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Work-Addiction Risk in Athletic Trainers and Its Relationship to Work-Family Conflict and Burnout

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Context: Individual factors can affect numerous work-life interface outcomes, including work-family conflict and burnout. Recently, the concept of work addiction has been investigated as an individual factor that could affect numerous outcomes. Despite the large body of literature investigating work-family conflict and burnout in athletic training, little is known about the incidence of work addiction or its potential effect on these outcomes.

Objective: To gather descriptive data on the work-addiction risk and examine the effect work addiction may have on work-life interface outcomes in athletic training.

Design: Cross-sectional study.

Setting: Online web-based survey.

Patients or Other Participants: Athletic trainers (ATs) employed in all work settings were recruited to participate via social media and email distribution lists. Data from 226 (n = 65, 28.8% males; n = 161, 71.2% females) ATs, currently employed in more than 13 work settings, were included in data analysis.

Main Outcome Measure(s): The online questionnaire consisted of 4 main sections: demographic questions, work-family conflict scale, Copenhagen Burnout Inventory, and the Work Addiction Risk Test. We calculated Mann-Whitney *U* and Kruskal-Wallis tests to determine if group differences existed. Simple linear regressions were used to assess if work-addiction risk scores predicted burnout and work-family conflict.

Results: The ATs experienced moderate levels of personal (55.0 ± 19.1) and work-related (50.0 ± 16.0) burnout and were at medium risk for work addiction (58.3 ± 11.2). No demographic differences were observed in burnout or work-family conflict scores, but these scores differed based on the work-addiction risk. Women were more at risk for compulsive tendencies than were men. Work-addiction risk scores predicted both burnout and work-family conflict, but only a relatively small percentage of the variability was explained.

Conclusions: Those ATs at higher risk for work addiction reported higher levels of burnout. Because of the medium risk for work addiction among ATs, work-addiction mitigation strategies should be implemented by individuals and organizations.

Key Words: workaholism, psychology

Key Points

- Athletic trainers were at medium risk for work addiction and exhibited moderate levels of personal and work-related burnout.
- Women scored higher than men on compulsive tendencies, but no other demographic differences were observed.
- The work-addiction risk predicted work-family conflict and burnout but explained little of the variance in these scores.

Empirical evidence has shown numerous potential outcomes of the *work-life interface*, defined as the intersection of work and personal life, for the athletic trainer (AT). At the individual level, these outcomes may include stress, health, job satisfaction, life satisfaction, turnover, and performance.[1] The work-life interface is bidirectional and can be adverse (work-life conflict) or advantageous (work-life enrichment). *Work-life or work-family conflict* are interrole conflicts in which some work and life or family responsibilities are incompatible, which can affect work and family domains.[2] Individual-level factors, such as personality, gender, and values, have been shown to affect numerous individual-level outcomes. Female ATs reported higher levels of burnout than males despite working fewer hours.[3] Agreeableness and extraversion showed a negative correlation with burnout, although neuroticism was positively correlated with burnout in collegiate ATs.[4] As the literature on the work-life interface expands, newly identified individual-level factors have potential roles in influencing outcomes.

Research has consistently shown that many collegiate ATs work more than 60 hours per week[5–7] and are less satisfied with their jobs.[5] The reports of high average weekly work hours may indicate organizational factors or work addiction, which is an individual-level factor. *Work addiction* has been defined as the overindulgence and preoccupation with work, often to the detriment or exclusion of an individual's health, intimate relationships, and involvement with child rearing,[8] and was originally described by Oates in 1971.[9] When the concept of work addiction was introduced, it was characterized as a behavioral addiction, featuring interpersonal conflict and compulsive tendencies.[9] However, over time, this definition was set aside for a more favorable definition that moved away from the concept of addiction. Some investigators focused on an obsessive-compulsive trait-based approach,[10] whereas others moved toward a multifaceted perspective

that included quantification of the behavior (time spent working),[11] motives (work enjoyment),[12] and even personality traits.[8] Due to these various approaches, the definition of work addiction varies in published articles, and many of these definitions lack theoretical support and empirical evidence.[13] Despite the many definitions of work addiction, empirical evidence supports the premise that some individuals struggle with compulsive work tendencies and experience conflict as a result.[13]

Work addiction has potential implications for career development and healthy family functioning. Workaholics tend to be perfectionists who gain self-worth from their jobs.[14] It is important to recognize that working a large number of hours does not mean that an individual is addicted to work and, therefore, we cannot make a blanket assumption that ATs are workaholics simply because they report working a high number of hours each week. The motivation for being a workaholic is likely to differ across individuals. Some people may have a strong inner drive that they cannot resist, but work addiction can also stem from external factors including the organizational culture, a strong desire for career advancement, or financial problems. The 3 features of work addiction are spending a great deal of time engaged in work activities when given the opportunity to do so; a reluctance to disengage from work, creating a tendency to think about work even when not at work; and working beyond the expectations for meeting economic or organizational requirements.[15]

It is likely that workaholics differ from others regarding the quantity and quality of personal relationships because they tend to spend excessive amounts of time on their work at the expense of other activities. Additionally, workaholics may differ in how they perceive their work and personal lives interfering with each other. Researchers[16] have shown that workaholics experience more work-life conflict than others. Furthermore, work addiction was a specific risk factor for the development of burnout among a medical resident population.[17] Among a large sample of athletic department employees, work addiction had a significant positive relationship with burnout.[18]

Although a large body of empirical evidence has addressed work-family conflict and burnout in ATs, we are currently unaware of any data that examined the concept of work addiction among an AT population exclusively. Work addiction is an important singular factor to be investigated among the AT population to better understand the factors that affect the work-life interface and overall wellbeing. Given the data in other professions, it is reasonable to assume that work addiction may influence the work-family conflict and burnout of ATs. The purpose of our study was to gather descriptive data regarding the work-addiction risk of ATs and identify any correlations between the work-addiction risk and work-family conflict or burnout. We hypothesized that work-addiction risk scores, compulsive tendencies, and the need for control would predict work-family conflict and burnout among an AT population. We also had several secondary hypotheses to determine if any demographic differences existed related to work-addiction risk scores. We hypothesized that 1) female ATs would experience higher levels of work-addiction risk than male ATs, (2) ATs working in the collegiate clinical settings would experience higher levels of work-addiction risk than ATs working in other settings, and (3) ATs who self-identified as being married or having children would have a lower work-addiction risk than those who self-identified as being single and having no children.

METHODS

Study Design

This cross-sectional study used an online survey program (Qualtrics) to collect data related to participant demographics, work-addiction risk, work-family conflict, and burnout of ATs. The study was approved by the institutional review board of the University of Connecticut before participant recruitment and data collection.

Procedures

Participant recruitment involved a 2-pronged strategy. Initially, a link to the questionnaire was shared on social media (Twitter and Facebook) that encouraged ATs currently employed in any work setting to complete the questionnaire. Individuals were also encouraged to share the link with other ATs they thought might be interested in completing the questionnaire. In addition, the Board of Certification for the Athletic Trainer (BOC) generated a random sample of 700 email addresses of certified ATs and sent the link out on behalf of the lead author (C.M.E.). The BOC sent 1 email reminder to complete the questionnaire 1 week after the initial email. Because we do not know how many ATs received the link, it was not possible to calculate a response rate for this study.

Participants

A total of 226 (n = 65, 28.8% male; n = 161, 71.2% female) ATs completed at least 90% of the online questionnaire. Inclusion criteria were current certification and employment as an AT. Responses were collected between November 2019 and May 2020. We did not target a specific employment setting but asked participants to self-identify their current employment setting and acknowledge current employment as an AT. Because this concept has not been explored among an AT population exclusively, we decided to investigate all practice settings to determine if there were any demographic differences.

Questionnaire

The web-based questionnaire consisted of a demographic section, a work-family conflict scale,[19] the Copenhagen Burnout Inventory,[20] and the Work Addiction Risk Test.[8] The demographic component of the questionnaire gathered information related to participant age, sex, race or ethnicity, professional degree, years of experience, employment setting, organizational structure, contract length, current position, average hours worked, and marital and family status. Before the questionnaire link was disseminated to participants, 2 certified ATs with survey research experience completed the questionnaire. This was done to ensure that the link worked and to establish clarity of demographic questions, comprehension of the questionnaire's vernacular, survey flow and visual appeal, and likely participant response time. Because all surveys used in the questionnaire were previously validated and have been used among AT populations, we did not edit or shape any of the

questions on the work-family conflict scale, the Copenhagen Burnout Inventory, or the Work Addiction Risk Test. Only minor grammatical changes to the demographic questions were made upon completion of the trial run.

Work-Family Conflict. The Netemeyer et al[19] short form of the work-family conflict scale has been validated and used in athletic training research ($\alpha = 0.85$–0.90) to measure the level of conflict experienced by an individual while balancing personal and professional roles. The scale contains 10 items and uses a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). Scores for this scale range from 10 to 70, with higher scores indicating higher levels of conflict. The work-family conflict scale is bidirectional and contains 2 subscales. The first subscale assesses work causing family conflict and the second, family causing work conflict.

Copenhagen Burnout Inventory. Employee burnout was measured with the Copenhagen Burnout Inventory,[20] a 19-item inventory that uses a 5-point Likert scale. The survey consists of subscales that measure personal burnout, work-related burnout, and client-related burnout. Scores on this scale range from 0 to 100, with higher scores indicating higher levels of burnout (>50 = *no/low burnout*, 50–74 = *moderate burnout*, 75–99 = *high burnout*, 100 = *severe burnout*). The instrument has been tested for validity and reliability, and Cronbach α ranges from 0.85 to 0.87.[20]

Work Addiction Risk Test. The Work Addiction Risk Test was developed by Robinson[8] and uses a 4-point Likert scale (1 = *never true*, 4 = *always true*). The instrument is a 25-item self-reported inventory that asks respondents to rate each item based on how well it describes their work habits. The responses are then summed for a total score ranging from 25 to 100. Scores on the Work Addiction Risk Test have been positively correlated with type A behaviors and state-trait anxiety. Subscales have been developed for the Work Addiction Risk Test[21] that measure compulsive tendencies, need for control, impaired communication, self-worth, and inability to delegate. The first 2 elements, compulsive tendencies and need for control, have been identified as key elements in defining workaholics.[13] The instrument has been tested for validity[14] and reliability and displayed strong internal consistency ($\alpha = .88$).[8] Scores ranging from 25 to 56 have been characterized as representing a *low risk of work addiction*; 57 to 66, *medium risk of work addiction*; and 67 to 100, *high risk of work addiction*.[8,22] Given the currently accepted definition, the subscales of compulsive tendencies and need for control appropriately assess work addiction.[13]

Data Analysis

We set the a priori significance level at $P < .05$. Data were downloaded from the Qualtrics website into an Excel (Microsoft Corp) spreadsheet and then converted to an SPSS (version 22.0; IBM Corp) dataset. The data were cleaned before analysis, and responses were listwise deleted if a participant did not answer at least 90% of the questionnaire items. A total of 327 participants provided consent and began the survey; after listwise deletion, 226 participants were included in the data analysis.

Scores were summed for the work-family conflict and Work Addiction Risk Test total scales and for each associated subscale. The Copenhagen Burnout Inventory scale and 3 subscales were scored from 0 to 100 and these scores were averaged. Therefore, mean scores were calculated for each participant for the total inventory and each individual subscale. We also categorized individuals as low, medium, or high risk for developing work addiction based on their scores. A Kolmogrov-Smirnov test was computed to determine the normality of variables. Spearman correlations were used to assess the relationships among work-family conflict (and both subscales), Copenhagen Burnout Inventory (and the 3 subscales), Work Addiction Risk Test scores (and the compulsive tendencies and need for control subscales because of their relationship to work addiction), age, years of BOC certification, years in current position, and number of hours worked in-season. Correlation coefficients from 0.1 to 0.39 were considered *weak*; 0.40 to 0.69, *moderate*; 0.7 to 0.89, *strong*; and 0.9 to 1.00, *very strong*.[23]

We calculated separate Mann-Whitney *U* tests to evaluate differences in work-addiction risk, compulsive tendencies, and need for control scores based on sex, professional degree, or family status. Kruskal-Wallis tests were performed to demonstrate if any differences existed between work-addiction risk, compulsive tendencies, and need for control scores based on ethnicity, highest level of education, employment setting, relationship status, and organizational structure. An additional Kruskal-Wallis test was run to assess if any differences existed in burnout total scores and work-family conflict total scores based on the work-addiction risk. If any group differences were observed in the Kruskal-Wallis test results, we conducted post hoc testing to identify the specific group differences. Spearman correlations, Mann-Whitney *U* tests, and Kruskal-Wallis tests were used as the data were nonparametric. Finally, 2 multiple regressions were calculated with burnout and work-family conflict as the dependent variables and total work-addiction risk, compulsive tendencies, and need for control as the predictors.

RESULTS

Demographics

Data from 226 ATs represented all 10 National Athletic Trainers' Association districts and more than 13 employment settings. The average age of participants was 32 ± 9 (range = 22–63) years, and they had been certified by the BOC for 10 ± 8 (range = 1–39) years. Participants indicated they were employed in their current positions for 5 ± 6 (range = 0–36) years and worked 53 ± 14 (range = 11–100) hours per week during their in-season. The majority of participants self-identified as single (n = 119, 52.7%) with no children (n = 157, 69.5%). Additional demographic information can be found in Table 1. Participants reported moderate levels of both personal- and work-related burnout and no or low levels of client-related burnout. Our respondents were classified as at medium risk for work addiction. The work-addiction risk classification of our sample and the burnout and work-family conflict scores for each risk group are provided in Table 2. Work Addiction Risk Test scores and scores for all survey instruments for the sample population are shown in Table 3.

As previously mentioned, data were collected between November 2019 and May 2020. Because many ATs may

Table 1. Participant Demographics Continued in Next Column

Demographic	No. (%)
Sex (n = 226)	
Men	65 (28.8)
Women	161 (71.2)
Race or ethnicity (n = 226)	
Asian or Pacific Islander	1 (0.4)
Black not of Hispanic origin	2 (0.9)
Hispanic	10 (4.4)
Multiethnic	7 (3.1)
White not of Hispanic origin	205 (90.7)
Other	1 (0.4)
Professional degree (n = 224)	
Bachelor's	196 (86.7)
Master's	28 (12.4)
Highest level of education (n = 224)	
Bachelor's degree	38 (16.8)
Master's degree	164 (72.6)
Doctorate	22 (9.7)
National Athletic Trainers' Association District (n = 225)	
1	33 (14.6)
2	35 (15.5)
3	24 (10.6)
4	49 (21.7)
5	21 (9.3)
6	10 (4.4)
7	11 (4.9)
8	7 (3.1)
9	28 (12.4)
10	7 (3.1)
Current employment setting (n = 224)	
Academic	11 (4.9)
Clinic/hospital	15 (6.6)
Industrial setting	7 (3.1)
NCAA Division	
I	54 (23.9)
II	9 (4.0)
III	33 (14.6)
Non-NCAA college/university	19 (8.4)
Occupational health	1 (0.4)
Performing arts	1 (0.4)
Private secondary school	8 (3.5)
Professional sports	3 (1.3)
Public safety	2 (0.9)
Public secondary school	50 (22.1)
Other	11 (4.9)
Length of contract, mo (n = 226)	
9	13 (5.8)
10	48 (21.2)
11	10 (4.4)
12	127 (56.2)
Other	28 (12.4)
Organizational reporting structure (n = 226)	
Academic	12 (5.3)
Athletics	114 (50.4)
Medical	79 (35)
Other	21 (9.3)
Marital status (n = 226)	
Divorced	2 (0.9)
Married	102 (45.1)
Single	119 (52.7)
Other	3 (1.3)
Sexual orientation (n =226)	
Asexual	2 (0.9)
Bisexual	3 (1.3)
Heterosexual	208 (92)
Homosexual	10 (4.4)
Prefer not to answer	3 (1.3)

Table 1. Continued From Previous Column

Demographic	No. (%)
Family status (n = 226)	
Children	69 (30.5)
No children	157 (69.5)

Abbreviation: NCAA, National Collegiate Athletic Association.

have had work disruptions during the COVID-19 pandemic, we wanted to determine if their work-addiction risk scores were different pre- and post-COVID. We dichotomized our respondents into 2 groups: Those who completed the survey before February 5, 2020, were coded as *pre* and those who completed the survey after April 13, 2020, were coded as *post*. No surveys were completed between February 5, 2020, and April 13, 2020. A Mann-Whitney *U* test revealed no difference between pre- and post-COVID work-addiction risk scores ($U = 4227.5$, $P = .344$).

Reliability Statistics

Reliability testing revealed good or excellent internal consistency for all scales among our population: work-family conflict ($\alpha = 0.84$), Copenhagen Burnout Inventory ($\alpha = 0.92$), and Work Addiction Risk Test ($\alpha = 0.91$).

Correlations

A weak positive correlation was present between work-addiction risk and average in-season hours ($\rho_{215} = 0.216$, $P = .001$), compulsive tendencies and average in-season hours ($\rho_{216} = 0.193$, $P = .004$), and need for control and average in-season hours ($\rho_{218} = 0.136$, $P = .045$). Weak positive relationships also existed between overall burnout score and average in-season hours ($\rho_{220} = -0.225$, $P = .001$), personal burnout and average in-season hours ($\rho_{222} = 0.180$, $P = .007$), work-related burnout and average in-season hours ($\rho_{222} = 0.232$, $P < .001$), and client-related burnout and average in-season hours ($\rho_{221} = 0.177$, $P = .008$). Additionally, a weak positive relationship was demonstrated between work-family conflict total score and years in current position ($\rho_{217} = 0.154$, $P = .024$); between work-family conflict total score and average in-season hours ($\rho_{214} = 0.293$, $P < .001$); and between family-work conflict subscale score and years certified ($\rho_{214} = 0.251$, $P < .001$), age ($\rho_{214} = 0.242$, $P < .001$), and years in current position ($\rho_{218} = 0.231$, $P = .001$). A moderate positive relationship was noted between the work-family conflict subscale score and average in-season hours ($\rho_{222} = 0.410$, $P < .001$). Correlations for the 3 scales and associated subscales can be found in Table 4.

Relationship Between Work Addiction and Work-Family Conflict

Testing revealed a difference in work-family conflict total score among work-addiction risk categories ($\chi^2_2 =$

Table 2. Work-Addiction Risk Classification

Risk Category (Scale Range)	n (%)	Mean Work-Family Conflict Score	Mean Burnout Score
Low risk (25–56)	98 (43.4)	33.8 ± 10.0	40.8 ± 16.0
Medium risk (57–66)	68 (30.1)	36.4 ± 9.7	47.9 ± 13.5
High risk (67–100)	52 (23)	40.5 ± 8.9	54.9 ± 15.6

Table 3. Average Participant Scores

Scale (α)	Subscale	Scale Range	n	Mean ± SD	Minimum	Maximum
Work-family conflict						
Total score (0.84)		10–70	217	36.3 ± 10.0	10	58
	Work-family conflict (0.91)	5–35	223	23.9 ± 7.4	5	35
	Family-work conflict (0.79)	5–35	218	12.5 ± 5.0	5	28
Burnout						
Total (0.92)		0–100	223	46.2 ± 16.1	10.5	90.8
	Personal (0.88)	0–100	225	55.0 ± 19.1	8.3	100
	Work (0.75)	0–100	225	50.0 ± 16.0	14.3	89.3
	Client (0.89)	0–100	224	32.9 ± 20.8	0	91.2
Work-addiction risk						
Total (0.91)		25–100	218	58.3 ± 11.2	35	87
	Compulsive tendencies	9–36	219	22.7 ± 5.1	11	36
	Need for control	7–28	221	15.7 ± 3.8	9	26
	Impaired communication	5–20	222	9.6 ± 2.7	5	18
	Self-worth	2–8	222	4.9 ± 1.2	2	8
	Inability to delegate	1–4	222	3.0 ± 0.7	1	4

16.3, $P < .001$), with a mean rank score of 90.07 for low risk, 107.19 for medium risk, and 133.91 for high risk. Post hoc testing revealed a difference between the low-risk and high-risk groups ($P < .001$).

A significant regression equation was calculated ($F_{3,205} = 8.92$, $P < .001$) with $R^2 = 0.116$, where work-addiction risk total score, compulsive tendencies, and need for control predicted the total work-family conflict score. Participants' predicted work-family conflict score was equal to 20.23 + (0.437 × total work-addiction risk score) + (0.148 × compulsive tendencies) + (–0.819 × need for control). Although need for control (β = –0.819, $P = .049$) contributed significantly to the model, compulsive tendencies (β = 0.148, $P = .675$) and the total work-addiction risk score (β = 0.437, $P = .067$) did not.

Relationship Between Work Addiction and Burnout

The burnout total score differed among work-addiction risk categories ($\chi^2_2 = 28.0$, $P < .001$), with a mean rank score of 86.05 for low risk, 115.38 for medium risk, and 142.02 for high risk. Post hoc testing revealed a difference between the low-risk and medium-risk groups ($P = .009$) and the low-risk and high-risk groups ($P < .001$).

A significant regression equation was computed ($F_{3,212} = 14.05$, $P < .001$) with $R^2 = 0.166$, where work-addiction risk total score, compulsive tendencies, and need for control predicted the burnout total score. Participants' predicted burnout score was equal to 11.092 + (1.109 × work-addiction risk total score) + (–0.607 × compulsive tendencies) + (–0.990 × need for control). Although the total work-addiction risk score contributed significantly to the model (β = 1.109, $P = .003$), compulsive tendencies (β = –0.607, $P = .261$) and need for control (β = –0.990, $P = .121$) did not.

Demographic Differences Related to Work Addiction

No differences in scores were evident between professional degree or family status and work-addiction risk, compulsive tendencies, or need for control. Additionally, no differences were present between sex and work-addiction risk or need for control. However, we can conclude that women had higher compulsive tendency scores ($U = 3873$, $P = .018$) than men in our sample. Women scored 23.2 ± 4.9 on the compulsive tendency subscale, whereas men scored 21.4 ± 5.1. No differences were noted between work-addition risk, compulsive tendencies, or need for control and ethnicity, highest level of education, current employment setting, organizational structure, or relationship status.

DISCUSSION

Our study is the first we are aware of to examine the concept of work addiction among an AT population exclusively. Because the athletic training literature[5,24] has consistently reported ATs working more than 50 hours a week on average, the concept of work-addiction risk is an important topic to study among this population. Our results indicate that ATs were at medium risk for work addiction and experienced moderate levels of personal and work-related burnout. Connections between work-addiction risk and both work-family conflict and burnout were seen, as participants at high risk for work addiction had higher burnout and work-family conflict scores. We can also conclude that women were more at risk for compulsive tendencies than men.

Work-Addiction Risk as a Predictor of Work-Family Conflict and Burnout

As hypothesized, we found that work-addiction risk scores predicted work-family conflict and burnout, though the proportion of variance explained was small, ranging from 11.6% to 16.6%. The lack of significance of all predictor factors in each equation is likely due to *multicollinearity*, which occurs when a predictor in a multiple regression model can be substantially linearly predicted by other predictors. Adding more individual-level factors (ie, personality, mental health, stress) may increase the explanatory model. Although the literature has shown that workaholics had more work-family conflict and less life satisfaction and purpose,[16] work-family conflict also had a mediating effect on the development of work addiction.[18,25] The relationship between excessive work and high job stress has been established in the literature,[12] and the combination may lead to burnout.[15] Therefore, it is not surprising that our findings indicated a predictive relationship between work-addiction risk, which is likely to

Table 4. Scale Correlations

	Correlations									
	WFC Scale			Burnout				Work Addiction		
Scale or Subscale	Total	WFC	FWC	Total	Personal	Work Related	Client Related	Total	Compulsive Tendencies	Need for Control
WFC total										
Correlation	1									
Significance[a]										
n	217									
WFC subscale										
Correlation	0.814[b]	1								
Significance	0.000									
n	217	223								
FWC subscale										
Correlation	0.682[a,b]	0.181[b]	1							
Significance	0.000	0.008								
n	217	217	218							
Burnout total										
Correlation	0.477[b]	0.564[b]	0.122	1						
Significance	0.000	0.000	0.073							
n	214	220	215	223						
Personal burnout subscale										
Correlation	0.488[b]	0.537[b]	0.177[b]	0.842[b]	1					
Significance	0.000	0.000	0.009	0.000						
n	216	222	217	223	225					
Work-related burnout subscale										
Correlation	0.461[b]	0.535[b]	0.119	0.925[b]	0.767[b]	1				
Significance	0.000	0.000	0.081	0.000	0.000					
n	216	222	217	223	225	225				
Client-related burnout subscale										
Correlation	0.293[b]	0.390[b]	0.012	0.810[b]	0.451[b]	0.645[b]	1			
Significance	0.000	0.000	0.856	0.000	0.000	0.000				
n	216	221	216	223	223	223	224			
Work-addiction risk										
Correlation	0.304[b]	0.436[b]	−0.007	0.406[b]	0.361[b]	0.388[b]	0.314[b]	1		
Significance	0.000	0.000	0.920	0.000	0.000	0.000	0.000			
n	209	215	210	216	217	217	217	218		
Compulsive tendencies subscale										
Correlation	0.288[b]	0.386	0.019	0.333[b]	0.350[b]	0.329[b]	0.206[c]	0.905[b]	1	
Significance (2 tailed)	0.000	0.000	0.782	0.000	0.000	0.000	0.002	0.000		
n	210	216	211	217	218	218	218	218	219	
Need for control subscale										
Correlation	0.171[c]	0.252[b]	−0.018	0.295	0.212[b]	0.295[b]	0.253[b]	0.851	0.664[b]	1
Significance	0.013	0.000	0.793	0.000	0.002	0.000	0.000	0.000	0.000	
n	212	218	213	218	220	220	219	218	218	221

Abbreviations: FWC, family-work conflict; WFC, work-family conflict.

[a] 2-tailed significance throughout.

[b] Correlation was significant at the .01 level.

[c] Correlation was significant at the .05 level.

lead to increased work hours, and burnout. We did not assess stress levels among our participants, which could have increased the proportion of variance explained in a regression model.

When work and family roles conflict, negative consequences arise, including stress, family problems, dissatisfaction with work or family or both, and lack of work advancement.[26] In the sport context, researchers[27] found that when coaches felt conflict was high, they realized they needed to disengage from work to spend more time with their families. Because of this, Huml et al[25] speculated that work-family conflict could actually deter work addiction because the demands of family could draw an employee away from work. They showed that work-family conflict mediated both work engagement and work addiction.[25] Essentially, the employee who is highly engaged in work and spends a large amount of energy on work tasks is likely to experience strain that leads to work-family conflict, but the experienced conflict also acts as a buffer to prevent an engaged worker from becoming a work addict. Russo and Waters[28] reported that both workaholics and engaged workers experienced more work-family conflict than unengaged workers. In addition, enthusiastic workers experienced declining work-family conflict when they were given access to flexible scheduling, whereas workaholics did not.

Although the conflicting relationship of work-family conflict and work addiction described in the literature could

explain our regression results, it is also possible that adding more factors to the regression model would explain more of the variance in this outcome. One such factor that we did not assess is the construct of flexible scheduling, which we mentioned previously as a buffer to work-family conflict in the engaged worker. Another possible factor that we did not assess is a supportive work environment. The amount of support in the work domain has been identified as a factor contributing to work addiction. Employees embraced the increasing demands of their work in supportive work environments by increasing their commitment to their jobs and feeling exhilarated by the challenge,[29] but in unsupportive work environments, they were likely to feel stress and more pressure, which could lead to burnout.[30,31] The work environment would be classified as an organizational-level factor. Adding it to a regression model with work-addiction risk scores in future research would allow for a multilevel examination of work-family conflict and burnout. Another individual factor to explore is stress levels.

Work-Addiction Risk: Demographic Differences

Work-addiction risk was not affected by demographic differences. Our sample displayed no evidence that marital or family status affected work-addiction risk. We might assume that single individuals or people without children would be more likely to develop a work addiction because they may not have the same demands in their personal life as married individuals or parents, but our results did not support this. Although work-family conflict can be a mitigating factor and help prevent work-addiction risk,[25] and ATs with children experienced more work-family conflict than those without children,[24] our findings did not support our hypotheses that being married or having children would decrease work-addiction risk. It is possible that organizational, not individual-level factors, are influencing the work-addiction risk of ATs; however, we do not currently have data to support this idea.

Additionally, we found no evidence that employment setting affected work-addiction risk scores. The collegiate employment setting is often studied in the work-life balance athletic training literature due to perceived and reported work demands, yet our data did not support our hypothesis that ATs in the collegiate setting would have higher levels of work-addiction risk than those in other employment settings. Although previous researchers[32] showed that the profession can influence work addiction (specifically that nurses, social workers, and paramedics had relatively low work-addiction scores compared with the commerce/trade sectors, construction, and consultancy), we are unaware of other authors who have compared occupational settings within the same profession. Investigators[33] who examined undergraduate students' decisions to enter athletic training programs revealed that a strong affiliation with a sports or team model influenced recruits and that they had limited understanding of the athletic training profession. Because our findings indicate no differences in work-addiction risk among employment settings, it is possible that the profession itself is recruiting or appealing to individuals who are at higher risk for developing a work addiction.

However, we did find sex differences in compulsive tendencies, which is of particular importance because such tendencies have been identified as a key dimension that discriminates workaholics from nonworkaholics.[14] This may indicate that the women in our sample were at a higher risk for becoming workaholics than the men. Studies examining sex differences regarding work addiction have been inconclusive, showing insignificant differences.[34] Burke[35] reported that females were more likely to be perfectionists, which is a trait consistent with workaholics, and women working in sport had higher work-addiction risk than men.[25] These results specific to women are troubling when combined with a previous finding[3] that women reported higher levels of burnout than men despite working fewer hours.

The Work-Addiction Risk of AT

Overall, the ATs in our sample were at moderate risk for developing work addiction and displayed moderate levels of both personal and work-related burnout. Additionally, those who were at higher work-addiction risk had higher burnout scores. This result is not surprising as burnout results from stress and is characterized by both physical and emotional fatigue.[26] Earlier authors[36] determined that if the amount of energy workaholics expanded at work was not counterbalanced with appropriate periods of rest, burnout could occur. Both work addiction and burnout have potential negative consequences on patient care, job outcomes, and personal health. Although we are not aware of any literature that has specifically linked patient care and burnout in an AT population, burnout is known to affect medical care. Patient care is likely to suffer when clinicians feel burned out.[37] Pediatric residents who self-reported burnout had odds of reporting suboptimal attitudes about care, including (1) discharging patients so that their service was more manageable, (2) not fully discussing treatment options or answering questions, (3) making treatment or medication errors, (4) ignoring the social or personal effects of an illness, and (5) feeling guilty about how a patient was treated.[38] Therefore, it is important to prevent burnout by targeting workaholic behavior. Disengagement from work should be encouraged and supervisors should try and avoid rewarding excess work.

Limitations and Directions for Future Research

Our study was not without limitations. As with all survey research, there was a risk for response bias. In designing our investigation, we took steps to minimize this risk by promoting and sharing the survey link on multiple platforms and sending reminders to complete the survey. Despite these steps, it is possible that those who were more interested in or knowledgeable about the topic chose to complete the study. It is also possible that participants intentionally or unintentionally answered questions incorrectly. Future authors could examine the concept of work addiction from a qualitative perspective to gain a deeper understanding of the topic among ATs. Because this was a cross-sectional study, these results represent 1 point in time. Future examination of the concept of work addiction and burnout from a longitudinal lens would be beneficial.

In addition, the survey platform we used allowed an anonymous link, which prevented us from tracking our participants. Although this was helpful in protecting the anonymity of our participants, we were unable to determine

if a participant clicked on the link to review the study and then clicked on it again to complete the survey, which could be 1 explanation for the 30% incompletion rate. The demographic information of our sample was comparable with the NATA membership statistics[39]; that gives us confidence that the sample was representative. Data were collected between November 2019 and May 2020, a timeline that included the start of the COVID-19 pandemic. We dichotomized our group to compare those who responded before April 13, 2020, and those who responded after and found no difference in their work-addiction risk scores. We decided to recruit ATs from all employment settings, yet future authors may want to more closely investigate specific work settings to see if organizational structure, leadership, or culture has any effect on work-addiction risk. Although we did not find any statistical differences in our sample among work settings, not all ATs in our sample treated patients as their primary job responsibility. Therefore, it may be important to explore if patient interactions have any influence on work-addiction risk. Future researchers should examine the concept of work addiction and add both individual- and organization-level factors to models to determine their potential effects.

CONCLUSION

Our results confirmed that ATs were at moderate risk for developing work addiction and women were more likely than men to develop workaholic tendencies. These data, in combination with those from previous studies, suggest that it may be beneficial to avoid praising ATs for displaying work-addiction tendencies (showing up early, staying late, etc) without including conversations about appropriate compensation. The ATs with higher scores in work-addiction risk categories also had higher levels of burnout, which is a precipitating factor in professional attrition. The potential negative influence of burnout on patient care is also well supported in the literature, and learning that work-addiction risk predicts burnout is important in highlighting the potential effect of work addiction on patients.

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