

## ORIGINAL ARTICLE

### Chiropractic faculty experiences of burnout and the COVID-19 pandemic

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#### ABSTRACT

**Objective:** The Maslach Burnout Inventory (MBI) is frequently used to assess occupational burnout and the Epidemic-Pandemic Impacts Inventory (EPII) is a new tool for assessing pandemic impacts. This study's objective is to describe chiropractic faculty members' experience of the COVID-19 pandemic, their burnout as professional educators, and their strategies for coping with stress.

**Methods:** A Qualtrics survey link was emailed to 73 current faculty and 10 previously employed faculty from 1 chiropractic school. The survey included 22 MBI, 31 EPII, and 2 questions about coping strategies. Faculty were given several weeks to complete the survey, were reminded via emails and meeting announcements, and were given paper surveys to increase participation. Responses were analyzed in STATA17.

**Results:** Forty-three faculty completed the survey (response rate = 52%). Of these, 25.8% reported testing positive for COVID-19, 30.23% reported difficulties transitioning to working from home, and 25.5% scored high on the MBI subscale for emotional exhaustion (EE) (mean 15.79, SD 13.68). Higher EE was associated with pandemic-related increases in mental health and sleep problems. Common coping strategies included self-care and social support.

**Conclusion:** The majority of faculty reported neither contracting COVID-19 nor having difficulty transitioning to work from home. Average EE for participating faculty was lower than previous reports although a quarter scored high in EE, which may be associated with pandemic-related mental health and sleep problems. These results suggest chiropractic faculty might need support coming out of the COVID-19 pandemic and indicate the need for future research on burnout among faculty from other chiropractic institutions.

**Key Indexing Terms:** Burnout; Professional; Education; Adaptation; Psychological; COVID-19

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#### INTRODUCTION

As of November 2023, there have been over 6.5 million hospitalizations and over 1.1 million deaths in the United States due to the SARS-CoV-2 virus.<sup>1</sup> In addition to morbidity and mortality from the virus, the COVID-19 pandemic has had other public health consequences, including changes in health behaviors<sup>2</sup> and mental health.<sup>3</sup>

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Previous studies have documented pandemic-related anxiety, stress and depression among university faculty.<sup>4–6</sup> In 1 study of Washington University employees, 50% of faculty reported increased work-loads due to the pandemic and the majority of faculty reported worse overall, mental and social well-being due to COVID-19 related work or life changes.<sup>5</sup> Teachers may be at more risk for anxiety, stress, and depression during the COVID-19 pandemic than the general population.<sup>7</sup>

According to a *Chronicle of Higher Education* survey, over 50% of higher education faculty considered leaving their job in 2020 during the first year of the pandemic.<sup>8</sup> Burnout is associated with career dissatisfaction in health professional faculty<sup>9,10</sup> and is defined by the World Health Organization as an “[occupational] syndrome...resulting from chronic workplace stress that has not been successfully managed.”<sup>11</sup> The Maslach Burnout Inventory is commonly used to assess burnout among university teaching staff<sup>12</sup> and to the investigators' knowledge, has not been used previously with faculty at doctor of chiropractic programs (DCPs).

The primary purpose of this study was to document the impacts of the COVID-19 pandemic on DCP faculty physical

and emotional well-being using the Epidemic-Pandemic Impacts Inventory (EPII) and to describe faculty burnout using the MBI. The secondary aim was to assess whether MBI scores were associated with EPII responses and faculty characteristics, such as part-time vs full-time status. We were also interested in faculty members' strategies for coping with work-related stress.

## METHODS

This study took place at 1 chiropractic college with a 4 quarter (11-weeks each) academic calendar. In March 2022 (during week 8 of the Winter 2022 quarter), the principal investigator emailed an invitation and Qualtrics (Provo, UT) survey link to currently employed faculty ( $n = 73$ ) who taught part-time or full-time during 2020–2022 at the institution and who were not on the investigation team. The principal investigator also emailed invitations to 10 former faculty members who had previously left the college during that same time-frame (2020–2022). The investigation team chose an online-survey for the advantages outlined by Helen Ball, including the ability to reach a large number of faculty at 1 time<sup>13</sup> and used Draugalis and colleagues<sup>14</sup> best practices as a guide for reporting survey research.

The email invitation for the survey shared information about the study and offered a \$100 gift card to be raffled for every 10 participants. The first page of the survey provided an informed consent including approximate time for taking the survey (15–20 minutes); possible risks of the survey (stress or social discomfort); and steps taken to preserve confidentiality (storing separately any links between emails and responses in a password protected file to be deleted after study completion).

This study was reviewed by the Life Chiropractic College West institutional review board and received a determination of exemption. The investigators protected the identity of respondents by not asking questions about age, gender, race and ethnicity. The study also used the anonymous links in Qualtrics which does not identify participants in the survey responses but keeps a separate log of who opened and completed the survey to aid with follow-up. Faculty had 3.5 weeks to complete the survey and they were reminded via 2 emails and 2 faculty meeting announcements. In June 2022 (week 8 of the Spring 2022 quarter), the research team also delivered paper surveys to currently employed non-responders who had mailboxes on-campus ( $n = 30$ ) to increase participation.

### Survey Components

The survey was developed and pilot tested by the research team of 2 full-time faculty members and 3 research staff.

### Demographic Questions

The survey asked 3 questions about faculty status: position (full-time or adjunct); department (academic or health center); and years working at the institution (less than 2 years, 2–4 years, 5–9 years, and greater than 10 years). Faculty were queried about the primary format of their class teaching (online-asynchronous, online-synchronous, hybrid, or in-person); and whether or not their course(s) primarily required a hands on component in which students needed to physically touch other students. From the survey responses received, the principal investigator created dichotomous variables for years working at

the institution ( $\leq 9$  years vs 10 years or more) and for online status (online or hybrid vs in-person).

### COVID-19 Experience Questions

The survey included 31 questions from the Epidemic-Pandemic Impacts Inventory (EPII). EPII was designed by a team from the University of Connecticut School of Medicine and University of Massachusetts in 2020 to assess how the COVID-19 pandemic changed people's lives.<sup>15</sup> The original EPII tool included 92 questions and asked participants to consider what has changed for themselves and their family since the pandemic began. The research team reviewed the EPII questions and discussed which ones would be most relevant to the faculty based on informal conversation with peers. Consensus was reached after multiple rounds of survey edits. At the time of the survey design, the EPII questions were not yet validated. For data analysis, investigators compared responses for faculty who selected "Yes (me)" to those who responded "Yes, other person in my home," "No," and "N/A" as the primary interest was the direct impacts of the pandemic on faculty themselves.

### Burnout Questions

The survey also included 22 questions from the Maslach Burnout Inventory Educators Survey (MBI-ES; copyright ©1986 Christina Maslach, Susan E. Jackson, and Richard L. Schwab). The MBI-ES assesses 3 aspects of burnout, each measured on a continuous scale: emotional exhaustion (EE), depersonalization (DP) and personal achievement (PA). Higher EE and DP scores and lower PA scores are indications of burnout. The EE subscale contains 9 questions with a total possible score of 54. The DP subscale has 5 questions with total possible score of 30, and PA subscale has 8 questions and total possible score of 48. For data analysis, the principal investigator created ordinal variables using thresholds for high, moderate and low EE, DP and PA based on other prior research<sup>16,17</sup>: Low EE (0–16), Moderate EE (17–26), High EE (27 or higher); Low DP (0–6), Moderate DP (7–12), and High DP (13 or higher); and Low PA (0–30); Moderate PA (31–36), and High PA (37 or higher).

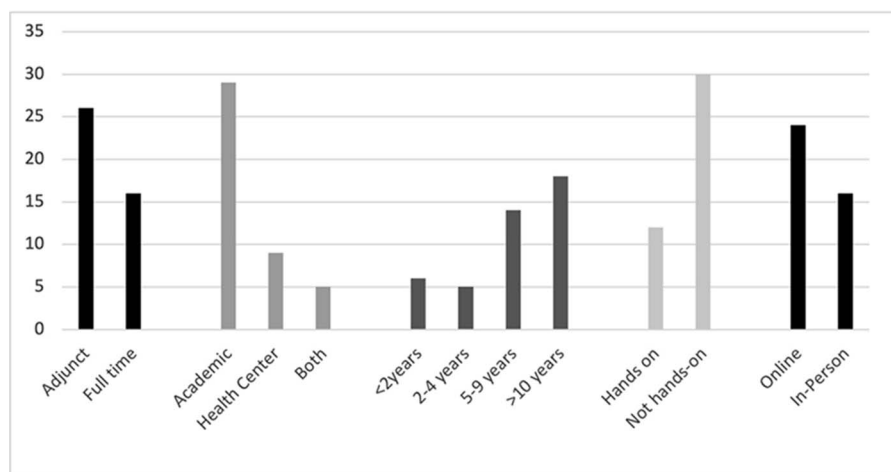
### Coping Questions

In addition to the multiple choice questions described above, the survey included the following 2 open-ended questions to gather information about faculty members' coping strategies: "In the text box below, please share how you cope with work-related stress" and "If you adopted new strategies for coping with stress since the beginning of the COVID-19 pandemic, please describe."

### Analysis of Survey Data

Quantitative data were exported from Qualtrics into Microsoft Excel (Microsoft Corp) and then imported into STATA/SE 17.0 (StataCorp) for descriptive and inferential statistical analyses. Associations between the continuous EE subscale, the dichotomous faculty status variables and the dichotomized responses to the EPII questions were assessed using the Mann Whitney U test. To account for multiple testing, Bonferroni correction was set to an alpha level of .001. The analysis excluded missing answers.

To analyze the qualitative data, 2 of the investigators (MP, KW) first reviewed the de-identified responses to the open-ended questions about coping with work-related stress and then



**Figure 1** - Faculty positions, time teaching at the college, and types of classes taught for the 43 survey participants.

conducted thematic analysis. They created a codebook by identifying common codes based on the faculty responses and searched for themes previously reported in the extant literature (thematic analysis).<sup>18</sup> The same 2 investigators independently applied the codebook to the survey responses and discussed any discrepancies until reaching 100% agreement for categorizing specific coded responses into final general themes.

## RESULTS

Faculty were considered responders if they completed the majority of the survey. The combined response rate of all invited participants was 52% ( $n = 43$ ). 55% of current faculty responded and 33% of contacted faculty who had left the college responded. Among currently employed faculty, the response rate for the electronic survey (51%) was much higher than for the paper survey (10%). Ninety-three percent of currently employed participating faculty responded via the initial electronic survey. Figure 1 provides additional information on the faculty respondents.

### ***EPII Responses for Experiences During the COVID-19 Pandemic***

The majority of faculty reported that since the COVID-19 pandemic began, they have worked in close contact with people who might be infected (76.74%) and experienced increased workload (76.74%); increased mental health problems/symptoms (51.16%); increased screen time (76.74%) and increased sedentary behavior (69.77%). The majority also reported decreased participation in social clubs, sports or volunteer activities (76.74%) and physical activity (53.49%). Other notable findings were 48.84% reported increased sleep problems, 37.21% reported increased unhealthy eating; 25.58% reported increased use of alcohol or substances, and 23.26% reported increased health problems not related to COVID-19. Twenty-six percent reported testing positive for SARS-CoV-2 and no respondents reported medical treatment or hospital stay for COVID-19 (although 18.6% reported death of a close friend or family member due to COVID-19). Over 1/3 of faculty reported the following positive changes since the coronavirus disease pandemic: more time in nature (39.53%); more time doing enjoyable activities (44.19%); greater meaning in work (37.21%); more efficient at work

(37.21%); and more appreciative of things (74.42%). A summary of the responses to the EPII questions are in Table 1.

### ***MBI-ES Responses for Feelings of Burnout***

The average scores and standard deviations (SD) for the 3 aspects of burnout were 15.79 (SD = 13.68) for Emotional Exhaustion (EE); 5.23 (SD 4.73) for Depersonalization (DP) and 38.43 (SD 7.39) for Personal Achievement (PA). The majority of faculty scored low on EE and DP and high on PA however 25.58% scored high on EE, 11.63% scored high on DP; and 9.30% scored low on PA.

Associations Between EPII Responses and EE and Between Faculty Status and EE:

The difference in mean ranks of EE scores were significantly different for faculty who responded “yes” to increases in mental health symptoms ( $p < .001$ ), sleep difficulty ( $p < .001$ ) and alcohol use ( $p = .001$ ) since the beginning of the pandemic, compared to faculty who responded “no.” Median EE scores by EPII responses are available in Table 2. There were no statistically significant differences in EE scores in any of the faculty status variables with alpha level = .001. Adjunct faculty had lower median EE scores compared to full-time faculty (8.0 vs 17.5) ( $p = .007$ ) (Table 3).

### ***Qualitative Findings for Coping Questions***

The first coping question queried faculty on their strategies for coping with work-related stress. Applying the codebook, the investigators categorized responses into 4 main identified themes of self-care, social support, mental attitude, and leisure activities. Within the self-care theme, faculty specifically reported that they would “do physical work outside,” “[take] a nice long walk,” “[play] golf,” “[do] yoga,” “exercise daily,” “[get] adjusted,” and “sleep deeply and enough.” For the social support theme, faculty reported spending time with “family” and also receiving “emotional support from [their] pet.” Under mental attitude, faculty responded that they were able to “focus on aspects [they are] grateful for” and “see the positive in [their] life.” For leisure activity, faculty would watch “Netflix,” spend “a day at the beach” and simply “do activities that have nothing to do with work.”

**Table 1 - Responses to The Epidemic – Pandemic Impacts Inventory Questions and Associations with Emotional Exhaustion (n = 43)**

Since the coronavirus disease pandemic began ... <sup>a</sup>	Yes (n)	Yes (%)	p
-Had to continue to work even though in close contact with people who might be infected	33	76.74	>.05
-Increase in workload/work responsibilities	33	76.44	*
-Hard time doing job well because of needing to take care of people in the home	3	6.98	n/a
-Hard time making the transition to working from home	13	30.23	*
-Unable to pay important bills like rent or utilities	5	11.63	>.05
-Had to move or relocate	5	11.63	>.05
-Increase in mental health problems or symptoms	22	51.16	***
-Increase in sleep problems or poor sleep quality	21	48.84	***
-Increase in use of alcohol or substances	11	25.58	***
-Spent more time on screens and devices	33	76.74	>.05
-Increase in health problems not related to this disease	10	23.26	>.05
-Less physical activity or exercise	23	53.49	>.05
-Overeating or eating more unhealthy foods (eg, junk food)	16	37.21	>.05
-More time sitting down or being sedentary	30	69.77	>.05
-Unable to participate in clubs, teams, or usual volunteer activities	33	76.74	>.05
-Increase in verbal arguments or conflict with a partner or spouse	11	25.58	>.05
-More quality time with family or friends in person or from a distance	14	32.56	**
-Improved relationships with family or friends	13	30.23	*
-Increase in exercise or physical activity	9	20.93	>.05
-More time in nature or being outdoors	17	39.53	>.05
-More time doing enjoyable activities	19	44.19	>.05
-More appreciative of things usually taken for granted	32	74.42	>.05
-Ate healthier foods	13	30.23	>.05
-Volunteered time to help people in need	10	23.26	>.05
-Found greater meaning in work, employment, or school	16	37.21	>.05
-More efficient or productive in work, employment, or school	16	37.21	>.05
-Tested positive for this disease but no longer have it	11	25.58	>.05
-Got medical treatment due to severe symptoms of this disease	0	0	n/a
-Hospital stay due to this disease	0	0	n/a
-Entire household was quarantined for a week or longer	12	27.91	>.05
-Death of close friend or family member from this disease	8	18.60	>.05

<sup>a</sup> Questions from: Grasso DJ et al (2020). The Epidemic – Pandemic Impacts Inventory.

P value for Two-sample Wilcoxon rank-sum test with Emotional Exhaustion (EE). EE is a 9-item subscale of the Maslach Burnout Inventory, with scores ranging from 0 to 54.

\*p ≤ .05; \*\*p ≤ .01; \*\*\*p ≤ .001; N/A, Observations in 1 group too small for statistical testing.

The study's other coping question queried whether faculty adopted new strategies for coping with stress since the beginning of the COVID-19 pandemic, and the 2 themes of self-care and mental attitude were prominently mentioned again. Self-care post pandemic included "improved diet to lose weight gained over past 2 years" and mental attitude included, "Just kept focusing on what I could do to make the world better" and "did not allow myself to be sucked into the extremely fear-based political and media machine." Responses to the second coping question also frequently included time management as a common theme, in that faculty reported that "focus[ing] on productivity," "creating a home office" and "[finishing tasks] before too late in the day" helped them cope with stress during the COVID-19 pandemic. One faculty wrote, "I mostly lost touch with my coping mechanisms [until I made changes to my work responsibilities]."

## DISCUSSION

This study had over a 50% response rate and highlighted faculty experiences during the COVID-19 pandemic at 1 chiropractic

college in the United States. At the time of the study (Spring 2022) the United States Centers for Disease Control and Prevention reported a 57.7% seroprevalence for SARS-COV-2,<sup>19</sup> yet only 25.58% of faculty participants reported testing positive. It is not known if this is due to a lower rate of infection or to a lower rate of testing or unwillingness to disclose, or other possible reason. The majority of participating faculty reported increases in workload, mental health problems, screen-time, and sedentary behavior since the onset of the pandemic. These findings are not unique to this DCP.<sup>4-6,20</sup>

A strength of this study was the use of the validated 22 item MBI-ES to assess 3 dimensions of burnout in chiropractic faculty. Participating faculty on average scored lower on the EE and DP subscales and higher on the PA subscale compared to health professional faculty from several other studies using a 22 item MBI to assess burnout in health professional faculty.<sup>16,21-23</sup> The investigators did not find statistically significant differences between faculty status variables and the EE subscale in the current study; however prior studies have found associations between EE and full vs part-time status,<sup>21,24,25</sup>



**Table 2 - Median Emotional Exhaustion (EE) Scores by The Epidemic – Pandemic Impacts Inventory Responses (n = 43)**

Since the coronavirus disease pandemic began ... <sup>a</sup>		n	Median EE	p
- Had to continue to work even though in close contact with people who might be infected	Yes:	33	10.00	>.05
	No:	10	19.50	
- Increase in workload/work responsibilities	Yes:	33	14.00	*
	No:	10	5.00	
- Hard time doing job well because of needing to take care of people in the home	Yes:	3	32.00	n/a
	No:	40	10.00	
- Hard time making the transition to working from home	Yes:	13	21.00	*
	No:	30	9.50	
- Unable to pay important bills like rent or utilities	Yes:	5	15.00	>.05
	No:	38	10.00	
- Had to move or relocate	Yes:	5	9.00	>.05
	No:	38	10.00	
- Increase in mental health problems or symptoms	Yes:	22	18.50	***
	No:	21	7.00	
- Increase in sleep problems or poor sleep quality	Yes:	21	21.00	***
	No:	22	8.00	
- Increase in use of alcohol or substances	Yes:	11	32.00	***
	No:	32	9.00	
- Spent more time on screens and devices	Yes:	33	10.00	>.05
	No:	19	13.50	
- Increase in health problems not related to this disease	Yes:	10	13.50	>.05
	No:	33	10.00	
- Less physical activity or exercise	Yes:	23	14.00	>.05
	No:	20	9.00	
- Overeating or eating more unhealthy foods (eg, junk food)	Yes:	16	15.00	>.05
	No:	27	9.00	
- More time sitting down or being sedentary	Yes:	30	10.00	>.05
	No:	13	10.00	
- Unable to participate in clubs, teams, or usual volunteer activities	Yes:	33	10.00	>.05
	No:	10	6.00	
- Increase in verbal arguments or conflict with a partner or spouse	Yes:	11	18.00	>.05
	No:	32	9.00	
- More quality time with family or friends in person or from a distance	Yes:	14	7.50	**
	No:	29	18.00	
- Improved relationships with family or friends	Yes:	13	8.00	*
	No:	30	17.50	
- Increase in exercise or physical activity	Yes:	9	9.00	>.05
	No:	34	12.00	
- More time in nature or being outdoors	Yes:	17	10.00	>.05
	No:	26	11.00	
- More time doing enjoyable activities	Yes:	19	10.00	>.05
	No:	24	13.00	
- More appreciative of things usually taken for granted	Yes:	32	10.00	>.05
	No:	11	17.00	
- Ate healthier foods	Yes:	13	10.00	>.05
	No:	30	16.00	
- Volunteered time to help people in need	Yes:	10	13.50	>.05
	No:	33	10.00	
- Found greater meaning in work, employment, or school	Yes:	16	10.00	>.05
	No:	27	9.00	
- More efficient or productive in work, employment, or school	Yes:	16	19.00	>.05
	No:	27	9.00	
- Tested positive for this disease but no longer have it	Yes:	11	10.00	>.05
	No:	32	13.00	
- Got medical treatment due to severe symptoms of this disease	Yes:	0		n/a
	No:	43	10.00	

Table 2 - Continued.

Since the coronavirus disease pandemic began ... <sup>a</sup>	n	Median EE	p
- Hospital stay due to this disease	Yes: 0 No: 43	10.00	n/a
- Entire household was quarantined for a week or longer	Yes: 12 No: 31	9.50 12.00	>.05
- Death of close friend or family member from this disease	Yes: 8 No: 35	23.00 19.00	>.05

<sup>a</sup> Questions from: Grasso DJ, et al (2020). The Epidemic – Pandemic Impacts Inventory. EE is 9-item subscale of the Maslach Burnout Inventory, with scores ranging from 0 to 54.

P value for two-sample Wilcoxon rank sum test with EE.

\*p ≤ .05; \*\*p ≤ .01; \*\*\*p ≤ .001; N/A: Observations in 1 group too small for statistical testing.

type of classes/departments,<sup>24,26</sup> and hours working from home.<sup>26</sup> While participating faculty scored relatively low on EE and DP subscales and high on the PA subscale, about a quarter of the faculty members were flagged as having high emotional exhaustion. To decrease selection bias in this study, the investigators invited faculty who recently departed the institution and provided a paper survey to current faculty non-responders. While the responses to these outreach efforts were too limited for robust statistical testing, EE levels were 4 times higher among faculty who had recently departed the college compared to current faculty.

Self-care, social support, mental attitude, and leisure activities were common themes in this study for how current faculty cope with work-related stress. Similar to the findings in this investigation, social support, maintaining/improving physical health, and leisure activity were reported to be coping mechanisms in other educators following the COVID-19 pandemic.<sup>27</sup> While the investigators did not find statistically significant differences in EE between faculty answering “Yes” or “No” to EPII questions that relate to these themes at  $p < .001$ , faculty who reported that the pandemic afforded them more quality time and improved relationships with family or friends had lower median EE scores than their peers. The study also noted non-statistically significant lower EE in faculty who answered “Yes” to EPII questions about increasing

physical exercise and spending time doing enjoyable activities as well as mental attitude questions for being more appreciative and finding greater meaning (Table 2).

### Limitations and Recommendations for Future Studies

The years 2020–2022 brought many challenges to DCP faculty, including shifting between on-line and in-person instruction as a result of the COVID-19 pandemic. For the 25% of faculty who scored high on the MBI Emotional Exhaustion subscale in this study, it is unknown if emotional exhaustion was due to the pandemic, institutional changes that occurred during 2020–2022, or due to other variables. Over 50% of faculty responded to the survey, a relatively strong turnout for surveys of busy professionals. The investigators could not statistically test for selection bias by comparing demographic or other characteristics of respondents to nonrespondents because the survey did not collect demographic data. This study is also limited to only 1 institution. The need to better understand burnout amongst the larger population of DCP faculty would justify replicating the survey across multiple chiropractic schools and also including other institutional variables that could impact burnout such as number of students per class, administrative management style of institutions and departments, and faculty relationships with their colleagues.<sup>22,25,28,29</sup>

Table 3 - Median Emotional Exhaustion (EE) Scores by Faculty Characteristics (n = 43)

Faculty status variables	n	Median EE	p
<10 years working at college	25	10.00	>.05
10 or more years working at college	18	18.50	
Teaching role primarily in the academic departments	29	10.00	
Teaching role primarily in the health center	9	9.00	
Majority of courses require student hands-on work	30	9.50	>.05
Majority of courses do not require student hands-on work	12	19.00	
Courses taught primarily online	16	10.00	>.05
Courses taught primarily in-person	24	10.00	
Adjunct	26	8.00	**
Full-time	16	17.50	
Currently employed by the college	40	10.00	n/a
Recently left the college	3	41.00	
Currently employed and answered survey electronically	37	10.00	n/a
Currently employed and answered survey by paper	3	9.00	

P value for two-sample Wilcoxon rank sum test with emotional exhaustion (EE). EE is a 9-item subscale of the Maslach Burnout Inventory, with scores ranging from 0 to 54.

\*p ≤ .05; \*\*p ≤ .01; \*\*\*p ≤ .001; N/A: Observations in 1 group too small for statistical testing.

## CONCLUSION

This study provided information about faculty experiences during the COVID-19 pandemic at 1 United States chiropractic college and measured 3 dimensions of burnout. While average scores corresponded to less burnout than previous studies with other health profession faculty, about  $\frac{1}{4}$  of faculty were at risk for high emotional exhaustion. Associations between EE and pandemic-related increases in mental health and sleep problems indicate DCP faculty may need additional support following the COVID-19 pandemic.

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Concept development: KW, MP, RW, BF, MS. Design: KW, MP, RW, BF, MS. Supervision: KW. Data collection/processing: KW, MP, RW. Analysis/interpretation: KW, MP. Literature search: KW, MP. Writing: KW, MP, MS. Critical review: KW, MP, RW, BF, MS.

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