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60 Background: Physical Medicine and Rehabilitation (PM&R) physicians are among those most affected by 61 burnout. Following the 2017 Revision of ACGME (Accreditation Council for Graduate Medical Education) 62 Requirements, programs and institutions were encouraged to emphasize physician well-being and 63 recognition and strategies to mitigate burnout. As an at-risk specialty, we desired to develop and 64 implement a facilitated resilience curriculum for Resident Physicians (RPs). 65 Methods: We performed a clinical audit to develop and implement a resilience curriculum (RC) during the 66 2018-2019 academic year at a tertiary accredited acute care rehabilitation facility. The leader of each 67 workshop previously underwent formal resilience training in integrative health coaching and 68 organizational leadership. In part with all RP's, a four-part workshop series was conducted using four 69 guiding questions: (1) "Who am I and who are we?", (2) "What contributes to resilience?", (3) "What 70 challenges our resilience?", and (4) "How can we combat challenges to resilience?". We report PM&R RP 71 responses to an End of Curriculum Assessment (ECA). 72 Results: Key ECA themes highlighted that RPs were highly engaged in the process, all reported the RC 73 was helpful, and strategies learned in times of stress were firmly adopted. By the end of the academic 74 year, 93.3% RPs reported that they used strategies learned from the curriculum in times of stress during 75 the academic year. Of these, 85.7% RPs reported using these strategies multiple times a month), (4) 76 endorsed increased comfort discussing personal struggles with peers and more control over work 77 schedules. 100% of RPS were able to make and sustain new positive lifestyle changes throughout the 78 academic year. 79 Conclusions: Our pilot resilience curriculum provides preliminary data in support of a curriculum to 80 address PM&R RPs burnout in the workplace and can be used to meet ACGME residency program 81 requirements. 82 Key Words: Resiliency; Education; Curriculum; Burnout; Physiatrist 83

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ABSTRACT.

INTRODUCTION

Burnout has been defined as a syndrome of emotional exhaustion, depersonalization, and reduced sense of personal accomplishment.¹ Burnout rates vary by medical specialty among United States (U.S.) physicians. Physiatrists reported significant burnout,² as confirmed by subsequent physical medicine and rehabilitation (PM&R) studies.³⁻⁶ Accreditation Council for Graduate Medical Education (ACGME) sought to address this issue for RPs, among whom burnout rates have been reported as high as 63%,⁷ by instituting work hour limitations and ongoing revisions to the Common Program Requirements, including the addition of a well-being commitment.

A key challenge to addressing burnout among PM&R RPs is that examples in this population are sparse. Kao and colleagues found physiatry RPs and fellow burnout rates range from 22.2%-83.3%.8 Bean and colleagues report that the combination of lack of adequate time for personal life and greater than 50-hour work weeks correlated with RPs burnout.9 Scholars suggest the following interventions for PM&R RPs burnout ought to include mental health services, mindfulness classes, planned social activities, and mentorship programs.¹⁰ Aggarwal and colleagues administered a 12-week peer-led wellness curriculum to a mixed sample of five RP programs, including 21 physiatry RPs; however, results of the intervention on physiatry RPs were not discussed.¹¹

Due to the paucity of literature, we piloted a novel resilience curriculum (RC) and obtained preliminary usability data from PM&R RPs. We focused our pilot efforts on the depersonalizing effects of burnout and developed our RC to guide RPs on a path to self-discovery. The curriculum was designed to fulfill the ACGME's program requirement to prevent and minimize RP burnout. The coursework was also meant to be an independent curriculum that could be incorporated into an existing resilience series.

METHODS

107 Design

Exempt status was obtained from the institutional review board. RP participation was voluntary. We performed a clinical audit of our existing curriculum which was found to lack resiliency training. Based on the 2017 ACGME burnout reduction standards, our department developed a set of competency-based educational objectives. "Resilience Series" was added to the recurring agenda of monthly Program Evaluation meetings to discuss and promote the RC with departmental leadership. The focus of the RC was on the depersonalizing effects burnout can have on individuals and how to guide RPs on a path to self-discovery.

Participants and procedures

Our pilot RC was initiated during the 2018-2019 academic year. RPs attended four 60-minute workshops July 2018 to March 2019, facilitated by our resident wellness advocate and lead faculty physician, with formal resilience training in integrative health coaching and organizational leadership. There were no prerequisites for learners to begin the curriculum and all 15 RPs were invited to each workshop. The variables we aimed to address are the described below for each workshop and the End of Curriculum Assessment (ECA) is how we measured those variables. Further details regarding characteristics of the workshop, see Supplemental Content #1.12 For the complete timeline of events, see **Figure 1.**

Workshop intervention

Workshop 1 "Who am I and who are we?" aimed to change the culture of self-doubt and criticism often found in medicine by identifying and fostering individual and group strengths. The theme was selected to create a unified residency vision and mission statement, as Silver and Bhatnagar proposed that physiatrists may be able to utilize mission statements for combating burnout.¹³ RPs suggestions and common recurring themes from the team building exercise were used to create unified vision and mission statements. The statements were displayed in the RPs workroom at the discretion of each RP throughout the academic year to serve as a source of inspiration during times of stress.

The Gallup Clifton Strengths Assessment was purchased by the residency program and completed by all RPs prior to the workshop start.¹⁴ Alternative assessments such as Myers-Briggs Type Indicator or the Kolbe Index were also available.^{15,16} For each RP, the assessment produced a list of top five strengths, which were further divided into four domains (executing, influencing, relationship building, strategic thinking). The results of this workshop were discussed with each RP during mid-year evaluations and were utilized by during the academic year to better understand and assist RPs in times of stress.

Workshop 2 "What contributes to resilience?" aimed to educate RPs on the modifiable dimensions of well-being, such as vitality, emotion, relationship, purpose, and growth, noting how each dimension could be modified to meet individuals' wants and needs. Differences in common terms used to describe one's health and how to assess personal health states through reflection and self-discovery were discussed.

Workshop 3 "What challenges our resilience?" aimed to address the most voiced RPs struggles at that time. Prior to the session, an email was sent to RPs asking for suggested topics for which "Giving and receiving constructive feedback" was selected from their responses. A presentation was given to discuss various feedback models and the importance of facilitating in-person bi-directional feedback. Attendees consisted of RPs and attendings, who were divided into groups of three, consisting of a feedback giver, receiver, and observer. Groups were given a fictional scenario and instructed to facilitate proper bi-

directional feedback based on tools gained from a sample exercise, such as "feedback sandwich" (positive feedback given before and after negative verbal feedback). The workshop concluded with a debrief and strategizing discussion. To continue healthy feedback interactions between RPs and attending physicians, this workshop was also utilized to improve existing rotational RP observation assessments, competency assessments, and end-of-rotation evaluation forms.

Workshop 4 "How can we combat other challenges to resilience?" aimed to discuss current RPs struggles and revisit coping strategies in times of stress. All fifteen RPs, five from each post graduate year (PGY), were asked to contemplate how they manage burnout and stay resilient before the session. Current RPs struggles were discussed in small group settings. Next, the group suggested coping strategies that may be useful for each real-world situation. We revisited personal and group strengths, modifying dimensions of well-being, and connecting to sources of power such as peers, friends, and family.

<u>Outcomes</u>

We retrospectively monitored curriculum usability with a face-validated posttest designed ECA with multiple-choice and open-ended questions (Supplemental Content #2). Each workshop had a 1-minute free-text evaluation to provide any feedback to help with future workshops and assessments. This anonymous data was collected and reviewed by the lead faculty advisor and the residency program director. Subjective analysis of the RC for the following academic year was performed to justify future expansion of more sessions. Of the 15 ECAs collected, the percentages of each chosen answer choice per question were calculated to subjectively review. To ensure accuracy of data collection, RPs were informed their responses were anonymous and would have no impact on ACGME evaluations.

RESULTS

Results of the ECA are provided in **Table 1**. 73.3% of RPs reported experiencing one or more major life stressors during the academic year. 80% of RPs reported feeling loss of meaning/purpose at one or more points during the previous academic year, and 33.3% reported feeling this less frequently at the end of the year. 100% of RPs reported that the curriculum was helpful. By the end of the academic year, 93.3% RPs reported that they used strategies learned from the curriculum in times of stress. Of these, 85.7% RPs reported using these strategies multiple times a month and 14.3% RPs reported using the strategies once a month or less. 33.3% RPs reported feeling more comfortable discussing personal struggles with peers and 26.6% felt more connected to their peers in general. 60% of RPs felt a greater sense of control over their work schedules. 40% of RPs felt more open to discussions regarding wellness. 100% of RPs were able to make and sustain new positive lifestyle changes throughout the year. These included being more physically active, engaging in regular meditation, expanding and/or further strengthening their

support systems, focusing less on obtaining perfection, getting out of their comfort zone more often, and re-establishing priorities. Additional subjective feedback received from RPs included "the desire for more frequent sessions", "unstructured discussion time", "a focus on systemic issues", and "more faculty involvement in these workshops". Regarding the ECA, all RPs reported the RC was helpful. RPs endorsed increased comfort discussing personal struggles with peers and more control over work schedules. We observed an increased ability to successfully make and sustain positive lifestyle changes and a decreased personal sense of loss of meaning.

DISCUSSION

We aimed to pilot a RC for PM&R RPs and obtain preliminary usability data. Results are in Table 1. All RPs reported the program was helpful and reported making positive changes to their lifestyle. The curriculum describes strategies that residency programs can immediately implement to address key organizational drivers of burnout; and RPs were highly engaged in the process as demonstrated by attendance at workshops. All sessions were attended by 12-15 RPs. Most RPs (80%) experienced loss of meaning/purpose during the previous year. At RC series completion, 29% of RPs expressed greater connection to their peers. Feeling isolated and loss contribute to stress and burnout; future programs need to consider ways of decreasing isolation, perhaps by increasing activities which promote a greater social connectedness among RPs. More research is necessary before it can be concluded that the number of people attending workshops contributed to an effect.¹⁷

We observed an effect on department leadership. Leadership embraced the RC as a platform to promote connection and meaning in the workplace. Our department chairman shared RPs mission and vision statement with hospital administrators and system wide GME leadership. Attendings and RPs noted increased camaraderie, focus on self-care, and change in supportive dialogue since curriculum implementation.

It should be noted that our RC was designed to support all RPs beginning in 2018. Shortly before, there were revisions that were made to the Common Program Requirements (Section VI.C Well-Being)¹⁸ in 2017. A 2020 Cochrane Systematic Review suggests very-low certainty evidence supporting the effectiveness of resilience training on resilience, anxiety, and stress or stress perception in healthcare students.¹⁹ A recent meta-analytic review found interventions to improve teamwork, communication, and stress management have small but positive effects on burnout; ²⁰ however, no intervention studies on RC have included PM&R RPs, highlighting the need for more research. Our institution is committed to providing a community that promotes well-being.²¹ For the 2025-2026 academic year, the Liaison Committee on Medical Education does not mandate resiliency or a well-being curriculum.²²

Key limitations of this pilot are that well-being is dynamic and not every dimension can be addressed by our curriculum. We acknowledge that different curriculum interventions resonated at varying strengths

with each RP. We chose RPs to administer the curriculum because they were highly motivated. We recognize the small sample size and, while not all invited residents attended all workshops, there were no dropouts. Future workshops ought to involve attending physicians and other disciplines. A clinical psychologist could also be involved in co-administering future workshop curricula. We surveyed RPs at one academic site, limiting generalizability to academic programs of different sizes, or to other specialties. There is possibility of selection bias. Additionally, the ECA was administered at the end of the year; including pre-assessment data would allow for more robust analysis. This clinical audit did not include hypothesis testing because the purpose was to generate preliminary data for a larger study. Descriptive statistics are provided in Table 1 to gain insight into the RC to improve burnout in the PM&R context. We were not powered to conduct hypothesis testing. RPs responses may have been affected by social desirability bias as well as confounding factors including program, organization, institutional factors, or resident factors. Validated burnout scales should be employed during pre and post assessments. Multiple factors influence RPs burnout including time of year, rotation demand, work hours, control over schedule, transitional life changes, differences between PGY years, and specific stressors including increased leadership roles and navigating future career opportunities. It is plausible this curriculum could be beneficial for categorical PM&R programs as well; however, more research is warranted. A strength is that our curriculum is actively in use today.

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CONCLUSIONS

- Our findings support the notion that a PM&R RC to address to address burnout in the workplace is
- feasible with RPs. This pilot supports further development of the RC to decrease burnout in PM&R RPs.
- 238 If effective, this curriculum could provide an option for RPs nationally.

SUMMARY - ACCELERATING TRANSLATION

- 240 **Title:** The Resilient Resident: A Pilot Resiliency Curriculum on Physical Medicine and Rehabilitation
- 241 Resident Burnout

Main Problem

- 243 Burnout among resident physicians (RPs) is a significant issue, characterized by emotional exhaustion,
- depersonalization, and a diminished sense of personal accomplishment. In the U.S., burnout rates vary
- by specialty, and physiatry has shown notably high levels of burnout. The Accreditation Council for
- 246 Graduate Medical Education (ACGME) has responded with regulations such as work hour limits and a
- focus on well-being.

Aim of Study

249 To address this, the Carolinas Department of Physical Medicine and Rehabilitation (PM&R) piloted a 250 resilience curriculum aimed at reducing burnout among their residents. This curriculum was designed to 251 meet ACGME requirements and was created based on literature and departmental needs, focusing on 252 the negative impacts of burnout and guiding residents toward self-discovery. 253 Methodology 254 Four workshops were held throughout the 2018-2019 academic year at a tertiary accredited acute care 255 rehabilitation facility in the Southeast U.S. These were hosted by the resident wellness advocate and lead 256 faculty physician, who had completed formal resilience training and specialized training in leadership. 257 Attendance was voluntary and all residents were encouraged to attend. 258 **Details of the Curriculum:** 259 1. Workshop 1: "Who am I and who are we?" 260 Objective: The workshop goal was to change the culture of self-doubt and criticism often 261 found in medicine by identifying and fostering individual and group strengths. It helped 262 residents identify their personal strengths and those of their peers. 263 Activities: Residents took the Gallup Clifton Strengths Assessment to discover their top 264 strengths. They then used this information to create a unified vision and mission 265 statement for their residency program. This statement was displayed in their work area to 266 inspire and motivate them throughout the year. 267 2. Workshop 2: "What contributes to resilience?" 268 Objective: This workshop focused on educating RPs on the modifiable dimensions of 269 well-being, such as vitality, emotion, relationship, meaning/purpose, and growth, noting 270 how each dimension could be modified to meet individuals' wants and needs. 271 Activities: Residents learned how to reflect on their personal health and make changes 272 to improve their overall well-being. 273 3. Workshop 3: "What challenges our resilience?" 274 Objective: The goal was to address the most voiced RP struggle at that time, which 275 was identified as how to give and receive constructive feedback effectively.

Activities: Residents participated in role-playing exercises where they practiced giving

and receiving feedback in a constructive way. They also discussed how to improve

feedback processes between residents and attending physicians.

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279 4. Workshop 4: "How can we combat other challenges to our resilience?" 280 **Objective**: This workshop aimed to discuss the current RP struggles and revisit 281 coping strategies in times of stress. 282 Activities: Residents shared their personal struggles and brainstormed coping strategies in small groups. They revisited their strengths and discussed how to connect with 283 284 supportive people like peers and family. 285 Results 286 **Assessment:** Preliminary data were collected using a face validated survey at the end of the program. 287 The data from ECU indicates that the curriculum was well-received and effective in promoting positive 288 changes and coping strategies, although there were varying degrees of impact on feelings of connection 289 and openness. 290 **Survey Results:** 291 Below is a summary of the results of the End of Curriculum Assessment for the RPs: 292 **Helpfulness of Curriculum:** All 15 RPs (100%) found the curriculum helpful. 293 • Lifestyle Changes: All 15 RPs (100%) successfully made positive lifestyle changes, such as 294 increasing physical activity, meditating regularly, and strengthening support systems. 295 • Use of Strategies in Stressful Times: 14 RPs (93%) used the strategies learned from the 296 curriculum during stressful periods. 297 Loss of Meaning and Purpose: 12 RP (80%) felt a loss of meaning and purpose during the 298 previous academic year. 299 Frequency of Using Strategies: 12 RPs (80%) used the strategies multiple times a month. 300 Major Life Stressors: 11 RPs (73%) experienced one or more major life stressors during the 301 year. 302 • Control Over Work Schedules: 9 RPs (60%) felt they had greater control over their work 303 schedules by the end of the curriculum. 304 Openness to Wellness Discussions: 6 RPs (40%) felt more open to discussing wellness topics 305 by the end of the curriculum.

- Ongoing Loss of Meaning and Purpose: 5 RPs (36%) still felt a loss of meaning and purpose at the end of the curriculum.
 - **Comfort in Discussing Struggles:** 5 RPs (33%) felt more comfortable discussing personal struggles with peers by the end of the curriculum.
 - Connection with Peers: 4 RPs (29%) felt more connected to their peers by the end of the curriculum.
 - Infrequent Use of Strategies: 2 RPs (13%) used the strategies once a month or less.

These positive preliminary data support the notion that the RC was well-received and promoted positive changes and coping strategies, although there were varying degrees of impact on feelings of connection and openness.

Conclusion

The PM&R RC has shown promise in helping RPs deal with burnout and stress. This pilot could be a useful model to improve physician well-being for other residency programs. Future improvements could involve including more faculty, mental health professionals, and expanding research to see how well the program works in different settings.

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FIGURES AND TABLES.

Figure 1. Timeline of Resiliency Curriculum Design and Implementation



Figure 1. Timeline of Resiliency Curriculum Design and Implementation

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Table 1. Results of the End of Curriculum Assessment Administered to RPs

Resident physicians who	RP Respondents N	%
Felt the curriculum was helpful	15	100
Successfully made positive lifestyle changes**	15	100
At years' end, used strategies learned from the curriculum during stressful times	14	93
Felt loss of meaning and purpose during the previous academic year	12	80
Used strategies multiple times a month	12*	80
Experienced 1 or more major life stressors this academic year	11	73
Felt greater control over work schedules at the end of the curriculum	9	60
Felt more open to discussions regarding wellness at the end of the curriculum	6	40
Felt loss of meaning and purpose at the end of the curriculum	5	36
Felt more comfortable discussing personal struggles with peers at the end of the curriculum	5	33
Felt more connected to peers at the end of the curriculum	4	29
Used strategies once a month or less	2*	13

Table note: %: Percentage of positive respondents / total respondents.

N: number of positive resident physician End of Curriculum Assessment respondents of 15 respondents

^{*:} Of total 14 respondents.

^{**:} Including increasing physical activity, regular meditation, strengthening support systems, focusing on self-acceptance, and re-establishing priorities.