-related stressors are linked to perceptions of burnout.⁸ Higher burnout perceptions could negatively influence ATs' psychological well-being (eg, satisfaction with one's life), affecting their overall physical and mental health, job satisfaction, and retention, as these consequences have been observed in other work contexts.^{2,4} Thus, we need to reduce perceptions of burnout in this health care profession.

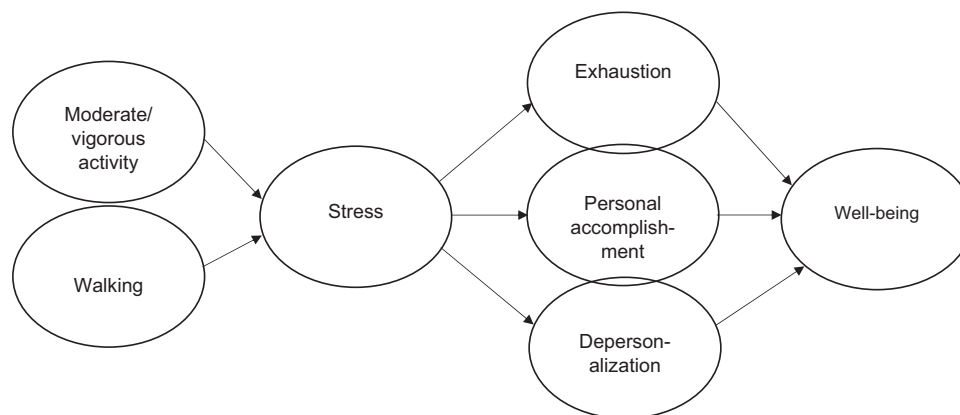


Figure 1. Hypothesized meditating model. Moderate/vigorous activity and walking reflect the total weekly minutes in each pursuit. Exhaustion, personal accomplishment, and depersonalization are burnout dimensions. For visual clarity, the observed indicators, covariances, and residuals are not shown.

One approach to reducing perceptions of burnout and enhancing psychological well-being is to find effective strategies to reduce perceptions of work-related stress for ATs. Qualitative work indicated that some ATs use leisure time physical activity (PA) as a coping mechanism for the stress they encounter in their jobs.⁹ Reducing work-related stress may lead to less perceived burnout and heightened well-being. Participation in moderate or vigorous PA (MVPA) and leisure time walking are known to decrease stress and improve psychological well-being in the general population.^{10,11} Because various types of leisure time PA can improve physical and mental health, such pursuits could be an effective strategy to help ATs to lessen stress and burnout while improving well-being. Furthermore, as a lack of energy and motivation are primary barriers to PA,¹² walking—a less strenuous activity—may allow ATs to be active even when fatigued from work.

The purpose of our study was to examine the effects of leisure time planned PA (ie, time spent in MVPA and time spent walking) on ATs' perceived stress, burnout, and well-being. Our work was grounded in the Smith⁵ cognitive-affective model; we examined a mediating model in which PA was linked to subjective well-being by way of ATs' perceived stress and burnout (see Figure 1). We hypothesized that (1) the time spent in MVPA as well as the time spent walking would be negatively linked to perceptions of stress, (2) stress would be positively linked to the 3 dimensions of burnout (ie, exhaustion, reduced accomplishment, and depersonalization), and (3) the 3 burnout dimensions would be negatively linked to subjective well-being. Additionally, we hypothesized that greater active time (ie, spent in MVPA and walking) would be linked to higher perceptions of well-being via reductions in stress and burnout.

METHOD

Participants

We collected data from a sample of 163 practicing certified ATs (women = 127; men = 36) at 1 time point during the 2021 fall sports season. Participants ranged in age from 22 to 60 years old (mean age = 30.5 ± 6.7 years). A Hispanic or Latino ethnicity was reported by 7.5% of the participants (92.5% reported they were not Hispanic or

Latino). Regarding race, participants self-identified as White (91.5%), Black or African American (2%), Asian (1%), more than 1 race (2%), other (0.5%), and preferred not to say (3%). Most respondents reported a primary appointment at a high school (34%) or college (45.6%). The remainder stated they worked in a clinic (7.4%) or other setting (8.7%). On average, individuals worked 50.4 ± 38.1 hours per week.

Measures

Demographics. Participants reported their age, biological sex, ethnicity, and race. They also supplied their primary appointment for practice and the average number of hours per week they worked in the past month.

Planned Leisure Time PA

Respondents completed part 4 of the long form (ie, Recreation, Sport, and Leisure Time PA) of the International Physical Activity Questionnaire (IPAQ),¹³ which captured leisure time planned PA behaviors. Earlier researchers¹⁴ supported the reliability ($\rho = 0.80$) and validity (ie, criterion validity) of IPAQ scores. In this section, participants reflected on the previous 7 days and described the days per week and minutes per day they spent, during their leisure time, in moderate activity, vigorous activity, and walking. We calculated the total weekly minutes spent in moderate leisure time activity by multiplying the days per week by the minutes per day spent in moderate activity. Next, we computed the total weekly minutes spent in vigorous leisure time activity by multiplying the days per week by the minutes per day spent in vigorous activity. We then determined the total minutes spent in MVPA by adding the total weekly minutes of moderate activity and the total weekly minutes of vigorous activity. Finally, we measured the total weekly minutes spent walking during leisure time by multiplying the days per week by the minutes per day spent walking.

Perceived Stress

We used a modified version of the 14-item Perceived Stress Scale (PSS)¹⁵ to measure participants' level of stress at work. The PSS is a global measure of stress; however, for

the current study, respondents were asked to think about their feelings and thoughts during the last month while working. We modified items to reflect the work context (eg, “How often have you felt that you were on top of things?” to “How often have you felt that you were on top of things at work?” and “How often have you dealt successfully with irritating life hassles?” to “How often have you dealt successfully with irritating work hassles?”). Answers were on a 5-point Likert scale (0 = *never*, 4 = *very often*). We calculated overall stress by summing scores across the 14 items after reverse coding 7 items (range = 0–56). A higher score indicates greater perceived stress at work. Investigators have supported the reliability ($\alpha = 0.84$ – 0.86) and validity (ie, concurrent and predictive validity) of PSS scores,¹⁵ and the scale has previously been used among ATs.⁶ In the current study, the internal consistency reliability of scores was $\alpha = .90$.

Burnout

Participants completed the Maslach Burnout Inventory–Human Services Survey¹⁶ to measure their perceptions of emotional exhaustion, personal accomplishment, and depersonalization. The reliability ($\alpha = 0.90$, 0.71 , and 0.79 for exhaustion, personal accomplishment, and depersonalization, respectively) and validity (ie, convergent and discriminant validity) of scores were characterized in past research.^{1,17} Participants were asked to indicate how often they felt a certain way about their current job when reading 22 items on a 7-point Likert scale (0 = *never*, 6 = *every day*). To obtain scores, we summed and averaged the items for each burnout dimension (range = 0–6). A higher score indicates greater perceptions of exhaustion, reduced personal accomplishment, or depersonalization. In our work, the internal consistency reliability of scores were $\alpha = .95$, $.82$, and $.80$ for exhaustion, personal accomplishment, and depersonalization, respectively.

Subjective Well-Being

Respondents’ subjective well-being was measured by examining overall satisfaction with their life (Satisfaction with Life Scale).¹⁷ Earlier authors¹⁸ identified the reliability ($\alpha = .83$ – $.85$) and validity (ie, convergent validity) of scores. Participants were asked to indicate the extent to which they agreed with 5 items when considering their life in its entirety (eg, “In most ways, my life is close to my ideal” and “The conditions of my life are excellent.”). Answers were on a 7-point Likert scale (1 = *strongly disagree*, 4 = *neither disagree or agree*, 7 = *strongly agree*). Scores on the 5 items were summed to obtain a total well-being score (range = 5–35). A higher score indicates greater subjective well-being. The internal consistency reliability of our scores was $\alpha = .91$.

Procedure

After receiving institutional review board approval, we sought participants online via social media postings announcing the study and through direct emails sent to organizations and ATs across the contiguous United States to recruit a representative sample. Specifically, emails were sent to athletic training clinics in the Midwest that provided contact information online and US universities with athletic

training programs. In the emails, we also asked individuals to share the study flyer with friends or colleagues who might be interested. Participants accessed the survey through a secure online link to Survey Monkey. To avoid duplicate responses, we allowed only 1 attempt per IP address. The first page of the survey provided an overview of the study purpose and procedures and explained the voluntary nature of their participation. If ATs provided their online consent to participate and indicated that they were currently practicing, they gained access to the full online questionnaire packet and completed demographic questions along with measures of their leisure time planned PA, perceived stress, perceived burnout, and perceived life satisfaction. The completion rate was 78.4%. A total of 213 individuals met the inclusion criteria, and 167 individuals completed the survey.

Data Analysis

We screened the data for missing values, violations of assumptions, and outliers.¹⁹ Descriptive statistics, bivariate correlations, and scale reliabilities were calculated for all variables. Latent path analysis conducted in MPlus (version 8)²⁰ with maximum likelihood estimation was used to assess the proposed mediating model. The total weekly minutes spent in MVPA and total weekly minutes spent walking were modeled as exogenous observed variables. The 2 observed activity variables were associated with the latent variable stress, which had 14 observed indicators. In turn, stress was associated with the following 3 latent burnout variables: exhaustion (9 observed indicators), personal accomplishment (5 observed indicators), and depersonalization (8 observed indicators). The 3 latent burnout variables were allowed to covary. Finally, each burnout dimension was associated with the latent variable, subjective well-being, which had 5 observed indicators. Model identification was obtained by fixing 1 path from each latent variable to an observed indicator to 1.¹

We examined the overall fit for the model using the exact fit χ^2 test, root mean square error of approximation (RMSEA) and 90% CI, comparative fit test (CFI), and standardized root mean residual (SRMR). A nonsignificant χ^2 test provides evidence for exact fit; however, the χ^2 test is sensitive to sample size and other model assumptions.^{21,22} Thus, model fit should be assessed based on other fit indices.²² For the RMSEA, when values are <0.05 , close fit is obtained.²³ Approximate fit is present when values are 0.05 to 0.08 .²³ For the CFI, good fit is achieved when values are >0.95 .²³ When CFI values are 0.90 to 0.95 , fit is adequate. For the SRMR, when values are ≤ 0.08 , fit is good. To assess mediation, bias-corrected bootstrapped CIs (ie, 5000 resamples) were used. Along with examining the P values of indirect effects, significant mediation was supported when the CIs did not span zero.

¹Our sample size was relatively small for use in a structural equation modeling framework. However, the simulation work of Wolf et al²⁴ indicated that the number of observed indicators as well as the magnitude of factor loadings and factor correlations affect required sample size. A greater number of indicators per factor can help compensate for a relatively smaller sample size when conducting structural equation modeling. Our latent factors had, at minimum, 5 observed indicators, which improves the precision and power.

Table 1. Descriptive Statistics and Bivariate Correlations for Study Variables (N = 163)

Variable	1	2	3	4	5	6	7
1. Total weekly minutes in moderate-to-vigorous activity							
2. Minutes walking	0.39 ^a						
3. Stress	−0.16	−0.20 ^b					
4. Exhaustion	−0.18 ^b	−0.25 ^a	0.90				
5. Personal accomplishment	0.10	0.07	−0.58 ^a	−0.58 ^a			
6. Depersonalization	0.04	−0.06	0.66 ^a	0.71 ^a	−0.58 ^a	0.80	
7. Well-being	0.17 ^b	0.14	−0.66 ^a	−0.67 ^a	0.54 ^b	−0.53 ^a	0.91
Mean	277.00	185.00	24.60	2.80	4.10	1.70	23.50
SD	280.10	294.50	8.90	1.40	0.70	1.00	6.80

^a $P < .01$.^b $P < .05$.

RESULTS

Preliminary Data Screening

Missing data were limited (0.001%). We accounted for them via Mplus, which uses available data to estimate the model.²⁰ A preliminary evaluation of skewness and kurtosis values revealed small deviations from normality, as follows: skewness < 1.8 and kurtosis < 3.5 . Such deviations from normality are lower than the criterion linked with concerns in maximum likelihood-based studies (skewness > 2.0 , kurtosis > 7.0).²⁵ Screening for multivariate outliers (Mahalanobis distance $\chi^2_6 = 22.46$, $P = .001$) revealed 2 outliers. When we removed these participants, no substantive differences were found in results. Therefore, these cases were included in the following analyses.

Descriptive Statistics

Descriptive statistics and bivariate correlations of the study variables are presented in Table 1. Each week, on average, participants reported working 50.5 ± 38.1 hours, spending 277 minutes in MVPA, and walking 185 minutes. Relative to the response set options, on average, respondents described moderate levels of stress, moderate levels of exhaustion, moderate to high levels of personal accomplishment, and low levels of depersonalization. They also indicated moderate levels of well-being (ie, *slightly satisfied* with life). Minutes spent walking were significantly and negatively correlated with perceived stress and exhaustion. Bivariate correlations were in the expected directions for stress, burnout, and well-being. Stress was

significantly and positively correlated with exhaustion and depersonalization and significantly and negatively correlated with personal accomplishment and subjective well-being. Exhaustion and depersonalization were significantly and negatively correlated with subjective well-being. Personal accomplishment was significantly and positively correlated with subjective well-being.

Mediation Analysis

We used latent path analysis to examine the proposed model. The model showed adequate fit to the data, with χ^2_{849} ($N = 163$) = 1438.690, $P < .001$; RMSEA = 0.065, 90% CI = 0.060, 0.071; CFI = 0.900; SRMR = 0.070. Minutes spent in MVPA were not associated with perceived stress ($\beta = -0.10$, SE = 0.09, $P = .28$). Minutes spent walking were significantly and negatively associated with perceived stress ($\beta = -0.18$, SE = 0.08, $P = .04$). Perceived stress was significantly and positively associated with exhaustion ($\beta = 0.89$, SE = 0.02, $P < .001$) and depersonalization ($\beta = 0.71$, SE = 0.05, $P < .001$) and negatively associated with personal accomplishment ($\beta = -0.70$, SE = 0.05, $P < .001$). Exhaustion was significantly and negatively associated with subjective well-being ($\beta = -0.57$, SE = 0.12, $P < .001$). Personal accomplishment was significantly and positively associated with subjective well-being ($\beta = 0.31$, SE = 0.12, $P = .013$). Depersonalization was not associated with subjective well-being ($\beta = 0.14$, SE = 0.15, $P = .38$; see Figure 2). We present indirect effects in Table 2. Minutes spent in MVPA were not linked to well-being.

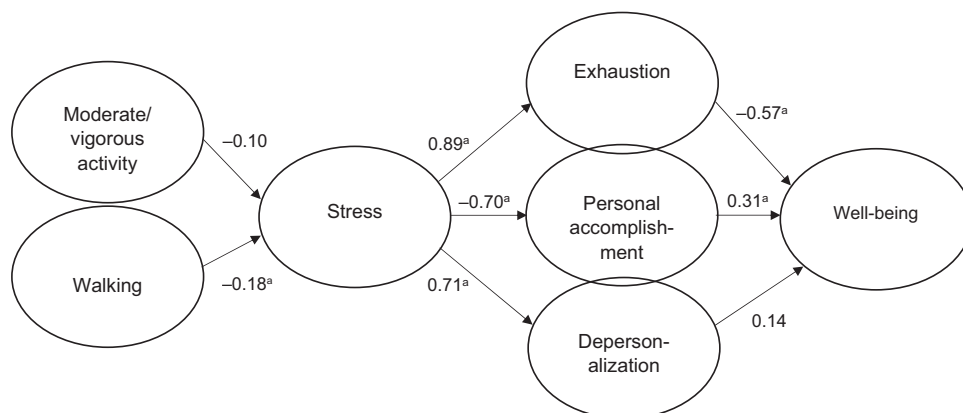


Figure 2. Reported model direct effects (β values) are standardized; ^a, $P < .05$. Moderate/vigorous activity and walking reflect the total weekly minutes in each pursuit. Exhaustion, personal accomplishment, and depersonalization are burnout dimensions.

Table 2. Standardized Indirect Effects of the Mediating Model

Variables ^a	Indirect Effect	Standard Error	P Value	95% CI ^b
Total weekly minutes in moderate-to-vigorous activity				
Stress-exhaustion-well-being	0.05	0.05	.293	−0.04, 0.15
Personal accomplishment-well-being	0.02	0.02	.324	−0.02, 0.06
Stress-depersonalization-well-being	−0.01	0.01	.419	−0.04, 0.02
Total weekly minutes walking				
Stress-exhaustion-well-being	0.09 ^c	0.04	.029	0.02, 0.21
Stress-personal accomplishment-well-being	0.04	0.03	.324	−0.01, 0.10
Stress-depersonalization-well-being	−0.02	0.02	.496	−0.06, 0.03
Stress				
Exhaustion-well-being	−0.51 ^d	0.11	<.001	−0.74, −0.28
Personal accomplishment-well-being	−0.21 ^c	0.08	.017	−0.39, −0.04
Depersonalization-well-being	0.10	0.11	.379	−0.12, 0.31

^a Each row represents 1 full pathway of the mediating model. Stress = perceived work-related stress. Well-being = subjective well-being.

^b Along with the *P* value, significant mediation is present when the 95% CI does not span zero.

^c *P* < .05.

^d *P* < .01.

Minutes spent walking were positively linked to well-being via stress and exhaustion but not the path via stress and personal accomplishment nor the path via stress and depersonalization. The negative relationship between stress and well-being was mediated by exhaustion and personal accomplishment but not depersonalization. Explained variance was 6% for stress, 79% for exhaustion, 48% for personal accomplishment, 51% for depersonalization, and 51% for well-being.

DISCUSSION

Burnout is a cognitive-affective syndrome that is caused by chronic stress⁵ and can negatively affect individuals' physical and psychological health.¹ Athletic trainers experience work-related stress, which is linked to burnout and other markers (eg, depression) of well-being.^{4,6,8} To promote the health and well-being of this population, it is necessary to identify and implement tangible strategies to reduce stress and burnout. One such strategy may be leisure time planned PA. Both time spent in MVPA¹¹ and time spent walking¹⁰ are shown to help reduce perceptions of stress. Our findings support the use of walking to reduce stress in ATs, which may reduce burnout and enhance subjective well-being.

Qualitative researchers⁹ have reported that ATs use PA to manage work-related stress. Our findings provide a quantitative assessment of the effects of PA on stress. Specifically, weekly minutes spent walking were negatively linked to perceptions of work-related stress in our sample of ATs. This result supports the broader literature, in which investigators¹⁰ suggested walking as an effective strategy to reduce perceptions of stress. However, weekly minutes of MVPA during leisure time did not significantly contribute to perceptions of work-related stress. This outcome is contrary to findings in the occupational literature that MVPA can decrease work-related stress.¹¹ In our study, on average, the ATs participated in a combined 277 minutes of MVPA across 3 days each week. Although this finding exceeds the 150 minutes of MVPA recommended by the World Health Organization,²⁶ it may be that spreading leisure time MVPA across more days of the week is more effective in coping with work-related stress. This idea was endorsed by Lachance et al,¹¹ who indicated that the daily optimal level of MVPA for stress-reducing effects was 90

minutes. In our examination, MVPA did not decrease stress, but the findings suggest that leisure time walking could be a strategy to help reduce work-related stress in ATs. As a less strenuous form of activity, walking may be easier for ATs to incorporate into their daily routine, even when fatigued from work. Because we measured leisure time physical activity using a self-report questionnaire, future authors should use objective measures of PA (eg, accelerometers) to reduce the chance of error due to misreporting weekly activity. These measures will further our understanding of how time spent active, in MVPA or walking, is linked to work-related stress in ATs, informing interventions to help these professionals.

Work-related stress was positively related to perceptions of exhaustion and depersonalization and negatively related to perceptions of accomplishment at work. These results support past work examining the stress-burnout relationship in ATs.^{6,8} Burnout is also a marker of well-being⁴ and can influence overall psychological well-being. Although studies of the link between burnout and well-being in ATs are limited, a negative relationship may exist whereby greater burnout is associated with less well-being.²⁷ Extending our understanding of the consequences of burnout for ATs, we explored how burnout perceptions related to subjective well-being (ie, life satisfaction). Exhaustion was negatively linked to well-being, indicating that higher levels of fatigue at work were linked to lower levels of subjective well-being. To decrease exhaustion, both personal (eg, setting boundaries) and organizational (eg, proper staffing) strategies could be applied.⁹ On the other hand, personal accomplishment was positively linked to well-being. Thus, higher levels of perceived achievement at work were linked to greater levels of well-being. Given this result, we suggest that it is important for ATs to perceive that they are effective in their jobs. To foster perceptions of achievement, ATs could set weekly goals to help them monitor weekly accomplishments. At the organizational level, support from athletic directors, lead ATs, and coaches could also help promote feelings of accomplishment.⁹

Depersonalization, or detachment and cynical attitudes toward ATs' clients, was not associated with well-being. Although we expected depersonalization to link with well-being, this finding was not surprising, as depersonalization can involve detachment from one's clients. Such detachment

or distancing from clients may preserve one's well-being in that well-being is neither fostered nor hindered. However, it should be noted that distancing oneself from clients, as well as making cynical remarks toward clients, could affect clients' well-being. Future research should assess how ATs' depersonalization affects clients' mental and physical health, including their subjective well-being. Overall, our results indicate that higher exhaustion and reduced achievement at work could have implications for ATs' general well-being (ie, life satisfaction). These outcomes point to the need to reduce burnout perceptions in order to promote psychological wellness. Future investigators should determine which strategies are most effective in decreasing burnout perceptions and enhancing well-being. For instance, as ATs communicated the need for a supportive work environment,⁹ the moderating effects of support from salient agents on the link between burnout and well-being should be addressed.

We found support for a link between stress and well-being via burnout perceptions. The design of the study did not allow for examination of temporal effects, yet latent variable modeling enabled us to inspect these constructs in a specific order and account for measurement error, which builds on previous work.²⁷ Specifically, we demonstrated that stress was negatively linked to well-being via exhaustion. We interpret this to mean that greater stress can heighten exhaustion and thereby reduce well-being. We also noted that stress was negatively linked to well-being via personal accomplishment. We interpret this result as reflecting that more stress can reduce perceptions of achievement and thereby reduce well-being. Overall, we propose that work-related stress can influence perceptions of burnout, which have consequences for subjective well-being. Future authors should examine these relationships via a longitudinal design.

We found some support for our hypothesized mediating model. Walking was linked to subjective well-being by way of perceived work-related stress and exhaustion. This indirect effect can be interpreted as greater time spent walking is linked to greater subjective well-being by reducing perceived stress and feelings of exhaustion. This result supports the broader well-being literature, in which researchers have shown that leisure time PA was positively related to life satisfaction (ie, subjective well-being).²⁸ We suggest that, in the context of athletic training, leisure time walking could be an effective strategy to not only reduce work-related stress but also reduce perceptions of exhaustion and improve subjective well-being. We did not identify support for the indirect effects of walking on well-being via stress and personal accomplishment or stress and depersonalization. Considering what these burnout dimensions represent helps to explain these outcomes. Personal accomplishment represents perceptions of achievement at work, and depersonalization represents cynical attitudes toward one's clients. It may be that walking decreases perceptions of work-related stress and improves perceptions of fatigue. However, walking may also provide time to ruminate about work-related concerns or stressors, fueling perceptions of poor achievement and cynical attitudes toward clients. As ATs highlight the strategies they use to manage stress (eg, seeking social support and taking time off),⁸ other coping strategies (eg, journaling, goal mapping, and setting boundaries) may be necessary to reduce the stressors that fuel such perceptions. Additionally, we did not demonstrate support for the indirect effects of MVPA

on well-being via the stress and burnout dimensions. Examination of the bivariate correlations (see Table 1) indicates that MVPA might directly influence subjective well-being without reducing stress or burnout perceptions. Such findings are supported by investigators²⁸ who examined the association between leisure time PA and well-being. In the current study, we examined 1 marker of subjective well-being, namely, overall life satisfaction. Future authors could explore satisfaction in specific life domains (eg, health, economic situation, and relationships)²⁹ to better understand how leisure time planned PA influences ATs' subjective well-being. A more nuanced approach to well-being may also enable a greater understanding of how other coping strategies can be used to improve aspects of well-being.

Additional study limitations can inform future empirical work. First, our sample size was relatively small, and thus, caution should be taken when generalizing our results. Moreover, we did not account for years of experience. Future research should recruit a larger sample size and assess if years of experience moderates the relationship between stress and burnout. Also, the data were collected during the COVID-19 pandemic, which could have influenced participants' perceived work-related stress, burnout, and subjective well-being. Replication of our efforts is needed as we move out of the pandemic. Furthermore, we evaluated our model by using data from 1 time point. Such a design does not allow us to infer causality. Future investigators should use a longitudinal design involving at least 3 time points to determine the causality of the mediating model.

CONCLUSIONS

Burnout is a psychological health concern for ATs that is fostered by work-related stress. Therefore, it is important to find effective strategies to help reduce stress, mitigate perceptions of burnout, and improve well-being. Considering our findings, leisure time walking could be an effective strategy to reduce work-related stress, decrease feelings of exhaustion, and increase subjective well-being in ATs. Hence, planned leisure time walking may improve not only physical health but psychological health as well. Overall, our results enhance our understanding of possible intervening strategies to reduce burnout and improve psychological health in ATs.

REFERENCES

1. Maslach C, Jackson SE. The measurement of experienced burnout. *J Organiz Behav*. 1981;2(2):99–113. doi:10.1002/job.4030020205
2. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol*. 2001;52:397–422.
3. QD85: burnout. International Statistical Classification of Diseases and Related Health Problems. 11th ed. World Health Organization. Published 2019. Accessed August 2021. <https://icd.who.int/browse11/l-m/en#http://id.who.int/icd/entity/129180281>
4. Mäkikangas A, Kinnunen U. The person-oriented approach to burnout: a systematic review. *Burnout Res*. 2016;3(1):11–23. doi:10.1016/j.burn.2015.12.002
5. Smith RE. Toward a cognitive-affective model of athletic burnout. *J Sport Psychol*. 1986;8(1):36–50.
6. Hendrix AE, Acevedo EO, Hebert E. An examination of stress and burnout in certified athletic trainers at Division I-A universities. *J Athl Train*. 2000;35(2):139–144.
7. Kania ML, Meyer BB, Ebersole KT. Personal and environmental characteristics predicting burnout among certified athletic trainers at

- National Collegiate Athletic Association institutions. *J Athl Train*. 2009;44(1):58–66. doi:10.4085/1062-6050-44.1.58
8. Oglesby LW, Gallucci AR, Wynveen CJ. Athletic trainer burnout: a systematic review of the literature. *J Athl Train*. 2020;50(4):416–430. doi:10.4085/1062-6050-43-19
 9. Mazerolle SM, Pitney WA, Casa DJ, Pagnotta KD. Assessing strategies to manage work and life balance of athletic trainers working in the National Collegiate Athletic Association Division I setting. *J Athl Train*. 2011;46(2):194–205. doi:10.4085/1062-6050-46.2.194
 10. Kelly P, Williamson C, Niven AG, Hunter R, Mutrie N, Richards J. Walking on sunshine: scoping review of the evidence for walking and mental health. *Br J Sports Med*. 2018;52(12):800–806. doi:10.1136/bjsports-2017-098827
 11. Lachance JP, Corbière M, Hains-Monfette G, Bernard P. Clearing your mind of work-related stress through moderate-to-vigorous and leisure-time physical activity: what ‘dose’ it take? *Appl Res Qual Life*. 2022;17(3):1583. doi:10.1007/s11482-021-09974-y
 12. Downs DS, Hausenblas HA. Elicitation studies and the theory of planned behavior: a systematic review of exercise beliefs. *Psychol Sport Exerc*. 2005;6(1):1–31. doi:10.1016/j.psychsport.2003.08.001
 13. Booth M. Assessment of physical activity: an international perspective. *Res Q Exerc Sport*. 2000;71(suppl 2):114–120. doi:10.1080/02701367.2000.11082794
 14. Craig CL, Marshall AL, Sjöström M, et al. International Physical Activity Questionnaire: 12-country reliability and validity. *Med Sci Sports Exerc*. 2003;35(8):1381–1395. doi:10.1249/01.MSS.0000078924.61453.FB
 15. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav*. 1983;24(4):385–396.
 16. Maslach C, Jackson S, Leiter MP. *Maslach Burnout Inventory Manual*. 4th ed. Mind Gardens, Inc; 2017.
 17. Diener E, Emmons RA, Larsen RJ, Griffin S. The Satisfaction with Life Scale. *J Pers Assess*. 1985;49(1):71–75. doi:10.1207/s15327752jpa4901_13
 18. Pavot W, Diener E, Colvin CR, Sandvik E. Further validation of the Satisfaction with Life Scale: evidence for the cross-method convergence of well-being measures. *J Pers Assess*. 1991;57(1):149–161. doi:10.1207/s15327752jpa5701_17
 19. Tabachnick BG, Fidell LS. *Using Multivariate Statistics*. 6th ed. Pearson/Allyn and Bacon; 2013.
 20. Muthén LK, Muthén BO. *Mplus User’s Guide*. 8th ed. Muthén & Muthén; 2017.
 21. Bentler PM, Bonett DG. Significance tests and goodness of fit in the analysis of covariance structures. *Psychol Bull*. 1980;88(3):588–606. doi:10.1037/0033-2909.88.3.588
 22. Jöreskog KG. Simultaneous factor analysis in several populations. *Psychometrika*. 1971;36(4):409–426.
 23. Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Struct Equat Model*. 1999;6(1):1–55. doi:10.1080/03004430903387461
 24. Wolf EJ, Harrington KM, Clark SL, Miller MW. Sample size requirements for structural equation models: an evaluation of power, bias, and solution propriety. *Educ Psychol Meas*. 2013;76(6):913–934. doi:10.1177/0013164413495237
 25. Finney SJ, DiStefano C. Non-normal and categorical data in structural equation modeling. In: Hancock GR, Mueller RO, eds. *Structural Equation Modeling: A Second Course*. 2nd ed. Information Age Publishing Inc; 2013:439–491.
 26. Physical activity: aged 18–64. World Health Organization. Published 2020. Accessed August 2021. <https://www.who.int/newsroom/fact-sheets/detail/physical-activity>
 27. Naugle KE, Behar-Horenstein LS, Dodd VJ, Tillman MD, Borsa PA. Perceptions of wellness and burnout among certified athletic trainers: sex differences. *J Athl Train*. 2013;48(3):424–430. doi:10.4085/1062-6050-48.2.07
 28. Wiese CW, Kuykendall L, Tay L. Get active? A meta-analysis of leisure-time physical activity and subjective well-being. *J Positive Psychol*. 2016;13(1):57–66. doi:10.1080/17439760.2017.1374436
 29. Prilleltensky I, Dietz S, Prilleltensky O, et al. Assessing multidimensional well-being: development and validation of the I COPPE Scale. *J Community Psychol*. 2015;43(2):199–226. doi:10.1002/jcop.21674

Address correspondence to Christine E. Pacewicz, PhD, Department of Sport Leadership and Management, Miami University, Oxford, OH 45056. Address email to pacewic2@miamioh.edu.