

Effects of a resiliency program on burnout and resiliency in family medicine residents

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Abstract

Research has highlighted the prevalence of burnout in medical residents and the relative rarity of evidence-based structured programs to build resiliency. This was a controlled study of an 8-h program designed to increase resiliency and decrease burnout that focused on personal awareness, improving coping skills, building social connection, and maintaining balance. The project was approved by the institutional review board. Thirty-two family medicine residents signed the consent form. Structured assessment tools were administered to the intervention group at pre-program, immediately post-program and at one- and two-year follow-up. The control group completed the same pre- and post-assessments. Post-intervention comparison of the two groups demonstrated that the intervention group showed significantly lower scores in depersonalization and emotional exhaustion on the Maslach Burnout Inventory immediately after the program. There was no significant difference in the outcomes in year 1 and year 2 follow-up. Residents evaluated the program positively. Resiliency programs can be incorporated into a family medicine residency and participants benefit by lowering indicators of burnout.

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Introduction

Stressors that occur during medical residency predispose residents to an elevated risk for distress and burnout.^{1–6} Burnout is a syndrome that comprises emotional exhaustion, depersonalization, and reduced personal accomplishment.⁷ Burnout affects medical residents' health, ability to advance in their careers, and has a direct effect on patient care and healthcare costs.⁴ Many residents experience burnout, as indicated by prevalence of 41% to 76%.² Aspects of residency that contribute to the development of burnout include strenuous work and time demands, a high degree of work–home conflicts, and limited control.

In response to these concerns, the Accreditation Council for Graduate Medical Education (ACGME) implemented a duty hour restriction. The consequences of the fewer hours of training have not sufficiently addressed the increase in burnout and may have even led to detrimental effects on resident confidence and perceived inadequate education.⁸ More recently, the ACGME recognized the need to not only prevent burnout but to also promote resident well-being, which is more than just the absence of burnout.⁹ Physicians who are in good health mentally and physically and demonstrate resiliency make fewer medical errors and are less likely to drop out of the healthcare workforce prematurely.¹⁰ Building resiliency, defined as having the ability to respond to stressful situations in healthy and adaptive ways, may prevent burnout and moreover support resident well-being, including their quality of life and health behaviors.¹¹

Building resiliency skills and focusing on the factors that allow residents to excel in their present environment are important as work and self-care habits are established during residency years.¹² Interventions aimed at developing resiliency skills, mindfulness, self-awareness, work–life balance and healthy coping are demonstrating positive short-term effects improving well-being and decreasing indicators of burnout, although many questions still need to be answered.^{12,13} Few studies have provided longitudinal results throughout residency. The objective of the study was to test the effects of a resiliency program in family medicine residents in increasing resiliency and mitigating burnout after initial participation in the program and at one- and two-year post-program.

Methods*Participants and data collection*

Two family medicine residency programs were involved in this study including an intervention group with 19 residents and a control group of 13 residents.

The majority of residents were international medical graduates. The project was reviewed and approved by the institutional review board, and all participants gave consent. Family medicine control data were collected at the beginning and end of the 2014–2015 academic year only. The intervention groups completed these assessments prior to participation and at the end of 2015, 2016, and 2017 academic years. Residents were required to attend educational sessions but participation in the research was voluntary.

Outcome variables included burnout (emotional exhaustion, depersonalization, and reduced feelings of personal accomplishment) measured by the Maslach Burnout Inventory (MBI) Human Service Survey,⁷ compassion satisfaction, burnout and secondary traumatic stress measured by the Professional Quality of Life Scale,¹⁴ and resiliency measured by the Connor Davidson Resiliency Scale.¹⁵ Intervention residents completed an evaluation of the program at the end of each year.

Intervention and control group experiences

The family medicine control group watched part of the LIFE curriculum¹⁶ which consisted of modules designed to assess for fatigue, stress and depression, substance abuse, and disruptive behavior. The family medicine intervention groups did not watch these videos and instead participated in interactive, skill-based sessions on similar topic areas. Residents in the intervention group participated in 8 h of programming during their first year over the course of the 2014–2017 academic years. The topics covered included time management, mindfulness, coping skills, and maintaining balance. Each session contained a handout and short didactic presentation led by healthcare professionals. It ended with a skill such as breathing awareness, mindfulness meditation, basic relaxation, imagery, or progressive relaxation. Further details on the curricula are available in a previously published paper.¹⁷ In their second and third years, residents participated in 4 to 6 h of advanced training in similar topic areas.

Statistical analysis

Analysis was conducted using SPSS. Differences on pre-test variables between the control and intervention group were tested using Kruskal–Wallis test. Post-test differences of the groups were compared using Kruskal–Wallis test. One-, and two follow-up differences between variables for the intervention group were evaluated using the paired samples t-test. All tests were two sided. Type I error rates were 0.05. Correlations were calculated on all the outcome measures and the variables of age and gender.

Results

Description of the sample

The sample consisted of 32 family medicine residents; of these, 4 residents did not complete the study: 1 left the residency and 3 participants did not complete pre- and postdata. Eighteen residents in the intervention group and 10 residents in the control group completed the study. Forty-three percent were women ($n = 12$) and 57% were men ($n = 16$). Their average age was 33 years, ranging from 26 to 54 years. There was a significant difference in age between the intervention and control groups ($p = .024$). The intervention group (mean = 35; range = 27–54) was significantly older than the control group (mean = 30; range = 26–41). There were no other significant differences between the groups on the demographic variables. Seventeen residents completed their second year in the program, but three did not complete end of year assessments, leaving 14 for analysis. Eight residents completed the third year in the program, and data were available for all eight of these residents.

Pre-test results

A nonparametric Kruskal–Wallis test was conducted to determine any differences between the intervention and control groups on any of the outcomes before the intervention. There were no differences.

Immediate post-program results

A Kruskal–Wallis test was conducted to determine any difference between the intervention and control group on any of the outcomes after the intervention (See Table 1). Intervention participants scored significantly lower than the control group on two subscales of the Maslach Burnout Scale on post-program results: emotional exhaustion and depersonalization. There were no other significant differences on any of the other scales despite the means indicating improvement in the intervention group.

One-year and two-year post-program analysis

A paired samples t-test was conducted to evaluate any change in burnout, resiliency skills, and professional quality of life from immediately after the program to one, two, and three years after the program in the intervention group (Table 2). There was a significant difference in depersonalization from before intervention to postprogram. Analysis failed to identify significant differences in any of the outcomes for the intervention group at one and two years later, compared to immediately post-program.

Table 1. Post-test results intervention versus control groups.

	Control		Intervention	
	Mean	SD	Mean	SD
Maslach				
EE	21.4*	12.6	13.5*	9.6
DP	7.0*	4.1	3.4*	3.1
PA	33.20	9.0	35.67	7.7
Resilience	72.75	22.3	79.06	10.72
PQOL				
BO	21.8	7.44	19.44	5.28
STS	24.60	4.97	21.61	5.18
CS	39.20	8.56	41.06	5.80

n = 28 (10: control and 18 = intervention). EE: emotional exhaustion; DP: depersonalization; PA: personal accomplishment; BO: burnout; STS: secondary traumatic stress; CS: compassion satisfaction; PQOL: Professional Quality of Life Scale. For scales EE, DP, BO, and STS a lower score indicates less symptoms of burnout. For scales, PA, Resilience, and CS, a higher score indicates higher prevalence of personal accomplishment, resilience, and compassion satisfaction.

*p<.05

Table 2. Means and standard deviations on outcome variables for intervention group longitudinally.

	Time 1: Before intervention		Time 2: Post-program		Time 3: 1-Year follow-up (post 2)		Time 4: 2 Year follow-up (post 3)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Maslach								
EE	13.9	9.1	13.5	9.5	15.4	9.9	17.5	11
DP	5.2*	4.1*	3.4*	3.1*	4.5	4.2	3.5	3.7
PA	36.1	7.7	35.7	7.7	39.6	5.9	36.8	8.2
Resilience	77.3	12.2	79.1	10.7	80.1	10.7	82.1	14.9
PQOL								
BO	20.7	5.9	19.4	5.3	19.3	5.2	18	6.7
STS	23.3	6.6	21.6	5.2	21.6	4.8	19.5	5.8
CS	40.8	6.4	41.1	5.8	41.5	4.8	41.9	5.8
			n = 18		n = 14		n = 8	

EE: emotional exhaustion; DP: depersonalization; PA: personal accomplishment; PQOL: Professional Quality of Life Scale; BO: burnout; STS: secondary traumatic stress; CS: compassion satisfaction.

*p<.05

Correlational data

Spearman’s rho correlations were conducted to explore the association among the outcome measures and with age and gender (Table 3). Age was significantly

Table 3. Spearman's rho correlations outcome measures with each other and variables of age and gender.

	Resiliency	EE	DP	PA	CS	BO	STS
Resiliency	–	–.21	–.16	.36	.73*	–.54*	–.25
EE	–.21	–	–.55*	–.25	–.15	.45*	.24
DP	–.16	.55*	–	–.09	–.23	.55*	.37
PA	.36	–.25	.09	–	.49*	–.48*	–.28
CS	.73*	–.15	–.23	–.49*	–	–.69*	–.24
BO	–.54*	.45*	.55*	–.48*	–.69*	–	.39*
STS	–.25	.24	.37	–.28	–.24	.39*	–
Age	.33	–.60*	–.32	–.02	.13	–.24	.15

EE: emotional exhaustion; DP: depersonalization; PA: personal accomplishment; BO: burnout; STS: secondary traumatic stress; CS: compassion satisfaction.

* $p < .05$.

negatively correlated with emotional exhaustion. Burnout from the Professional Quality of Life Scale was significantly positively correlated with emotional exhaustion, depersonalization, and secondary traumatic stress and negatively correlated with resiliency, personal accomplishment, and compassion satisfaction. Resiliency and compassion satisfaction were positively intercorrelated. Compassion satisfaction was positively correlated with personal accomplishment. Maslach's emotional exhaustion and depersonalization were positively intercorrelated.

Program evaluation results

Overall, the residents were satisfied with the program. Usefulness of the program yielded a mean of 8 on a 1 (not satisfied) to 10 (satisfied) Likert-type scale. The likelihood of residents recommending other residents yielded a mean of 8 on a 1 (not likely) to 10 (very likely) Likert-type scale.

Discussion

There is little controversy regarding the association between the high-risk environment of medical residency and burnout. Furthermore, it is often observed that burnout increases over time and the consequences become more pronounced. For example, first-year internal medicine residents completed surveys at the beginning and end of their first year to measure job burnout, 14% were flagged for signs of burnout at the start of the year, and close to 50% at the end of the first year.¹⁸

The results of this study showed that a program designed to build resiliency in family medicine residents can be implemented and significantly decreased depersonalization and emotional exhaustion post-program, both indicators of

burnout. In addition, during the three years of long-term follow-up, the residents did not significantly increase in any burnout indicators, which has been often observed in previous studies as discussed earlier. One theory is that the resiliency program may have conferred a degree of protection from the additional peer support and interaction that resulted in the program, which has been seen in other programs.¹⁹ From the correlational analysis, the subscale, Burnout from the Professional Quality of Life correlated significantly with all the other subscales. More research on this specific subscale and its use as a stand-alone scale to help with the assessment of burnout is warranted.

The ACGME now recognizes well-being as a competency and requires all residencies to be focusing on integrating well-being culture into the curriculum. It is important to recognize that a program like ours is only one part of a necessary comprehensive plan in working toward improving the well-being and resiliency of residents and decreasing the incidence of burnout. Some residents may have a need for treatment, which was not the purpose of our program. Those who scored outside the norms were informed of the availability of resources on-campus and off-site for further evaluation and treatment. It is unknown if those individuals entered into treatment during the study year. This program is not sufficient for a resident who is clinically depressed or is already in burnout. Residencies should consider multi-tiered programs designed for residents with different needs. System-based interventions including ones that focus on strategies to decrease residents times on electronic medical records need to be addressed as well.

Limitations

Measurement continues to be a limitation for studies on burnout, resiliency, and well-being of residents. For this study, no data were available on the amount of practice of the relaxation and mindfulness skills by the residents. The MBI does not consider nonprofessional confounders such as childcare demands, and it was not normed on physicians-in-training.²⁰ Subscores such as depersonalization can be confounded by schedule and rotation changes, which can disconnect residents from their patients.²⁰ Due to these issues, burnout norms for physicians and medical residents are essential to better understand this population. We also were not able to track these residents during their medical careers to determine whether introducing resiliency skills during residency influences future outcome in physicians' career.

Conclusion

A resiliency program was implemented during family medicine residency. The didactic sessions were mandatory, but data collection was voluntary. An evidenced-based program was associated with improvements in

depersonalization and emotional exhaustion at postprogram in comparison to a control group. The improvements were stable at one- and two-year follow-up. Further research is necessary to determine what aspects of the program were most useful to residents and whether the program was associated with longer term avoidance of burnout, as these residents went on to independent medical practice.

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