

Lessons Learned and Potential Long Term Impacts on Athletic Trainers and Clinical Practice after a Global Pandemic

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LESSONS LEARNED AND POTENTIAL LONG TERM IMPACTS ON ATHLETIC TRAINERS AND CLINICAL PRACTICE AFTER A GLOBAL PANDEMIC

ABSTRACT

Context: Perceived stress and burnout are significant concerns among athletic trainers (ATs) due to growing professional demands. The global pandemic brought additional stressors, especially for health care providers, including the need to learn and integrate new skill sets to continue providing safe and effective patient care.

Objective: Explore the influence of COVID-19 stressors on ATs engaged in patient care.

Design: Cross-sectional

Setting: Internet survey

Participants: 429 ATs (age=33±9 years; experience=11±9 years; 74 men, 355 women) currently providing patient care.

Main Outcome Measures: We recruited participants from social media sites to complete a questionnaire with the Coronavirus Anxiety Scale (CAS), Maslach Burnout Inventory-Human Services Survey for Medical Personnel (MBI-HSS MP), and qualitative questions related to the impact of COVID-19. We calculated correlations between CAS and MBI-HSS MP composite scores (emotional exhaustion, personal accomplishment, depolarization) and used regression to explore if CAS scores could be predicted by vaccination status (vaccinated and unvaccinated), sex, and MBI-HSS MP composite scores. We analyzed the qualitative data using a phenomenological, inductive approach and used multianalyst triangulation and peer review as trustworthiness strategies.

Results: Significant correlations existed between CAS and MBI composite scores ($P<.001$). Emotional exhaustion ($P<.001$) and depersonalization ($P=.008$) explained 28% of the variance in CAS scores ($F_{2,405}=81.29$, $P<.001$). Three major areas of focus emerged including *impacts on wellness*, emphasis on the *value of athletic training*, and the *lessons learned and future innovation* to inform potential long-term changes in the athletic training profession.

Conclusions: Key factors of emotional exhaustion and depersonalization during the pandemic may exacerbate the potential for burnout among ATs. The pandemic impacted ATs' wellness, changed perceptions of AT, and altered operating procedures. Healthy coping strategies and organizational support are suggested for those struggling.

Online First

INTRODUCTION

Burnout is defined as a psychological syndrome consisting of three components: increased emotional exhaustion, depersonalization, and decreased personal achievement.¹ Emotional exhaustion includes emotional overload, feeling overextended, and being overwhelmed by the emotional demands of others in the workplace. Depersonalization manifests as formation of poor opinions of others, detachment, and negative feelings towards others. Decreased personal accomplishment includes feeling inadequate in one's work, decreased ability to work with others, and thoughts of being a failure. Burnout was first described in the literature among the helping professions such as social work² but has more recently been described among health care professionals.³ High levels of burnout have been reported in physicians, nurses, respiratory therapists, pharmacists, hospital administrators.⁴

With the growing roles that Athletic Trainers (ATs) are experiencing, it is a difficult balance between incorporating new knowledge and skills into practice and maintaining self-care. Therefore, burnout is a significant concern for ATs.⁵ Typical roles encompass everything from patient care to administrative responsibilities and tasks.⁶ In addition to traditional responsibilities, ATs often face stressors beyond their patient care role such as interpersonal conflict with patients, coaches, athletic directors, parents, physicians, administrators, or other stakeholders.^{7,8} It has been reported that perceived stress and burnout are significant concerns among ATs due to professional demands.^{5,9}

The underlying causes or contributing factors of burnout in the AT profession may come from a number of sources. For ATs, particular concerns include diminished work-life balance because of the demands of the job.⁹ Specifically, ATs often struggle with role strain due to the number of responsibilities with which they are tasked, especially in comparison to the amount of

resources available to complete these tasks (ie, role overload)^{9,10} including energy, time, and funding. Further, role conflict describes the stress created by the demands of different stakeholder groups that ATs must work to satisfy, which may be exacerbated by the pressure placed on ATs by stakeholders.¹⁰ Additionally, athletic training is a unique healthcare setting in which providers and patients develop strong rapport over multiple encounters, but these relationships may also lead to compassion fatigue.¹¹ The burnout which develops can have serious consequences including both job dissatisfaction and attrition from the field demonstrating the powerful impact that burnout has on ATs.¹²

The COVID-19 global pandemic has brought with it an additional set of stressors and related anxiety,^{13,14} especially for health care providers.⁴ ATs may act in a primary care context due to parallels between skill sets and their likelihood to be the first point of contact for patients¹⁵; therefore, the pandemic has likely impacted athletic training clinical practice similarly to other professions. In addition to providing competent care, ATs have had additional responsibilities added to their workloads including the need to learn and integrate new skill to continue providing safe and effective patient care, such as telemedicine and COVID-19 related policies and procedures including test administration, contact tracing, and advanced cleaning procedures, among others.¹⁶ Data from early in the pandemic suggested adaptability to telemedicine and most ATs exhibited resilience in the middle range¹⁶; however, it remains unknown how the extended effects of COVID-19 pandemic has continued to affect athletic trainers from anxiety, stress, and burnout perspectives. One of the unknown influences is the effects of the new vaccine status on COVID-19 anxiety and additional effects on burnout. Therefore, the purpose of this study was to understand further the impact of the pandemic on COVID-19 anxiety, burnout, and mediators of burnout in ATs engaged in patient care.

METHODS

Participants

We recruited 429 ATs for the current study (74 men, 355 women; age=33±9 years; experience=11±9 years, experience in current position=6±7 years). Based on current NATA membership statistics, currently 55.8% of ATs are female and 44% are male (Meredith Daniels, email communication, September 2021). Our sample is statistically significantly different from those proportions, $\chi^2(n=429)=125.6$, $p<0.05$. Most participants worked at secondary schools (48%, $n=204$ including outreach positions) or colleges/universities (37%, $n=160$). The remaining participants found employment at various additional sites including physician offices ($n=29$), occupational health ($n=9$), middle schools ($n=6$), armed forces ($n=4$), rehabilitation clinics ($n=4$), hospitals ($n=2$), industrial settings ($n=2$), and youth sports ($n=2$) among other settings that were unique to a single participant. Participants had to be engaged in patient care at the time of survey completion and over the age of 18 years. No other inclusion or exclusion criteria existed for our study. Participants provided informed consent before completing the online questionnaire.

Survey Development

Our study purpose and research questions guided survey development. We used the Maslach Burnout Inventory-Human Services Survey for Medical Personnel¹⁷ (MBI-HSS MP) to measure burnout among participants and the Coronavirus Anxiety Scale¹⁸ (CAS) to determine anxiety related to the pandemic. The MBI-HSS MP contained 22 questions spread across 3 subscales (Emotional Exhaustion (EE), Depersonalization (DP), and Personal Accomplishment (PA)). The reliability of the MBI-HSS MP has been found to be adequate previously (Cronbach's alpha = 0.87) and validity using confirmatory factor analysis of the three factors

indicated a good fit for the model.¹⁹ A meta-analysis of 45 studies conducted factor and confirmatory analysis and determined the three-factor loading of Emotional Exhaustion, Depersonalization, and Personal Accomplishment was preferred.²⁰ The CAS contained 5 questions regarding frequency of events on a 5 point Likert scale (0=not at all; 1=rare, less than a day or two; 2=several days; 3=more than 7 days; 4=nearly every day over the last 2 weeks). The CAS has been shown to have 90% sensitivity and 85% specificity when identifying people with and without dysfunctional anxiety (optimized cut score ≥ 9).¹⁸ Cronbach's alpha for the CAS was .824 in the current study. In addition to the two established surveys, we included 5 qualitative questions that participants typed their responses to and several demographic questions in the online survey (Table 1). We validated the total data collection instrument via peer and expert review. First, we had a peer with substantial research experience with both quantitative and qualitative methods review the instrument for content validity. After making corrections, we asked an expert with specialization in assessment and qualitative methodology to review the tool to further attest to face and content validity²¹ as well as comprehensiveness and flow. We made some small adjustments to the demographic questions and qualitative questions based on the expert's suggestions and the expert agreed the questionnaire was ready for distribution. Finally, we pilot tested the final version of the instrument with 2 athletic trainers meeting the inclusion criteria. We asked them to verify the clarity, presentation, and comprehensiveness of the instrument. Pilot testing resulted in no additional changes which allowed us to finalize the questionnaire for distribution.

Procedures

After receiving Institutional Review Board (IRB) approval from the host institution, we recruited participants via multiple social media platforms the first quarter of 2021. We chose this

method of recruiting as it was similar to a previous study of ATs job tasks during the pandemic¹⁶ and research has shown that during the pandemic, increased use of Twitter for both social support and research purposes was observed.²² In fact, in a single 4-week sampling period, we collected over four hundred responses suggesting ATs were eager to participate. While not all ATs were represented through this sampling method, the goal was to develop an understanding of the phenomena. Research team members posted the IRB-approved recruitment script and link to the survey to personal Twitter accounts and group Facebook pages. We also used snowball recruitment by asking participants to forward/retweet/message/share our recruitment materials with other athletic trainers providing health care during the COVID-19 pandemic. Our posts had a link or QR code to the Google form site (Google, Mountain View, CA) where the IRB-approved informed consent form and questions were housed for participants to complete.

Analyses

COVID-19 Anxiety and Burnout. We determined the relationship between the CAS and the 3 subscales of the MBI-HSS MP using correlation and stepwise multiple linear regression in which the MBI-HSS MP subscales, vaccination status (vaccinated, not vaccinated), years of experience as an AT, years in current role, age, and gender (male, female) were predictors/independent variables and CAS served as the predicted/dependent variable using SPSS (version 27, IBM Inc, Armonk, NY, USA). We compared CAS and MBI-HSS MP scores across vaccination status using Mann-Whitney U tests. We set the alpha value $\leq .05$ *a priori* for all statistical tests.

Qualitative Thematic Analysis of the Experience. We used a general inductive approach²³ to analyze the qualitative data regarding the impact of COVID-19 on the participants' experiences as ATs. First, 2 research team members read the data multiple times. After becoming familiar with the data, they coded the data on a line-by-line basis using keywords and/or phrases that

explained chunks of text. Upon subsequent theme reviews of the data and codes, the codes were condensed into categories based on similar content and meaning. Then after additional reads, the categories were further reduced into themes that represented the overall most common findings in the data. We used 2 credibility strategies to ensure the trustworthiness of the data. First, the 2 research team members who analyzed the data independently met to review their coding structures and overall themes. They discussed their coding structures and final themes until they came to complete agreement that the findings adequately portrayed the responses of the participants. In addition to multianalyst triangulation, we also had a peer review the coded participant responses and presentation of the results. We asked the peer to verify the authenticity of the results as written as our second credibility strategy.

RESULTS

COVID-19 Anxiety and Burnout

Significant correlations existed between CAS and each MBI-HSS MP composite score ($P<.001$; Table 2). Of the predictor variables in the stepwise multiple linear regression, the MBI-HSS MP subscales of exhaustion ($P<.001$) and depersonalization ($P=.008$) were retained and explained 28% of the variance in CAS scores ($F_{2,404}=98.4$, $P<.001$; Table 3). Personal accomplishment ($P=.11$), vaccination status ($P=.45$), age ($P=.73$), years experience as an AT ($P=.67$), years in current role ($P=.87$), and gender identity ($P=.36$) were not significant predictors and were excluded from the regression equation. Vaccination status did not significantly affect CAS scores ($U=12745.00$, $P=.12$), or the subscales of the MBI-HSS MP (Emotional Exhaustion: $U=13683.00$, $P=.64$; Depersonalization: $U=14472.00$, $P=.82$; and Personal Accomplishment:

U=13076.50, P=.21. Medians and ranges of CAS scores and subscale scores of the MBI-HSS MP for vaccinated, unvaccinated, and all participants can be found in Table 4.

Qualitative Thematic Analysis of the Experience

Three major themes emerged including *impacts on wellness*, emphasis on the *value of athletic training*, and the *lessons learned and future innovation* to inform potential long-term changes in the athletic training profession (Figure 1). Within each theme, sub-themes emerged. Descriptions regarding themes and sub-themes are defined below. Representative quotes can be found in Table 5.

Theme 1: Impacts on Wellness. The first theme was *impacts on wellness*, which included ATs discussing the impact of COVID-19 both professionally and personally. Four sub-themes emerged within this area: (1) *mental health*, (2) *fear of exposure*, (3) *work-life balance versus work-life conflict*, and (4) *support and coping strategies*. The impact on their *mental health* demonstrated exhaustion with specific mentions of burnout, and signs and symptoms of stress, anxiety, and depression. Many participants reported living in a constant state of *fear of exposure* to COVID-19 while at work. Participants were concerned that they may become symptomatic or that they may transmit the virus to others, including their families and loved ones, especially those at high risk. The fear contributed to both physical and emotional senses of isolation.

Additionally, data showed a paradox between *work-life balance versus work-life conflict* as some ATs used the pandemic to create boundaries and develop resiliency while others were more negatively impacted through longer hours, less time off, and constant changes to schedules and policies. Some of the ATs who were furloughed viewed this temporary change in employment as a positive opportunity for work-life balance. For example, these ATs spent the time that they would normally be at work with their families or to catch up on personal tasks,

like home projects or continuing education. The final theme that emerged regarding *impacts on wellness* included *support and coping strategies* that ATs accessed both organizationally and personally. ATs reported that their organizations offered support through providing supplies such as personal protective equipment (PPE), financial benefits such as hazard pay or additional paid time off for quarantine, remaining employed, and moral support or tokens of appreciation. However, many participants also felt that their organization provided no additional and/or meaningful support during the pandemic. Participants also described that their personal support systems included family members, friends, pets, coworkers, and mental health professionals or (prescribed) medication. Reported self-care strategies ranged from using physical activity (eg, running or walking), time outdoors, mindfulness practices (eg, yoga, meditation, deep breathing), entertainment (eg, television, podcasts, books) to escape from reality, new hobbies or skills and DIY projects, “me time” and additional sleep, and spiritual fulfillment. Unfortunately, respondents also mentioned negative coping strategies such as avoidance and substance use. Several mentioned increased alcohol or nicotine intake to “take the edge off,” or misuse of prescription medications as coping mechanisms. Others utilized sleeping more to avoid problems, and crying.

Theme 2: Value of Athletic Training. The second theme that emerged was the *value of athletic training* during the pandemic. Within this theme, there were contradictions that developed, with many participants demonstrating split perceptions regarding topics like redeployment, furlough, and the overall value of athletic training. Three sub-themes emerged: (1) *changing or additional roles and responsibilities*, (2) *decreased value of ATs*, and (3) *increased value of ATs*. A majority of responses described ATs' *additional roles and responsibilities* in relation to COVID-19 testing, contact tracing, symptom screening, reporting results, and coordinating return to play

referrals. Additionally, many ATs developed COVID-19 policies and procedures, and participated in or chaired COVID-19 task forces that supervised training, compliance, scheduling, and other administrative tasks. The increased time spent implementing COVID-19 related tasks took time away from their athletic training related duties and patient care leading to a loss of connection with their patients. ATs also consistently reported that acting as “mask police” and enforcing rules took up much of their time and negatively affected relationships with patients and coaches. Furthermore, prioritizing COVID-19 roles and responsibilities over athletic training led many participants to question their current position or setting as well as staying in the athletic training profession in general. Nearly all of the participants who identified as new professionals (ie, within the first 2 years of certification) reported having a poor professional experience and feeling a sense of resentment towards athletic training because their daily tasks and routines were not directly related to traditional or anticipated athletic training responsibilities, such as sport coverage or direct patient care (eg, orthopedic evaluation, rehabilitation).

A major concern described by participants was job security. Several participants noted feeling expendable, having financial hardships due to decreased work hours, or being terminated due to the pandemic. Some ATs reported being redeployed to positions in other departments or tasked with roles that did not allow them to practice AT or provide care to the full extent of their training. Similarly, some of the ATs who were furloughed perceived this change negatively and as their skills being under-valued. The perceptions support another paradox that appeared in the data, the split in perceptions regarding the value of athletic trainers. Some participants believed that there was a *decreased value of ATs*. Many of these. participants stated that they did not receive additional or comparable compensation for the increased workload or hours required for

the new COVID-19 roles and responsibilities. Participants reported being concerned that their ability to do more work with fewer or no additional resources would set a future precedent for their productivity. In relation to a lack of additional resources, participants also stated that there was a lack of support at the administration level in which funds or resources were not allocated to athletic training in spite of the increased demands on ATs.

However, some participants viewed the impact of the pandemic on the profession more positively, stating that there was an *increased value of ATs* because of the many new skills that they had learned in response to their growing roles and responsibilities. Some of these participants also saw redeployment as a way that administrators showed their appreciation and value of the athletic training staff by keeping them employed. Redeployment and learning new skills also contributed to improved respect for ATs among other health care professionals by demonstrating their expertise and competence in healthcare. Athletic trainers reported using the opportunity to collaborate on COVID-19 task forces with other health professionals, such as nurses and physicians, as a way to demonstrate their value and increase respect for athletic training among other professionals.

Theme 3: Lessons Learned and Future Innovations. The last theme emphasized the *lessons learned and future innovations* in the athletic training profession. Two sub-themes emerged within this area: (1) *quality improvement for patient safety* and (2) *new standard operating procedures*. Quality improvement is the process of identifying skills or knowledge that need improvement in order to provide more quality care, including safety.²⁴ Many participants reported that they were able to identify areas of practice that needed improvement during the pandemic, including facility maintenance, and infectious disease policies and procedures. They stated that the pandemic enhanced the need for consistent facility maintenance, such as

disinfecting surfaces and equipment between each patient and use, as well as better hand hygiene practices. Additionally, ATs believed that properly following guidelines, such as wearing PPE (eg, a mask), were important precautions in decreasing transmission of COVID-19 and that continuing the practice of wearing a mask beyond the current pandemic during any “cold and flu season” or when symptomatic would be beneficial in improving patient and provider safety by decreasing the transmission of germs. Another strategy ATs reported for decreasing disease spread was the use of telehealth technology by meeting with patients over teleconferencing when potentially symptomatic.

ATs also discussed some of the *new standard operating procedures* that were initially developed out of necessity to meet pandemic guidelines, but ATs deemed these changes positively and intended to sustain them long-term. First, ATs believed that having patients schedule appointments for evaluations and treatments was an efficient use of time and allowed for better patient interaction. Updates to policies and procedures due to some of the lessons learned from COVID-19, including communicable disease and pre-participation exams, would also remain. Particular emphasis was noted on the potential long-term effects that COVID-19 may have on patients’ physical and mental health, including cardiac and respiratory complications, increased injury rates due to deconditioning, and impact on mental health due to long periods of isolation or anxiety during the pandemic. Participants noted the fact that screening and referral resources needed to be more readily available for such conditions and would likely be continued into the future after the pandemic ends.

DISCUSSION

Burnout has been linked to a host of problems among health care providers including medical errors, substance use, and reduced professionalism.²⁵ Overall the results of our study are consistent with some early reports from the healthcare field regarding the impact of COVID-19 and factors related to burnout and resilience.^{25,26} For example, in a study of frontline health care workers using healthy coping mechanisms and support, such as not engaging in substance abuse, leaning on social support systems, and feeling strong leadership support, all predicted resilience.²⁵ These are factors that the ATs in our study discussed using as positive ways of coping or wished they had more of (e.g. leadership support). Also similar to our findings, a systematic review on burnout in athletic training found that work-life balance and organizational factors (eg, role strain) were the main contributors to burnout.¹² As suggested by our results, the additional responsibilities and stressors associated with the pandemic seem to have exacerbated these contributions to burnout in ATs.

Impacts on wellness

Burnout and high levels of stress can have a significant impact on wellness. As described in a recent systematic review, short-term stressors are designed to trigger systems of the body which are meant to be temporarily protective and quickly return to homeostasis.²⁷ Alternatively, long-term stress can create lasting damage on several systems in the central and peripheral nervous systems, endocrine, immune, and even behavioral systems as one tries to deal with constant demands that overload the body.²⁷ These maladaptive behaviors coupled with overload on physiological systems can leave individuals vulnerable and unable to cope with additional stressors.²⁷ People often cope through maladaptive patterns of behavior such as poor eating or sleeping habits, increased substance use, and reduced physical activity.²⁷ Burnout involves prolonged response to chronic interpersonal stressors on the job. Burnout can lead to significant

effects on health and well-being as much as general stress can, including mental health conditions like anxiety and depression. A majority of our participants reported feelings of exhaustion and common signs and symptoms of anxiety and depression, such as sleep disturbances or changes, physical symptoms (eg, headaches), and feelings of worry and isolation. These feelings and impacts on mental health have been described in other studies^{28,29} regarding the impact of COVID-19 on health care providers.

Understanding the impact that this pandemic has had on the wellness of ATs may help prioritize ways to recognize mental health concerns early and develop resilience in individual clinicians and organizations to better prepare for future events. In a recent systematic review on burnout in collegiate ATs,¹² increased work-family conflict led to increased burnout levels which was moderated by healthy coping mechanisms among other things, such as social support and spiritual and religious beliefs,¹² similar to what the ATs in our study reported. Furthermore, a majority of ATs also reported using physical activity and mindfulness as effective healthy coping mechanisms, which are well connected to concepts of mental health and resilience.²⁷ An additional survey of ATs did find optimism about the likelihood that job status and setting would return; however, the survey was conducted in April of 2020¹⁶ as compared to our survey which was conducted almost a year later after the pandemic had stretched on beyond original expectations and informs of the effects of a longer-term job-related stressor. Yet, even among the early findings, ATs were expressing concerns about their financial futures as well as the potential impact on mental health as pay, stress, and the future shifted drastically.¹⁶ Our findings suggest that the pandemic has exacerbated job-related stressors that already existed for ATs and led to feelings of burnout resulting in significant impacts on wellbeing and health and these continued to effect ATs through the duration of the pandemic.

Emphasis on the value of ATs

It is concerning that many participants reported having negative feelings towards the profession of athletic training for those employed during the pandemic. These results are consistent with recent findings from Winkelmann & Games¹⁶ who found that ATs had increased fears, uncertainty, and mental health concerns related to their job status, the financial stability of their job, and the change in their roles as ATs due to COVID-19 protocols. Particularly, ATs who were newly certified and practicing independently for the first time did not feel that they were utilizing their athletic training skills in a meaningful way or that the increased stresses from providing health care during unusual circumstances of a pandemic contributed to job dissatisfaction. Athletic training practice during the pandemic has been an atypical representation of the profession,¹⁶ however, it highlights the importance of providing early professionals with the necessary support and resources to have successful transitions to practice and professional retention.¹² Ensuring that newly credentialed ATs have access to mentors, either through colleagues, supervisors, former faculty, or preceptors, may provide them with an important resource to debrief and problem-solve challenges, seek advice and perspective on the profession, and discuss professional development and growth opportunities to achieve job satisfaction is essential.

The changing and additional COVID-19 related roles also showed areas where established ATs need additional support and resources to feel valued and prevent attrition in the profession. As mentioned above, although the pandemic was an unanticipated circumstance, it also showed some of the essential elements for ATs to feel a sense of job satisfaction, such as fostering strong connections with patients and being able to prioritize direct patient care and event coverage over COVID-19 tasks (eg. screening, testing, and contact tracing). The additional

administrative tasks that participants described, including reporting COVID-19 testing results and COVID-19 data, coordinating task forces, and developing and updating COVID-19 policies and procedures, also provided a sense of meaning for our participants. These additional responsibilities are consistent with other recent studies that examined how the pandemic changed the role of the AT.^{30,31} Although administrative responsibilities are essential components of athletic training (eg, documentation, budgeting, scheduling, and facility maintenance), the duties described in this study, such as constant COVID-19 testing and contact tracing, are beyond traditional administrative expectations and created role overload and conditions for burnout.^{9,10,12} Organizational administrators should better delegate or share COVID-19 responsibilities with others, such as coaching staff or health services, to ensure that they do not interfere with patient care capacities which may help to decrease the burden on ATs who are already overextended. Another recommendation is to increase staff sizes or allow for per diem workforces to create manageable workloads and decrease the likelihood of burnout for current ATs.⁹

The value of athletic trainers is an ever-present battle in the profession. As our study revealed, the COVID-19 pandemic was an opportunity for the value of ATs to either continue to gain momentum or to be further underappreciated. Many ATs felt unsupported by their administration in several ways during the pandemic. First, there was a lack of compensation for the additional work responsibilities as well as hours spent on the job. Even those who received short-term financial rewards, like one-time bonuses, temporary hazard pay, or overtime, still did not feel that these fairly compensated them for the increased responsibilities and decreased work-life balance. A lack of compensation and perceived value are linked to job dissatisfaction and diminished work-life balance.⁹ Many also felt that ATs' abilities to continue providing athletic training services with no additional resources would lead to an expectation that they would

continue to do so in the future, including remaining understaffed, working in hazardous situations, or working while sick. These concerns are particularly important as ATs already faced role and job strain before the pandemic.¹² Interestingly, the results contrast slightly with an earlier study conducted in April of 2020 at the start of the pandemic which found that while there were definite financial and mental health concerns particularly into the future, ATs were optimistic about their job status and a return to their original setting.¹⁶

Further, ATs felt that the lack of moral support from administration created a negative and stressful work environment especially when ATs were expected to enforce pandemic guidelines, such as wearing a mask or social distancing. For example, some participants described how patients and coaches would ignore policies and guidelines even when reminded by ATs. These lax attitudes towards safety can lead to ATs feeling disrespected, increase confrontation and stress, and create distrust between patients and providers. Moreover, ATs viewed their role as “mask police” as creating additional tension and disruption in their relationships with stakeholders. Since many participants noted the patient-provider rapport as a significant supporting factor for their role as health care providers, relationship breakdown or loss of connection may contribute to job dissatisfaction and attrition. Administrators should recognize the importance of supporting athletic training and public health safety protocols regardless of personal attitudes and beliefs in order to decrease external pressure on ATs that may create lapses in safety and best practices as well as lead to ATs leaving their positions.

The concepts of redeployment and furlough were negatively described by some ATs and demonstrated the lack of or decreased value of ATs as health care providers. Many of the ATs who reported being redeployed saw this change as a sign that employers did not fully understand or value their complete AT skill set. These ATs also perceived COVID-related tasks as less

complex compared to their professional training and experience. However, other participants thought redeployment and furlough were positive aspects created by the pandemic. Some felt that as a result of redeployment and taking on COVID-19 administrative roles that respect among other health care providers improved. ATs were able to represent the profession positively, demonstrating the breadth and expertise of athletic training skills and knowledge by collaborating on COVID-19 related committees, and generally coordinating and communicating across COVID-19 tasks with others at their institution or organization. Demonstrating ATs' value and skill set in interprofessional teams during a pandemic may create strong bridges for future interprofessional practice. These views are also reflected in a recent article by Breitbach, Muchow & Gallegos³¹ that describes how ATs who have adapted to the new skills and roles necessitated by the pandemic have helped to increase the value of ATs interprofessionally. Interprofessional education and collaboration are critical priorities in the athletic training profession as they contribute to better patient outcomes as well as building support towards expanding athletic training patient populations and employment settings.³² The athletic training profession should capitalize on this momentum, highlighting ATs' contributions not only as frontline workers during the pandemic, but also the behind the scenes work that led to quick return to sports and how ATs continued to care for and support athletes' physical and mental health when sports were canceled.

ATs reported gaining new skill sets during the pandemic. For some, they received on-the-job training on how to screen for symptoms, collect testing samples, run lab testing on samples, contact trace, coordinate care (eg. quarantine or isolation, referrals for return to play), and report statistics to public health departments. Even for ATs who were unable to continue providing athletic training services or who were redeployed to other departments, they served to develop

new skills and experiences. With so much still unknown about COVID-19, it is possible that a new or continued pandemic may occur and these skills will be useful in establishing safe athletic health care facilities and practices. The skillset may also be transferable to other current and future infectious diseases.

Lessons Learned and Future Innovations

Based on our findings, we suspect some changes will likely be continued after the pandemic subsides. Some changes will likely be positive and improve working conditions and perspectives about the job, and some may increase the burden of workload already placed on ATs. The positive changes which may persist include cleaning protocols, increased attention to patient mental health needs, and telemedicine. The subthemes, *quality improvement and patient safety* and *new standard operating procedures*, demonstrated that although these adaptations were implemented out of necessity, ATs appreciated the improvements to clinical practice and deemed them successful enough to carry forward. Many participants recognized that more consistent proper facility maintenance and personal hygiene or PPE-donning would continue beyond the current pandemic, which has also been documented in another similar recent study.³⁰ Maintaining OSHA standards and Board of Certification (BOC) facility principles for cleanliness is a part of typical administrative responsibility expectations.³⁰ Just prior to the pandemic, the BOC developed several quality improvement pilot projects, including hand hygiene and facility maintenance because not all ATs were consistently following proper disinfecting or hand hygiene practices when providing athletic training services.³³ These pilot projects emphasize not only the importance of these tasks but also the real-time application of quality improvement in athletic training. According to our results, the pandemic has inspired quality improvement in

many ATs' practices for maintaining a clean facility and prioritizing patient safety through decreased transmission of communicable disease.

Other results suggest that ATs used the pandemic to develop COVID-19 and infectious disease policies and procedures as part of their additional COVID-19 related responsibilities. In 2020, the BOC updated recommendations for infection prevention and control policy, which is based on considerations for COVID-19, to provide ATs a template for implementing best practices during and post-pandemic. In addition to updating infectious disease policies and procedures, participants also noted the importance of updating preparticipation exams. ATs should re-evaluate current health history questionnaires used during pre-participation exams to include questions about exposure to or positive COVID-19 test results as there is thought to be a connection to long-term cardiac and respiratory consequences.³⁴ Additionally, ATs should more closely check for new musculoskeletal injuries or deconditioning due to the extended time away from sport combined with guidance for reconditioning, focused rehabilitation programs, or safe return to sport. Further, many of our participants discussed the importance of increasing awareness and screening for mental health concerns in student-athletes due to the significant impact that the pandemic has had on their wellbeing.³⁵ Therefore, adding mental health screening tools for all athletes may help identify patients who might be struggling with stress, anxiety, or depression signs and symptoms, and potentially grief from the loss of loved ones.

Other helpful standard operating procedure changes that were mentioned by ATs included implementing an appointment-based system to schedule patients. ATs appeared to enjoy scheduling appointments to evaluate and treat patients. While these systems were initially designed to facilitate and maintain social distancing in athletic training facilities, many ATs reported an intention to continue scheduling patients for certain AT services, like rehabilitation,

since it provided an opportunity for more focused and individualized care and may add predictability to the ATs' schedule which would reduce stress moving forward.

In a study by Winkelmann and Games,¹⁶ ATs had adapted well to telemedicine platforms; this was also true for the ATs in our study. Our participants cited telehealth technology as a useful innovation during the pandemic as it allowed ATs to safely communicate with patients.³⁷ Telehealth technology is utilized across other health care professions to improve safe and timely access to care, and it is beginning to gain momentum in athletic training. This momentum has been further supported during the pandemic and telehealth may become a model for care delivery in athletic training in the future.³⁸ One of the added benefits of telemedicine is the flexibility it provides both the patient and the provider which may reduce the impact on work-life balance that several of the ATs discussed as being burdensome.

Limitations

Our study had limitations that are important to consider when interpreting the results. Although we had a broad, geographically diverse sample, it is possible our results will not generalize to all practice settings. The COVID-19 pandemic has likely affected athletic trainers differently depending on practice setting and geographical region. Those practicing in areas that had higher infection and mortality rates likely had different experiences than those in rural areas with lower infection and mortality rates. Similarly, those practicing in traditional athletic settings likely had different challenges than those working at hospitals. While we felt it was important to capture the role of vaccination status at the time point in the pandemic when not everyone was fully vaccinated (ie, 2 weeks post second dose) and thus not feeling particularly 'protected,' the majority of our sample had already been vaccinated. Gaining more responses from those unvaccinated may have provided different results. Further, our sample consisted of more females

than males though the field is relatively balanced (55%F/45%M). While it is not unusual to have a higher pattern of response from female participants,³⁹ this still limits the generalizability of our findings. Response bias is also a possibility by which those who felt the greatest amount of burnout and anxiety failed to participate due to a lack of time. We used social media to recruit participants in order to capture a timely topic. While this recruitment method may potentially limit the reach or diversity of the pool, as not all ATs use social media, this recruitment method is consistent with a similar study on the topic and target population.¹² Our study is also a snapshot in time based on the cross-sectional design. Future studies should continue to explore the effects of the pandemic as it continues beyond what anyone had anticipated. The effects on the clinical practice of athletic training have been different than what was previously reported in the very early stages of the pandemic and suggest that there may be both positive (ie, implementation of telehealth, scheduling appointments, increased cleaning protocols, respect for the profession) and negative lasting effects (ie, job dissatisfaction, increased workload).

CONCLUSIONS

The pandemic has created stressful working conditions for ATs. Results suggest that ATs have considered changing jobs or have already changed jobs in the last year, have reported significant job stress, and have high stress levels. However, some of the feelings were countered by reports of support from employers, such as being provided PPE or financial packages, as well as healthy personal coping strategies. Recommendations for healthy coping strategies and organizational support are suggested for those struggling while providing health care during the pandemic. Healthy coping strategies may include exercising, meditating, connecting with spiritual or religious practices, leaning on social support networks, and working with mental

health professionals. Organizational support can be provided in the form of shared governance, supportive policies, compensation for additional work, and recognition for added responsibilities.

There are many lessons from COVID-19 that span beyond the pandemic that can be used by ATs to help prepare for future public health crises, such as advocating for the needs of clinicians from mental health support to providing the necessary resources to continue providing quality care. Additionally, ATs and organizations should review and revise relevant policies and procedures, including preparticipation screenings to include cardiac, respiratory, and mental health, as well as facility and hygiene maintenance. Implementation of telehealth technology may want to be considered as many ATs viewed it as a positive innovation for safe patient care. Furthermore, the value of athletic trainers has been clearly demonstrated by their responses to the pandemic that may help strengthen the profession and prepare ATs and organizations for future events.

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Table 1. Demographic and Open-ended Survey Questions	
Demographic questions	<p>Age</p> <p>Gender identity</p> <p>Years of experience as an AT</p> <p>Years of experience in current role</p> <p>Practice setting: <i>[Middle school; Secondary school; Collegiate/University athletics]</i></p> <p>Which affiliation (eg, NCAA D1, NAIA, etc.)? <i>[Professional sports; Armed Forces; Physician office; Rehabilitation clinic; Occupational health; Performing arts; Public safety; Other;]</i></p> <p>Position title</p> <p>What state are you currently practicing in? <i>[Drop down list of states]</i></p> <p>What is the location of your current practice: <i>[Urban, Suburban, Rural]</i></p> <p>Have you been vaccinated? <i>[Yes//No]</i></p> <ul style="list-style-type: none"> • If yes: <ul style="list-style-type: none"> ○ Which did you receive? ○ Did your employer provide the vaccine? ○ Was the vaccine mandated by your employer? <p>Primary sports covered since the start of the pandemic</p> <p>Have the sports you cover changed since the start of the pandemic? <i>[Yes → please explain//No]</i></p>
Open-ended questions	<ol style="list-style-type: none"> 1. How has the COVID-19 pandemic most impacted you personally and professionally? 2. Please describe any additional professional responsibilities you have had to take on since the start of the pandemic. 3. Please describe any support your employer has provided since the start of the pandemic (ex: PPE, hazard pay, guidance/support for policy

	development, etc.).
	4. Please describe which coping strategies you have used during the COVID-19 pandemic and how or why you have used them.
	5. What do you anticipate being the lasting effects, both positive and negative, of COVID-19 on your work environment and practice?

Table 2. Means and Correlations between CAS and MBI-HSS MP Composite Scores

Variables	Means (sd)	Emotional Exhaustion	Personal Accomplishment	Depersonalization
CAS Total	2.2 (3.0)	.527**	-.324**	.411
Emotional Exhaustion	17.1 (9.1)		-.430**	.615**
Personal Accomplishment	21.8 (4.1)			-.500**
Depersonalization	4.8 (3.4)			

Means and standard deviation (first column) and correlations on the diagonals between the CAS and each of the sub-scales of the MBI-HSS MP composite scores. ** Correlation is significant at the 0.01 level (2-tailed)

Table 3: Summary of Stepwise Multiple Regression Analysis for Variables Predicting the CAS

	R^2 change	B	β	t	p	Partial r
Constant		-.87		-3.20		
MBI Exhaustion	.27	.14	.44	8.22	<.001	.38
MBI Depersonalization	.01	.12	.14	2.66	.008	.13
MBI Personal Accomplishment				-1.65	.10	-.08
Vaccine Status				.64	.52	.03
Gender				-.92	.36	-.05
Years experience AT				-.42	.67	-.02
Years current role				.16	.87	-.01
Age				-.35	.73	.13

Bolded lines indicated factors that were included in the regression model. R^2 change indicates the percentage of variance in the CAS that is accounted for by the predictor variables. B indicates beta weights for unstandardized regression coefficients for variables entered into the model including MBI exhaustion and depersonalization. β weights are the standardized coefficients based on z-scores with a mean of 0 and a standard deviation of 1 and can be used to create a prediction equation for standardized variables. The t -values for each variable and subsequent p-value are presented. In the last column are the partial correlations of each variable with the CAS score.

Table 4. Median (Range) Scores for CAS and MBI-HSS MP Subscales across Vaccination Status and Overall.

	Vaccinated	Unvaccinated	All Participants
CAS	1 (0-18)	0 (0-18)	1 (0-18)
Emotional exhaustion	16 (0-36)	17 (0-36)	16 (0-36)
Depersonalization	4 (0-13)	5 (0-15)	5 (0-15)
Personal accomplishment	22 (8-32)	22 (11-32)	22 (8-32)

Table 5. Representative Quotes	
Theme 1: Impacts on Wellness	
Sub-themes	
<i>Mental health</i>	<p>“The pandemic has taken a huge mental and emotional toll. The work is different and causing me to feel the beginning of burnout.”</p> <p>“Increase in anxiety, depression, and PTSD.”</p> <p>“Just tired and overwhelmed all the time.”</p>
<i>Fear of exposure</i>	<p>“The fear of dealing with athletes that don’t care about COVID and then bringing it home to my medically compromised husband.”</p> <p>“I have anxiety when treating athletes on the field/court when they are not masked up. I feel like I expose myself daily.”</p> <p>“Fear of catching and spreading the virus has been constant.”</p>

<p><i>Work-life balance versus work-like conflict</i></p>	<p>“I feel like there is not enough time in the day to do my work responsibilities and feel like I bring that stress home.”</p> <p>“[The pandemic] has made me a more empathetic AT and appreciate my profession more.”</p> <p>“[pandemic] has made work-life balance even more important.”</p> <p>“[The pandemic has caused an] elimination of boundaries. Constantly connected and checking my emails, text, etc.”</p> <p>“Frankly, I had more time for me personally since I had time off that I never had before.”</p>
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<p><i>Support & coping strategies</i></p>	<p>“[I’m] trying to keep in touch with friends and family to feel a shred of normalcy. Relying on my coworkers for understanding and support as we are all going through it together.”</p> <p>“We have to reuse PPE in our covid clinic where I have picked up hours. There is no hazard pay or resources for those of us who are burnt out.”</p> <p>“Taking a lot more adderall during work and more Zoloft after work.”</p> <p>“...increase in alcohol intake initially,”</p> <p>“Alcohol to forget the day and to relax when coming home to my family”</p> <p>“crying, quitting”</p> <p>“smoking, nicotine calms my nerves”</p> <p>“Sleep - when I feel overwhelmed it is easier to sleep and stay in bed because the problems don't exist (it feels like) during sleep.”</p>
<p>Theme 2: Value of ATs</p>	
<p>Sub-themes</p>	

*Changing &
additional roles &
responsibilities*

“I feel that now it is 80% COVID-19 related work and 20% AT [athletic training] responsibilities.”

“Honestly the additional responsibilities are endless between numerous meetings virtually daily and then having to go in and work 4-6 hours every evening to cover sports...”

“Increase in responsibilities at work (contact tracing, testing).”

“...had Wellness Coordinator added to my job.”

“It [pandemic] made me leave collegiate athletics due to adding so many more responsibilities to a plate (person) that was full (stressed in all directions)”

“Definitely more mentally drained than normal, job feels slightly less rewarding that it would outside pandemic.”

“Furloughed for 9 months, lost \$30,000 in income, still down about 25% salary after returning to work.”

“...bringing me close to burnout in my first year.”

“lost true connections with staff and patients due to limited in-person interactions.”

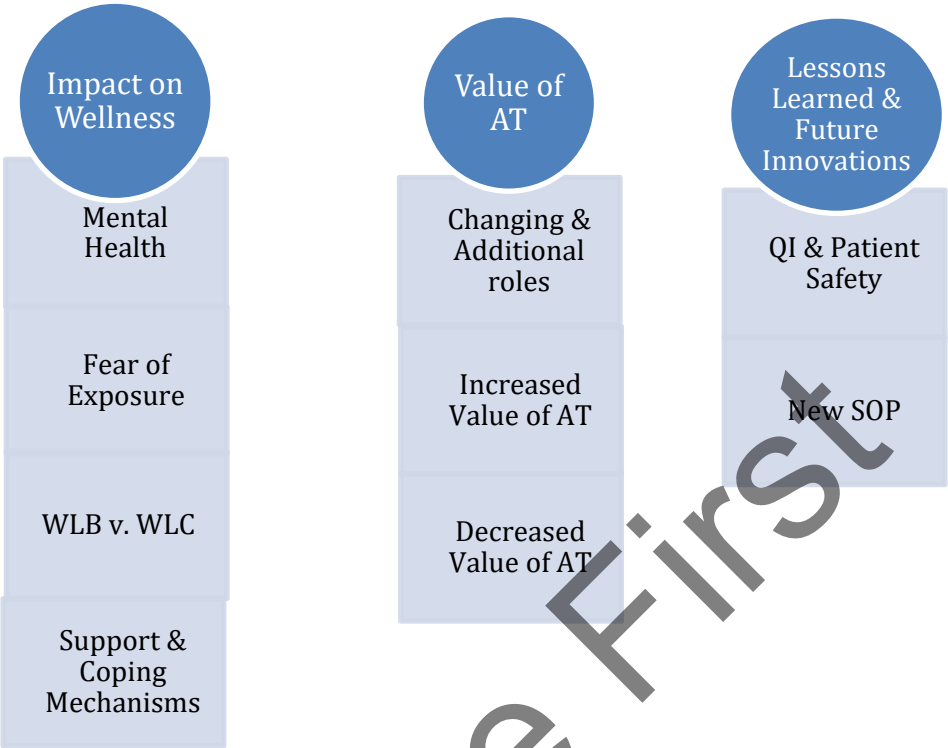
<p><i>Decreased value of ATs</i></p>	<p>“It made difficult coaches and ADs [athletic directors] impossible to work with.”</p> <p>“Fatigue and frustration in trying to enforce COVID protocols with coaches and athletes that don’t care. Feeling devalued and taken advantage of by my employer.”</p> <p>“I feel our role could be eliminated at any moment.”</p> <p>“I might leave athletics and I don’t think I’ll be the only one”</p> <p>“Don’t think I want to return to athletic training”</p>
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<p><i>Increased value of ATs</i></p>	<p>“My role has expanded a little since my job shift but not outside the boundaries of positional growth.”</p> <p>“I believe a positive effect is that more professional agencies have seen the value in athletic trainers so that more opportunities will open up for us across the country.”</p> <p>“Gotten closer to other medical personnel on campus.”</p> <p>“Hoping this makes campus respect the role of an AT more now that they realize we are valuable members within healthcare”</p> <p>“I feel as if employers are realizing how great we are at what we do. We have a problem, we fix it. It looks good too. With that being said, I feel as if it can go both ways. We can be given more freedom within the profession because they trust us and realize we are superstars. OR, we are given more tasks on top of our already big plate.”</p>
<p>Theme 3: Lessons Learned & Future Innovation</p>	
<p>Sub-themes</p>	

<p><i>Quality improvement & patient safety</i></p>	<p>“Increased attention to cleaning and sanitizing, more mask use when feeling sick or to avoid getting sick, increased virtual meetings and telehealth appointments are all positives.”</p> <p>“Sanitizing. Social distance when possible”</p> <p>“Positive - cleaning the ATF a lot more, wearing masks while interacting with patients, being more cognizant of PPE (gloves when evaluating patients)”</p> <p>“Better attention to detail about properly cleaning my equipment and facilities”</p>
<p><i>New standard operating procedures</i></p>	<p>“Positive - implemented a scheduling system for students before they come to the athletic training facility.”</p> <p>“Positive: ability to function in a virtual setting, greater demand for setting an appointment time in athletic training room (vs athletes just walking in), better cleaning protocols, better self-symptom recognition. I don’t foresee negative effects at this time.”</p> <p>“Doing things virtually that don't need to be done face to face”</p> <p>“I also hope that care and resources for mental health for athletes, myself and everyone else is readily available and not shunned.”</p> <p>“Changes in approaches to mental health”</p> <p>“Intense cardiac work up on all athletes who are positive”</p>

666 **Figure 1. Themes from Qualitative Data Analysis**



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