



---

March 2022

## Assessing Burnout and Resiliency in Online Degree Advancement Respiratory Care Students During a Pandemic

Kristen L. McHenry

*Boise State University, kristenmchenry@boisestate.edu*

Thomas J. Wing

*Boise State University, thomaswing@boisestate.edu*

Jody Lester

*Boise State University, jlester@boisestate.edu*

Lanny Inabnit

*American Association for Respiratory Care, lanny.inabnit@aacrc.org*

Yong Gao

*Boise State University, yonggao@boisestate.edu*

Follow this and additional works at: <https://nsuworks.nova.edu/ijahsp>



Part of the [Medicine and Health Sciences Commons](#), and the [Online and Distance Education Commons](#)

---

### Recommended Citation

McHenry KL, Wing TJ, Lester J, Inabnit L, Gao Y. Assessing Burnout and Resiliency in Online Degree Advancement Respiratory Care Students During a Pandemic. *The Internet Journal of Allied Health Sciences and Practice*. 2022 Mar 31;20(2), Article 3.

This Manuscript is brought to you for free and open access by the College of Health Care Sciences at NSUWorks. It has been accepted for inclusion in Internet Journal of Allied Health Sciences and Practice by an authorized editor of NSUWorks. For more information, please contact [nsuworks@nova.edu](mailto:nsuworks@nova.edu).

---

# Assessing Burnout and Resiliency in Online Degree Advancement Respiratory Care Students During a Pandemic

## Abstract

**Purpose:** The purpose of this study was to identify and quantify the presence of burnout in online degree advancement Respiratory Care students during a pandemic and characteristics/strategies of resiliency. **Method:** The design of the study was quantitative; non-experimental, descriptive, cross-sectional survey research. The Maslach Burnout Inventory for Medical Personnel (MBI-HSS (MP) and Brief Resilience Scale (BRS) were used to measure these constructs. **Results:** One hundred and twenty-nine (129) students completed components of the survey for a response rate of approximately 28%. Relevant findings include a somewhat higher level of depersonalization for those who practice in adult acute care. Emotional exhaustion was higher in those who reported working directly with COVID-19 patients. Depersonalization was higher in the younger aged professionals (18-40 years). Resilience was found to have a negative correlation with both emotional exhaustion and depersonalization and a positive correlation with personal accomplishment. **Conclusions:** Findings support the need for training and education on emotional intelligence and opportunities to practice mindfulness-based stress reduction. Additionally, workload reductions and adequate time for recovery may help alleviate the emotional exhaustion of working respiratory therapists who are pursuing an advanced degree online.

---

## Author Bio(s)

Kristen L. McHenry, EdD, RRT-ACCS, is a full-time faculty member for the RRT to BS online DA program at Boise State University and is a licensed RCP in the state of TN.

TJ Wing, EdD, RRT, is the program director for the RRT to BS online DA program at Boise State University and is a tenured associate professor.

Jody Lester, MA, RRT, FAARC is a full time faculty member in the RRT to BS online DA program at Boise State University and is a tenured associate professor.

Lanny Inabnit, MS, RRT-ACCS, RRT-NPS, FAARC is the Vice President of Education and Meetings at the American Association for Respiratory Care and adjunct instructor for the RRT to BS online DA program at Boise State University.

Yong Gao, PhD, is a Professor in the Department of Kinesiology at Boise State University and served as the investigative team's biostatistician.

---

## Acknowledgements

The authors would like to acknowledge financial support from eCampus Faculty Research Fellowship.



**The Internet Journal of Allied Health Sciences and Practice**

*Dedicated to allied health professional practice and education*

**Vol. 20 No. 2 ISSN 1540-580X**

---

## Assessing Burnout and Resiliency in Online Degree Advancement Respiratory Care Students During a Pandemic

---

Kristen L. McHenry

Thomas J. Wing

Jody Lester

Lanny Inabnit

Yong Gao

1. Boise State University
2. American Association for Respiratory Care

United States

---

### ABSTRACT

**Purpose:** The purpose of this study was to identify and quantify the presence of burnout in online degree advancement Respiratory Care students during a pandemic and characteristics/strategies of resiliency. **Method:** The design of the study was quantitative; non-experimental, descriptive, cross-sectional survey research. The Maslach Burnout Inventory for Medical Personnel (MBI-HSS (MP) and Brief Resilience Scale (BRS) were used to measure these constructs. **Results:** One hundred and twenty-nine (129) students completed components of the survey for a response rate of approximately 28%. Relevant findings include a somewhat higher level of depersonalization for those who practice in adult acute care. Emotional exhaustion was higher in those who reported working directly with COVID-19 patients. Depersonalization was higher in the younger aged professionals (18-40 years). Resilience was found to have a negative correlation with both emotional exhaustion and depersonalization and a positive correlation with personal accomplishment. **Conclusions:** Findings support the need for training and education on emotional intelligence and opportunities to practice mindfulness-based stress reduction. Additionally, workload reductions and adequate time for recovery may help alleviate the emotional exhaustion of working respiratory therapists who are pursuing an advanced degree online.

**Keywords:** degree advancement, respiratory care, online education, healthcare burnout, resiliency

---

## INTRODUCTION

Respiratory therapists (RTs) are front line health care providers, who have assumed a vital role during the Coronavirus Disease 2019 (COVID-19) pandemic. The Associate of Science degree (A.S.) remains the minimum education required for entry into practice within the profession of Respiratory Care.<sup>1</sup> However, the American Association for Respiratory Care (AARC) is in support of all respiratory therapists obtaining a baccalaureate degree (B.S.). A.S. degree programs are greater in number than B.S. entry level programs (341 to 70 respectively), therefore, there is a growing need for a pathway for Associate degree prepared respiratory therapists to access continued education to meet the demands and expectations of the profession.<sup>2</sup> One pathway is online degree advancement (DA) programs to earn a B.S. in Respiratory Care (BSRC). The online nature of these programs allows students to maintain full time employment as health care practitioners while pursuing an advanced degree in their field of study. Although flexibility is an advantage of DA programs, online education while serving in a high-stress work environment during a pandemic will have its challenges.

With the rising demand of respiratory therapists, 19% growth in job outlook expected from 2019-2029, retaining knowledgeable and well-trained professionals in the field is a priority.<sup>3</sup> Because of the potential for workplace stress and external responsibilities, online DA students may be prone to burnout. Burnout is an occupational phenomenon characterized by feelings of energy depletion (emotional exhaustion), increased mental distance from one's job (depersonalization), and reduced professional efficacy or personal accomplishment.<sup>4</sup> Burnout may also be underreported among respiratory therapists.<sup>5</sup> The purpose of this study was to identify and quantify the presence of burnout in online degree advancement Respiratory Care students during a pandemic and characteristics/strategies of resiliency. The findings of the study could aid online program faculty and administrators in how to best recruit, retain, support and engage online DA students and foster growth within online education and learning.

## REVIEW OF THE LITERATURE

### COVID-19 Pandemic

The World Health Organization declared COVID-19 as a pandemic on March 11th, 2020.<sup>6</sup> COVID-19 is primarily transmitted from person-to-person through respiratory droplets.<sup>7</sup> It is most commonly spread from close contact with others infected with the virus.<sup>7</sup> Respiratory therapists perform and assist with many aerosol generating procedures such as nebulizer administration and endotracheal intubation, which places them within close proximity of contagious patients. As of August 23, 2021, 631,440 deaths have been attributed to the virus and 73.5% of adults in the U.S. have received at least one vaccination.<sup>8</sup>

### Degree Advancement

In 2015, the AARC issued a new goal calling for eighty percent of respiratory therapists to either have, or be working toward, a bachelor's degree by 2020.<sup>9</sup> The advancement from an associate level to a bachelor's degree is vital to healthcare and to the profession. The Commission on Accreditation for Respiratory Care (CoARC) defines DA programs as those "specifically designed to meet the needs of practicing respiratory therapists with an RRT who wish to obtain advanced training in Respiratory Care".<sup>10</sup> There are currently 19 accredited DA programs in respiratory care.<sup>1</sup>

The majority of positions on today's interprofessional healthcare team require a bachelor's or master's degree for entry into practice. Having more bachelors prepared respiratory therapists is a natural progression within the field. The AARC has stated "We are often plagued with being a profession with the "weakest link" concept. This holds our profession back from really demonstrating our value, as we all need to be working at the top, not the bottom, of our scope of practice".<sup>9</sup> Helton et al surveyed students in a DA program in Texas and found that "degree advancing RTs are considering leveraging the BSRC degree to enter different careers, and such decisions are made more commonly by younger RTs".<sup>11</sup>

The AARC 2014 Human Resources Survey found that "each increase in academic degree was associated with an increase in annual compensation by at least \$3,000" and "Degree advancement itself does not guarantee an increased salary but the additional knowledge and skills may qualify the respiratory therapist for a promotion or position that requires a higher degree."<sup>12</sup> Degree advancement is associated with professional development, increased competency, and improved delivery of patient care within the nursing literature.<sup>13</sup> There are several formats for DA programs. Online programs allow working practitioners to stay where they are and still have 24-hour access to course materials. Despite the benefits of DA, there may be challenges that prolong or hinder degree completion. It is critical to understand the factors that increase the likelihood of student success.

### Burnout Among Health Care Providers

Respiratory therapists can be classified as human services professionals due to the nature of their clinical responsibilities and frequent interaction with patients, their families, and colleagues. The intensity of the situations that are often faced at the bedside

can result in frustration and despair. These feelings of chronic stress can be emotionally draining on the clinician and ultimately have negative consequences for the provider and on the quality of care they provide.

The Maslach Burnout Inventory (MBI) contains three subscales: emotional exhaustion, depersonalization, and personal accomplishment. Emotional exhaustion is described as being strained or overextended.<sup>14</sup> Depersonalization is a separate but related component of burnout that can result in the insensitive treatment of others. The third subscale of the MBI, which is independent of the others mentioned, is the measurement of personal accomplishment in working with others. When emotional exhaustion and depersonalization are high, feelings of personal accomplishment are typically low. Decreased levels of personal accomplishment can affect job satisfaction and overall job performance.

The MBI Human Services Survey for Medical Personnel (MBI-HSS:MP) stemmed from the original inventory, but with specific verbiage related to patients. It has been found that when the number of patients/clients increases, so do the burnout scores on the MBI-HSS (MP).<sup>14</sup> A lack of adequate staffing (30.8%) and high workload (29.4%) were identified by RTs as drivers of burnout during the COVID-19 pandemic.<sup>5</sup>

Burnout tends to be more common among healthcare professionals who work in the ICU or emergency department. This may be due to a heavy workload or the frequency in which end of life decisions are made in these care areas.<sup>15</sup> The constant exposure to death and dying is somewhat specific to healthcare professionals and could explain the high levels of burnout among these individuals.<sup>16</sup> Providers who work in these high intensity areas also work in close proximity to others, leaving one to wonder whether there is a degree of contagion associated with burnout syndrome or there are interpersonal conflicts that arise. The quality of working relationships can impact the presence of burnout.<sup>17</sup> Burnout can transpire within the first few years of practice and has been associated with a younger age professional.<sup>14-15</sup> Younger individuals have also been found to have higher levels of depersonalization.<sup>14,18</sup> This finding could result in early-career providers leaving their respective professions entirely; an occurrence that the current pandemic climate could not afford to take place.

Workplace realities can be overwhelming and students/early professionals should be as prepared as possible, whether by their educational program or developed on the job.<sup>11</sup> Health care providers typically have a strong drive to achieve, which is needed in rigorous academic health science programs. Guntupalli et al noted that burnout was more frequent in highly motivated, committed, and accomplished individuals.<sup>17</sup> This may also be why burnout increases with level of education, specifically with higher levels of emotional exhaustion.<sup>19,14</sup>

Burnout affects a great deal of healthcare professionals, including nurses, respiratory therapists, physicians, and other allied health professionals. Von Harscher et al noted that 33-50% of physicians experienced burnout, and approximately half of medical students experience burnout.<sup>19</sup> Though there are gender, age, and education level differences between these professions, the prevalence of burnout seems to be consistent. Negative effects of burnout include a decreased quality of life, inability to cope with the challenges faced, and poor interpersonal relationships. Colleagues should be advocating for assistance in combating this syndrome.

Opportunities that may impact burnout levels among healthcare providers are mentoring programs and training related to mindfulness, resiliency, and emotional intelligence.<sup>5,16,20</sup> Mentoring can offer the needed support and career guidance for early career professionals. Mindfulness and emotional intelligence could have direct influence on emotional exhaustion, depersonalization, and sense of personal accomplishment.<sup>20</sup> Resiliency training could proactively help with motivation and ability to persevere through challenging times (i.e. worldwide pandemic) and enhance overall well-being. School tasks can be considered "work" and therefore are subject to burnout.<sup>21</sup> Building a network of high-quality support, both personally and professionally, is indicated.

### **Resilience**

Resilience is a non-cognitive trait that is associated with motivation.<sup>16</sup> It has been referred to as one's ability to bounce back from adversity. There is some debate on when this trait is developed and whether it can be done on the job. Resilience cannot be built unless a struggle has been faced, and for some, this does not take place until one's career has been entered. However, some may acquire the ability to cope with challenges through withstanding the rigors of school and life.<sup>16</sup> College students experience a great deal of stress and anxiety, which has only been enhanced by the pandemic. Resilience has been shown to decrease levels of anxiety and depression and increase the probability of academic success.<sup>16</sup> Students may have an underlying (or explicitly stated) fear of failure, which influences their emotional state and well-being. Resilience is somewhat episodic, meaning the individual

recovers after a singular struggle or challenge. However, the ability to withstand these occurrences over time has been referred to as “grit.”<sup>16</sup>

In academia, educators hope to achieve a balance of support while also challenging students to learn and perform their best. Excessive support or “hand holding” may actually set the student up for future failure.<sup>16</sup> By instituting practices such as problem-based learning (PBL) and encouraging self-care, educators can help students obtain their goals while also advocating for resilience building. Stoffel and Cain stated that with the expense of higher education and the corresponding stress and anxiety, educators almost have a moral imperative to help students graduate.<sup>16</sup> Kim et al found that social support from teachers had a strong negative impact on burnout; it was also noted that the source of support should be matched to what was needed by the student (emotional v. informational, etc.).<sup>21</sup>

A classroom environment, whether in person or online, should be helpful, but also allow for some degree of autonomy. When an academic goal is not met, encouraging student reflection and serving as a mentor can aid in the student’s buoyancy or ability to “bounce back.” Through this process of struggle and recovery, students can gain the necessary coping skills and accountability to be successful in their higher education and careers. With stress levels at an all-time high (87% at the investigators’ institution) the need for stress management, coping skills, and resiliency training cannot be overstated.<sup>22</sup> Effective and transparent communication can lessen the amount of stress and burnout experienced by both students and clinicians. An organization and its leaders/educators should provide students with strategies to manage stress; there is a sense of shared responsibility for the individual’s well-being.<sup>23</sup> Miller et al found “poor leadership was the most common driver of burnout” within their study of resilience and burnout resources in respiratory care departments.<sup>5</sup>

### **Delimitations and Assumptions**

This study was delimited to individuals enrolled in an online B.S. DA program in respiratory care at a 4-year public doctoral university in the state of Idaho. To be included in the study, participants had to be enrolled in the DA program during the fall semester of 2020. Due to the online nature of the program, participants were not necessarily located in close proximity to the institution. A university email address was required in order to solicit and collect responses from participants. Data was collected between October 30, 2020 and January 1, 2021 to capture those pursuing an advanced degree while also practicing as a respiratory therapist during the COVID-19 pandemic. It was assumed that all participants could read and understand the items on the survey given that the operational definitions of burnout and resiliency were provided. It is also assumed that participants responded honestly and accurately. The online survey platform limited responses to one from the same email address and only sent reminders to those who had not completed the survey. The somewhat personal nature of the inquiries regarding burnout may have influenced the response rate as well as the time constraints of working professionals who have numerous responsibilities including pursuing an advanced degree.

### **Research Questions**

The following questions guided this study:

1. What is the extent of burnout in online degree advancement respiratory care students during a pandemic, and are there differences among different student populations?
2. Is there a relationship between age, years of experience, number of hours worked per week, or number of DA courses completed and risk of burnout?
3. What is the degree of resilience of online degree advancement Respiratory Care students during a pandemic and is there a relationship between extent of burnout (on the three subscales of EE, DP, & PA) and degree of resilience?

### **METHODS**

The design of the study was quantitative; non-experimental, descriptive, survey research. It was cross-sectional in that responses were collected in a designated time frame of nine weeks. A between group comparison was also used to identify differences between varying student demographic characteristics. A survey was developed after a thorough review of the literature and examination of available instruments that measured the constructs of burnout and resilience. The survey was placed in an electronic format using the Qualtrics ® platform and disseminated to students enrolled in the DA program.

### **Data Collection**

Prior to any data collection, the study protocol was submitted to the investigators’ Office of Research Compliance and was granted Institutional Review Board (IRB) approval on October 16, 2020. The electronic questionnaire was sent to a repository of university student email addresses that were known to be enrolled in the online DA program (RRT to B.S.) in respiratory care. An email

invitation to participate in the study was sent on October 30, 2020, which included the informed consent document, link to the survey, and contact information for the primary investigators. Responses were accepted until January 1, 2021. No survey data were viewed until after final grades for the Fall semester had been calculated and submitted.

### Survey Instrument

The electronic survey consisted of various demographic questions and available instruments that measured the constructs of burnout and resilience. The first question confirmed the student's age (> 18 y/o) and enrollment in the online DA program, which then allowed access to the remainder of the questionnaire. There were 11 questions pertaining to demographic characteristics of the participants. Effort was made to compose these questions as inclusive as possible to capture the perceptions of often marginalized groups. Next, an operational definition for burnout was provided as well as directions for how to respond to the following 22 questions regarding job-related feelings.<sup>4</sup> The Maslach Burnout Inventory: Human Services Survey for Medical Professionals (MBI-HSS:MP) was used to assess burnout. Approval for the remote online use of the MBI for Medical Personnel was granted on September 16, 2020 (100 copies) and November 30, 2020 (50 additional copies) by MindGarden®. Due to copyright restrictions, sample items from the MBI cannot be used in publication. Support for the purchase of this instrument was provided through the receipt of an eCampus Faculty Research Fellowship.

Resilience was then defined by the U.S. Department of Health and Human Services followed by six questions within the Brief Resilience Scale (BRS). These questions used a five-point Likert scale that indicated level of agreement to the statement prompts. Access to this instrument was free but credit to the authors is given.<sup>24</sup> Finally, participants could include their email address if they wanted to be contacted about future follow-up interviews regarding burnout and if they wanted to be entered into a drawing for a \$50 gift card. This was an incentive to show appreciation for the time required to provide thoughtful responses. Participants had the option to skip questions if necessary. Validity (coefficient alpha) and reliability (test-retest) of the instruments had been determined in prior research.

### Participants

Study participants were students who were enrolled in the online DA program (RRT to B.S.) in respiratory care during a worldwide pandemic (Oct-Dec, 2020). Participants were included in the study if they were over the age of 18 and volunteered to complete the electronic questionnaire. Four hundred and sixty-one (461) online students were sent the solicitation email with the link to the survey. One hundred and twenty-nine (129) students completed components of the survey (questions could be skipped and some accepted more than one response, therefore individual question response rates varied) for a response rate of approximately 28%. Given the strains placed on the study population (working on the frontlines of a pandemic and pursuing an advanced degree) this response rate was somewhat expected. Due to the sensitive nature of the study, information regarding how to contact a counselor at University Health Services was provided and encouraged if needed. Participation was voluntary.

### Data Analysis

Descriptive statistical analyses (e.g., frequency, means and SDs) were conducted for all study variables. One-Way ANOVAs (with normality and homogeneity of variance tests for ANOVA assumptions were conducted prior) were run to compare the differences in burnout subscale total scores (EE, DP and PA) and BRS scores across different groups. Pearson correlation analyses were conducted to determine if there was a relationship between extent of burnout on the three subscales of EE, DP, & PA and degree of resilience. Significance levels were set at 0.05 and SPSS 27 was used for all data analysis.

## RESULTS

Ninety two percent (92.9%; n= 117) of participants had not served in the military. 69.8% (n= 88) of participants identified as female. 62.7% (n= 79) were White or Caucasian, 16.7% (n= 21) Hispanic or Latinx, 11.9% (n= 15) Asian or Pacific Islander, and 3.2% (n= 4) were Black or African American. 64% (n= 80) were 26-40 years of age. 55% (n= 69) of respondents were married and the majority of respondents live in the West (AK, CA, CO, HI, ID, MT, NV, OR, UT, WA, WY) n= 59.

The bulk of respondents had 6-10 years of experience (37%, n= 47), followed by 0-5 years of experience (35%, n= 45) as a respiratory care practitioner (RCP). Most participants worked in the adult acute care practice area (n= 91) or the neonatal/pediatric acute care area (n= 15). The majority of respondents reported working 35- 48 hours per week (82.5%, n= 104), followed by 49+ hours per week (9.5%, n= 12). Most respondents had completed 9-10 courses (n= 63), then 1-2 courses (n= 28), 5-6 courses (n= 22). 93% of participants (n= 117) had provided direct care for patients with COVID-19. See Table 1: Sample Characteristics.

**Table 1:** Sample Characteristics

Variables	n	%
<b>Military</b>		
Served in military	9	7.1%
Not served in military	117	92.9%
<b>Gender</b>		
Male	38	30.2%
Female	88	69.8%
<b>Ethnicity</b>		
White or Caucasian	79	62.7%
Hispanic or Latinx	21	16.7%
Asian or Pacific Islander	15	11.9%
Black of African American	4	3.2%
Other	7	5.5%
<b>Age Group</b>		
18-25 years of age	9	7.2%
26-40 years of age	80	64%
41-55 years of age	31	24.8%
56-70 years of age	5	4%
<b>Marital Status</b>		
Married	69	55.2%
Not married	55	44%
Prefer not to respond	1	0.8%
<b>Region</b>		
Live in the West	59	46.8%
Live in the Southeast	30	23.8%
Live in the Northeast	24	19%
Live in the Midwest	11	8.7%
Live in the Southwest	2	1.6%
<b>Years of Experience*</b>		
0-5 years	45	35.7%
6-10 years	47	37.3%
11-15 years	17	13.5%
16-20 years	8	6.3%
21-25 years	3	2.4%
26-30 years	5	4%
Over 30 years	1	0.8%
<b>Primary Practice Area</b>		
Adult acute care	91	72.2%
Neonatal/pediatric acute care	15	11.9%
Other areas (education, transport, management, CP rehab, diagnostics, sleep, long term care, industry, traveling therapist, other area)	20	15.9%
<b>Work Hours Per Week*</b>		
8-20 hours	2	1.6%
21-34 hours	8	6.3%
35-48 hours	104	82.5%
49+ hours	12	9.5%
<b>Number of Courses Completed in DAP*</b>		
1-2 courses	28	22.2%
3-4 courses	13	10.3%
5-6 courses	22	17.5%



7-8 courses	28	22.2%
9-10 courses	35	27.8%
Providing Direct Care for Patients with COVID-19		
Had provided direct care	117	92.9%
Had not provided direct care	9	7.1%

### Research Question 1

One hundred and twenty-three participants responded to each of the 22 items pertaining to burnout on the MBI-HSS (MP). There is not a general consensus on what the appropriate cut off values for each subscale of the MBI-HSS (MP) should be. According to commonly used cut-off scores identified by Doulougeri et al through a systematic review, the current study observed that the overall total score for each MBI-HSS (MP) scale from the online DA respiratory care students during a pandemic fall into the moderate EE, low DP, and high PA.<sup>25</sup> The overall total score for each subscale on the MBI-HSS (MP) is listed in the Table 2 below.

**Table 2:** Subscale Findings on the MBI-HSS (MP)

Subscale	Overall Total Score (Mean $\pm$ SD)	Burnout Category
Emotional Exhaustion	21.31 $\pm$ 11.72	Moderate EE
Depersonalization	6.26 $\pm$ 5.74	Low DP
Personal Accomplishment	38.01 $\pm$ 6.57	High PA

A one-way ANOVA analysis, where assumptions for ANOVA were met with  $p > 0.05$  for each group in Shapiro-Wilk normality test and  $p = 0.67$  for the homogeneity of variance test, revealed that online DA respiratory care students who cared for COVID-19 patients reported significantly higher EE subscale total score than those who did not provide care for COVID-19 patients during the pandemic  $F(1, 122) = 4.36, p = 0.039$ . No MBI-HSS (MP) subscale total score differences were observed between demographic groups such as military, gender, ethnicity, marriage status, and region. However, significance between those who practice in adult acute care ( $7.03 \pm 5.99$ ) and those who practice in other areas ( $4.25 \pm 4.30$ ) was found in the DP subscale ( $p = 0.048$ ).

### Research Question 2

Significant age group difference in depersonalization (DP) was observed between 18-40 yrs. old and 40+ yrs. old participants,  $F(1, 122) = 4.34, p = 0.039$ . 18-40 years old participants had significantly higher DP scores ( $M = 6.89, SD = 5.96$ ) than those of 41+ years old ( $M = 4.56, SD = 4.79$ ) indicating a significant relationship between age group and risk of burnout. There were no group differences in years of experience, number of hours worked per week, or number of DA courses completed.

### Research Question 3

One hundred and twenty-four ( $n = 124$ ) participants responded to the 6 questions on the Brief Resilience Scale (BRS). Response options were 1) strongly disagree, 2) disagree, 3) neutral, 4) agree, and 5) strongly agree. Questions 2, 4, and 6 had a negative connotation, while questions 1, 3, and 5 had a positive. Table 3 lists each statement along with the cumulative percent of "strongly agree" and "agree" responses for questions 1, 3, and 5 and "strongly disagree" and "disagree" responses for questions 2, 4, and 6. The mean score of the BRS ( $3.77 \pm 0.72$ ) was also calculated (questions 2, 4, and 6 were reversely scored when calculating the mean), which corresponds to a normal range of resilience.

Using the Pearson Correlation Coefficient, significant relationships between extent of burnout (on the three subscales of EE, DP, and PA) and degree of resilience were observed in online DA Respiratory Care students during a pandemic, where EE and BRS scores ( $r = -0.28, p = 0.002$ ), DP and BRS scores ( $r = -0.19, p = 0.04$ ) were negatively correlated and PA and BRS scores ( $r = 0.34, p < 0.001$ ) was positively correlated.

**Table 3:** Responses and percentages for Brief Resilience Scale Survey Items

Survey Statement	Responses	Percent
1. I tend to bounce back quickly after hard times.	Strongly Agree (5) and Agree (4)	83.3%
2. I have a hard time making it through stressful events.	Strongly Disagree (1) and Disagree (2)	75.4%
3. It does not take me long to recover from a stressful event.	Strongly Agree (5) and Agree (4)	60.30%
4. It is hard for me to snap back when something bad happens.	Strongly Disagree (1) and Disagree (2)	61.10%
5. I usually come through difficult times with little trouble.	Strongly Agree (5) and Agree (4)	69.80%
6. I tend to take a long time to get over set-backs in my life.	Strongly Disagree (1) and Disagree (2)	63.50%

## DISCUSSION

The majority of respondents in this study were female, Caucasian, aged 26-40 years, married, from the Western portion of the U.S., with 6-10 years of experience as an RT, working in the adult acute care setting 35-48 hours per week, taking care of patients with COVID-19 and have nearly completed the online RRT to B.S. online DA program at the institution. Significant findings include a somewhat higher level of depersonalization for those who practice in adult acute care ( $p = 0.054$ ). Emotional exhaustion was also found to be higher in those who reported working directly with COVID-19 patients ( $p = 0.039$ ) though sample size may have influenced these results (93% v. 7%). Depersonalization was also found to be higher ( $p = 0.039$ ) in the younger aged professional (18-40 years) when compared to a slightly older age group (41 years +). Resilience was found to have a negative correlation with both emotional exhaustion and depersonalization and a positive correlation with personal accomplishment.

The demographic characteristics of respondents differ somewhat from the entire profession of respiratory care, especially in regard to location, though California does have the highest number of employed RTs<sup>3</sup> The majority of participants indicated they had five to ten years of experience in the field, which may be important to recruitment efforts for DA programs. This time period likely allows for socialization into the profession and personal life accomplishments such as getting married and starting a family, prior to thinking about returning to school. Though levels of depersonalization for participants was low overall, younger aged therapists had significantly higher levels of DP, as did those who worked in the adult acute care setting. Mentally distancing oneself from the job has been found in younger professionals since the inception of the MBI and may be a protective measure.<sup>14</sup>

Emotional exhaustion was found to be significantly higher for those who care for COVID-19 patients which could be a result of the frequency and extent of distress experienced in taking care of the sickest of patients. Level of EE for all respondents was found to be moderate, meaning participants can be classified as being overextended on the new burnout spectrum.<sup>26</sup> Being overextended has been linked to an increased workload and insufficient time to recover. The investigators cannot ignore that the addition of pursuing an advanced degree could be lending to the energy depletion of respondents, especially because EE tends to increase with higher education.<sup>19</sup> Participants in this study were found to have a normal level of resilience, which correlated to low levels of burnout. Higher levels of resilience had a negative correlation with emotional exhaustion, therefore is an indication for greater resilience building techniques in this population.

## Limitations

Limitations of the study included representation from only one online DA program/institution and the potential for inaccurate self-reporting on the survey instrument. Given the relatively low response rate, the findings cannot be generalized to the entire population of DA students. It is possible that students who did not participate in the study actually have higher levels of burnout and therefore, less energy, time, and/or desire to take part. The decision to use the MBI for medical personnel as opposed to the MBI for students may not have captured true levels of burnout or the reason for it (school versus work). Respondents were not widely diverse, so findings may not be applicable to certain populations of RTs.

### Implications and Recommendations

Due to the differences in depersonalization in younger aged professionals, training and education on emotional intelligence could be targeted at newer therapists in an effort to prevent and/or combat this component of burnout. Being overextended and emotionally exhausted as a result of working with COVID-19 patients in the adult acute care setting may be an indication for efforts focused on attempting to reduce workload and allowing for active recovery from the stress. One recommendation may be to rotate therapists out of COVID-19 units on a regular basis as staffing allows. The authors recognize the lack of adequate staffing in many areas which ultimately affects workload, but as Dr. Nisha Mehta stated at AARC Congress 2020, "our providers are not insufficient, we need things taken off our plate."<sup>27</sup> Additionally, mindfulness-based stress reduction techniques could be implemented and encouraged both personally and professionally. For instance, self-care, exercise and adequate time off could help decrease emotional exhaustion. Offering counseling and debriefing at various times throughout the provider's shift may also help with recovery and resilience. Future studies could focus on the lived experience of burnout in RTs using a fully qualitative approach and how the cost of caring may influence the intention to leave the profession of respiratory care.

### CONCLUSIONS

Though the majority of entry into practice RTs earn an associate degree, the number who have earned a bachelor's degree or higher has increased from 40.5% to 43.2% between 2014 and 2017.<sup>9</sup> With this growing desire for an advanced degree, faculty and higher education institutions should strive to better understand the strengths (resiliency) and struggles (burnout) of our students. Consequently, these efforts can help programs and administrators engage, support, and retain high quality students. Our students indicate a desire for greater preparedness for their chosen profession and genuinely enjoy learning new things that can be directly applied to their practice. Efforts to lessen burnout and enhance resiliency in degree advancement student respiratory care practitioners (RCPs) should be focused on the emotional exhaustion and depersonalization components of the phenomena. This could be accomplished through training and education on emotional intelligence, mindfulness-based stress reduction, workload decline, and adequate time for recovery.

### REFERENCES

- 1 Find an accredited program. *Commission on Accreditation for Respiratory Care*, 2020, <https://www.coarc.com/Students/Find-an-Accredited-Program.aspx>
- 2 Programmatic outcomes data from 2019 CoARC annual report of current status. *Commission on Accreditation for Respiratory Care*, 2019, <https://www.coarc.com/Students/Programmatic-Outcome-Data.aspx>
- 3 Occupational outlook handbook: Respiratory therapists. *U.S. Bureau of Labor Statistics*, 2020, <https://www.bls.gov/ooh/healthcare/respiratory-therapists.htm>
- 4 Burn-out an occupational phenomenon: International classification of diseases. *World Health Organization*, 2019, [https://www.who.int/mental\\_health/evidence/burn-out/en/](https://www.who.int/mental_health/evidence/burn-out/en/)
- 5 Miller AG, Roberts KJ, Hinkson CR, Davis G, Strickland SL, Rehder KJ. Resilience and burnout resources in Respiratory Care departments. *Respir. Care*, 2020; 65(12).
- 6 dos Santos WG. Natural history of COVID-19 and current knowledge on treatment therapeutic options. *Biomed. Pharmacol. J.*, 2020;129:1-19.
- 7 Symptoms of coronavirus. Centers for Disease Control and Prevention, 2020, <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>
- 8 COVID Data Tracker. *Centers for Disease Control and Prevention*, 2021, <https://covid.cdc.gov/covid-data-tracker/#datatracker-home>
- 9 Why the AARC issued the bachelor's degree goal. *American Association for Respiratory Care*, 2018b, <https://www.aarc.org/careers/career-advice/professional-development/cn18-why-aarc-issued-bachelors-goal/>
- 10 Degree advancement standards. *Commission on Accreditation for Respiratory Care*, 2018, <https://www.coarc.com/Accreditation/Degree-Advancement-Standards.aspx>
- 11 Helton PR, Gresham-Anderson JL, Case RD, Judie EL. Career intentions of degree advancing Respiratory Therapists: A mixed-methods study. *Respiratory Care Education Annual*, 2020;29:13-23.
- 12 Why should I advance my degree? *American Association for Respiratory Care*, n.d., [https://www.aarc.org/careers/respiratory\\_therapy\\_degree\\_advancement/#collapse3](https://www.aarc.org/careers/respiratory_therapy_degree_advancement/#collapse3)
- 13 Djukic M, Stimpfel AW, Kovner C. Bachelor's degree nurse graduates report better quality and safety educational preparedness than associate degree graduates. *Jt Comm J Qual Patient Saf.* 2019;45(3):180-186.
- 14 Maslach C, Jackson SE. The measurement of experienced burnout. *J. Organ. Behav.* 1981; 2:99-113.

- 15 Johnson-Cole L, Opgenorth D, Bellows M, Dhaliwal J, Richardson-Carr S, Bagshaw SM Moral distress and burnout among cardiovascular surgery intensive care unit healthcare professionals: A prospective cross-sectional survey. *Can J Crit Care Nur*, 2016;27(4): 27-36.
- 16 Stoffel JM, Cain J. Review of grit and resilience literature with health professions education. *Am. J. Pharm. Educ.*, 2018;82(2):124-133.
- 17 Guntupalli KK, Wachtel S, Mallampalli A, Surani S. Burnout in the intensive care unit professionals. *Indian J. Crit. Care Med.*, 2014;18(3).
- 18 Kosan Z, Calikoglu EO, Guraksin A. Levels of burnout and their associated factors among physicians working in Northeast Anatolia. *Nig. J. Clin. Prac.*, 2018; 21(7): 875-881.
- 19 Von Harscher H, Desmarais N, Dollinger R, Grossman S, Aldana S. The impact of empathy on burnout in medical students: New findings. *Psychol Health Med*, 2018;23(3):295-303.
- 20 Moreno-Fernandez J, Ochoa JJ, Lopez-Aliaga I, Alferes AMJ, Gomez-Guzman M, Lopez-Ortega S, Diaz-Castro J. Lockdown, emotional intelligence, academic engagement and burnout in pharmacy students during the quarantine. *Pharmacy*, 2020;8(4).
- 21 Kim B, Jee S, Lee J, An S, Lee SM. Relationships between social support and student burnout: A meta-analytic approach. *Stress Health*, 2017;34:127-134.
- 22 Boise State University Well-Being During Covid-19 Survey. BroncoFit COVID-19 Survey Overview.pdf .*The Office of BroncoFit, Health Services*, 2020.
- 23 Chesak SS, Perlman AI, Gill PR, Bhagra A. Strategies for resiliency of medical staff during COVID-19. *Mayo Clin. Proc.*, 2020;95(95):S56-S59.
- 24 Smith B W, Dalen J, Wiggins K, Tooley E, Christopher P, Bernard J. The brief resilience scale: Assessing the ability to bounce back. *Int. J. Behav. Med.*, 2008;15:194-200.
- 25 Doulougeri K, Georganta K, Montgomery A. Diagnosing burnout among healthcare professionals: Can we find consensus? *Cogent Med*, 2016;3(1).
- 26 Leiter MP, Maslach C. Latent burnout profiles: A new approach to understanding the burnout experience. *Bur. Res.*, 2016;3:89-100.
- 27 Mehta N. Opening keynote 2020: Chaos, crisis, and the path forward. *American Association for Respiratory Care International Congress Live*, 2020.