

Toward the Quadruple Aim: Impact of a Humanistic Mentoring Program to Reduce Burnout and Foster Resilience

Andrew W. Menzin, MD, MBA; Myriam Kline, PhD; Cicy George, MS;
Jaclyn Schindler, MPH, FNP; Andrew C. Yacht, MD; and Alice Fomari, EdD, RDN

Abstract

Objective: To assess the effect of a faculty development program (Mentoring and Professionalism in Training [MAP-IT]) that fosters humanism in medicine on elements of burnout and the development of resilience.

Participants and Methods: The cohort of participants was drawn from a cross-section of disciplines and represented a diverse group of health professionals, including physicians, nurses, physician assistants, pharmacists, psychologists, social workers, and chaplains. The 106 participants were divided into 12 groups, each of which was facilitated by two or three leaders. Each group completed the MAP-IT curriculum from October 1, 2017, through July 31, 2018. All participants and leaders completed the Connor-Davidson Resilience Scale and the Maslach Burnout Inventory (assessing emotional exhaustion, depersonalization, and personal accomplishment) before and after completion of the program.

Results: The participants' scores for emotional exhaustion and depersonalization remained unchanged following the completion of the MAP-IT curriculum. However, their scores for personal accomplishment and resilience increased significantly and approximated those of the leaders.

Conclusion: The MAP-IT program has shown effectiveness both in fostering resilience and a sense of personal accomplishment. The time is ripe for institutional programming to create and foster the personal tools needed to prevent burnout and its sequelae.

© 2020 Mayo Foundation for Medical Education and Research. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>) ■ *Mayo Clin Proc Inn Qual Out* 2020;4(5):499-505

Recent efforts to optimize health care highlight the Triple Aim: enhancing patient experience, reducing cost, and improving population health.¹ Coincident with efforts to address these core targets, a growing body of literature acknowledges that an ever-increasing rate of burnout challenges the health care workplace. Maslach et al² characterized burnout as “occupationally-specific dysphoria,” and described three components — emotional exhaustion, cynicism, and inefficacy. A recent American Association of Medical Colleges *Analysis in Brief* reported that nearly one-third of US medical school faculty responding to a survey experienced at least one symptom of burnout, with worsening burnout associated with less satisfaction at work and more likely consideration of seeking a job change.³ The evolving demands of health care, coupled with a generalized de-emphasis

on the self as one cares for patients, has led to what Harvard's Global Health Institute calls “a public health crisis.”⁴ Bodenheimer and Sinsky,⁵ recognizing the need for action, proposed broadening the goals for health care improvement to include “the work life of health care providers, including physicians and staff,” into a Quadruple Aim.

The Mayo Clinic has been at the forefront of advancing understanding of physician well-being. Shanafelt and Noseworthy⁶ make the case for an organizational approach to lessen burnout and foster engagement, characterized by vigor, dedication, and absorption, which they see as “the positive antithesis of burnout.” Shanafelt et al⁷ subsequently craft an argument that institutional efforts targeting improved engagement are grounded in potential for favorable business outcomes — healthier providers who deliver more and higher quality care with

From the Departments of Obstetrics and Gynecology (A.W.M.), and Science Education (A.F.), Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, Hempstead, NY; and the Biostatistics Unit, Feinstein Institutes for Medical Research (M.K.), the Office of Academic Affairs (C.G., A.C.Y., A.F.), and the Medicine Service Line (J.S.), Northwell Health, New Hyde Park, NY.

less faculty turnover. The organizational strategies proposed by Shanafelt et al⁷ to reduce burnout and promote engagement include developing resources that help providers care better for themselves with sustained resilience, while deploying interventions that build a sense of community and culture.

Rushton et al⁸ report results from a cross-sectional survey of nurses showing an association between resilience and lower levels of emotional exhaustion, as well as a more favorable sense of personal accomplishment. The authors conclude that their results support interventions that “cultivate strategies and practices for renewal,” including resilience.⁸ Such interventions are aligned with the Healthy Work Environment standards defined by the American Association of Critical Care Nurses.⁹ Despite these findings, burnout remains a significant challenge within the nursing community. Dyrbye et al¹⁰ describe the results of a national survey of US nurses in which approximately 35% of respondents reported symptoms of burnout, and its presence associated with both absenteeism and poor work performance.

Toward the goal of creating a faculty development program that fosters humanism in medicine, we developed a curriculum based on the model created by Branch et al^{11,12} for teaching professional and humanistic values and fashioned as an inter-professional framework. The program, named Mentoring and Professionalism in Training (MAP-IT), was described previously and its success in positively impacting both professional and personal development validated.¹³ In post-program evaluations from the initial three cohorts, participants consistently shared that the MAP-IT experience renewed their sense of purpose at work and their connections to coworkers and team members. The qualitative analyses also revealed the program’s positive impact on burnout and resilience. Informed by the qualitative and quantitative data from these past cohorts,^{13,14} we undertook the current study to more deeply examine burnout and resilience among the fourth cohort entering the program.

PARTICIPANTS AND METHODS

The Northwell Health Institutional Review Board reviewed the research protocol and

stated it did not meet the criteria to be considered human subjects research.

Participants

Professionals from multiple areas within Northwell Health, a nonprofit, integrated health care network consisting of 23 hospitals and more than 60,000 employees, were recommended for participation in the MAP-IT program. Annual solicitation for participation was directed to clinical and administrative leaders who submitted candidates based on potential for leadership and personal traits (eg, effective communication, empathy, and humanism) aligned with mentorship capacity. Leaders were chosen from a pool of prior leaders and participants who self-identified interest in facilitating a group, with selection at the discretion of the project director. The study sample represents MAP-IT’s fourth cohort of participants (October 1, 2017 through July 31, 2018), and consisted of physicians, nurses, physician assistants, pharmacists, psychologists, social workers, and chaplains. The cohort was comprised of 12 interprofessional groups of 10 to 12 participants, with each group facilitated by two to three leaders. The details of the program curriculum are shown in Table 1. Both participants and leaders were evaluated in each of the prior cohorts^{13,14} and this continued with cohort four participants and leaders who, for consistency, completed pre- and post-program assessment instruments.

Methods

The instruments administered in this study were the Connor-Davidson Resilience Scale (CD-RISC) and the Maslach Burnout Inventory (MBI), the validity and reliability of which have been reported previously.^{15,16} The following three MBI subscales were used: emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA). The two instruments were sent to participants and group leaders via a SurveyMonkey link before the start of the program with a deadline to complete before the first session. The same instruments were sent via a SurveyMonkey link to participants and leaders following the end of the last session of the MAP-IT program.

TABLE 1. MAP-IT Program Curriculum^a

Module 1 (October)	Appreciative inquiry	Reflection in the group setting on participant narratives focused on successfully navigating issues encountered in mentoring and other professional situations.
Module 2 (November)	Active role modeling	Role play enabling participants to practice skills inherently involved in coaching, providing, and receiving feedback.
Module 3 (December)	Team building: dealing with differences/conflict	Analyzing the origins of team conflict and using tools to decrease or resolve conflict. Skills are practiced through interactive group exercises, self-reflection, and storytelling.
Module 4 (January)	Feedback in challenging circumstances	Role play and small group discussions aimed at understanding differences between feedback, formative and summative evaluation; barriers to effective feedback/evaluation; the importance of goal setting, learning climate, and observation; fostering self-assessment and self-correction to assure high-quality feedback; and providing feedback to resistant learners.
Module 5 (February)	Medical error I: (disclosure and after the error)	Involves reflecting on difficult situations where an error was made or witnessed that potentially harmed a patient. Provides opportunities for wisdom and growth after disclosing an error and facilitates sharing of common challenges with peers.
Module 6 (March)	Medical error II: (choosing wisdom)	Involves building resilience via learning and growth from difficult circumstances. Highlights core skills such as compassion, forgiveness, and letting go of blame and perfectionism. Also consists of discussions around coping with errors and supporting others in the clinical setting.
Module 7 (April)	Diversity and inclusion	Interprofessional education and practice requires an appreciation of diverse skills and perspectives. However, even with the most kind and enlightened group, there are assumptions and biases we encounter in ourselves and others. These are often discordant with a person's image of themselves, but may influence behavior unconsciously. Becoming aware of these assumptions allows us to better understand the impact of these behaviors and to consciously adjust our behavior to be consistent with our goals as interprofessional clinicians and educators. These assumptions can be about other professions and influence how we listen to and work with one another.
Module 8 (May)	Enhancing well-being, self-care and resilience	Ensuring time for personal well-being is important for the clinician who is continually caring for others. Professional burnout is dysfunctional and leads to behaviors not exemplifying humanistic behaviors. Resilience is an important link to well-being through self-care. Using reflection, groups will focus on aspects of professional identity that supports resilience.
Module 9 (June)	Mindfulness and self-care	Involves learning to demonstrate skills of mindfulness beginning with the skills of noticing. Participants will apply skills of mindfulness to professionalism challenges and discuss how clinicians can maintain the sense of well-being which allows one to reach out to others.
Module 10 (July)	End of program evaluation, assessments, and reflections	Participants experience an objective structured teaching/mentoring encounter and will receive data from their own self-assessment and from a standardized colleague. A focused program evaluation will be conducted allowing participants to provide feedback on their MAP-IT experience and complete all post-assessment tools.

^aMAP-IT = Mentoring and Professionalism in Training program.

TABLE 2. Demographic Data of the Cohort Sample^a

	Participants ^b (N=106)	Leaders ^c (N=32)
Sex		
Female	74	22
Male	32	10
Age, y		
<50	66	14
≥50	33	12
Profession		
Physician	46	15
Nurse (NP, RN, LPN)	42	16
Chaplain	3	1
Social work	3	
Physician assistant	3	
Pharmacist	3	
PhD/EdD	3	
Psychologist	1	
Laboratory educator	1	

^aEdD = Doctor of Education; LPN = Licensed Practical Nurse; NP = Nurse Practitioner; PhD = Doctor of Philosophy; RN = Registered Nurse.
^bCategory frequencies that do not add to 106 were due to no response.
^cCategory frequencies that do not add to 32 were due to no response.

Statistical Analysis

Descriptive statistics such as frequencies and percentages were used to summarize the MAP-IT categorical data; means and standard deviations were used to summarize the continuous data from the CD-RISC and MBI.

A mixed linear model (SAS Proc MIXED) approach to repeated measures analysis of variance was used to compare change over time, from pre- to post-assessment with respect to the CD-RISC while adjusting for sex and age (dichotomized at 50 years to provide an opportunity for a generational comparison). Explanatory variables or interactions that were not significant were removed from the models except for time, which remained in all models. The same statistical method was used to compare MBI data across time while adjusting for sex and age. The Spearman correlation was used to explore the relationship between the CD-RISC and MBI (using the difference in scores between pre- and post-assessments). An observed $P < .05$ was considered statistically significant. All analyses were generated using SAS software, version 9.4 of the SAS System for Windows (SAS Institute Inc, Cary, NC).

RESULTS

Demographics

The study cohort consisted of 138 full-time employees of Northwell Health, including physicians, nurses, physician assistants, chaplains, pharmacists, psychologists, and a social worker. A total of 106 participants and 32 leaders completed the instruments as part of this assessment of the MAP-IT program. A summary of the demographic data for cohort four can be found in Table 2. Nurses (n=42) and physicians (n=46) accounted for 83.0% of the participants, with seven other professions represented. Females (n=96) constituted 69.6% of both participants and leaders, which reflects the demographic of the professions represented at Northwell Health. Data on race/ethnicity was not collected.

Connor-Davidson Resilience Scale

The results for both the participants and leaders at each timepoint can be found in Table 3. The participants' resilience scores were lower than those of the leaders at baseline. There was a statistically significant increase in the resilience scores for the

TABLE 3. Results of Participants and Leader Scores on the CD-RISC and MBI Across Timepoints^{a,b}

	Participants			Leaders		
	Pre	Post	P value	Pre	Post	P value
	Mean ± SD	Mean ± SD		Mean ± SD	Mean ± SD	
CD-RISC	79.3±11.9	82.8±9.9	.03	81.4±10.3	82.7±9.6	.62
MBI						
EE	2.7±1.1	2.6±1.1	.36	2.5±1.0	2.5±1.0	.90
DP	1.8±0.9	1.8±0.9	.63	1.4±0.5	1.5±0.7	.49
PA	6.1±0.8	6.4±0.5	.01	6.4±0.6	6.2±0.6	.25

^aCD-RISC = Connor Davidson Resilience Score; DP = depersonalization; EE = emotional exhaustion; MBI = Maslach Burnout Inventory; PA = personal accomplishment.
^bPre-program and post-program assessments.

participants following the completion of the curriculum, with the participants, as a group, achieving a level equivalent to that of the leaders whose resilience scores remained unchanged over time. There was no effect of sex or age on these trends.

Maslach Burnout Inventory

The results for both the participants and leaders can be found in Table 3. The findings for the MBI are summarized by the subscales EE, DP, and PA.

Emotional Exhaustion. The participant EE subscale scores were higher at baseline compared with those of the leaders and did not change following completion of the curriculum, remaining above that for the leaders. However, mean EE subscale scores among female participants were significantly lower compared with male participants (2.39 vs 2.99, respectively; $P < .01$). There was no effect of age on the EE trend.

Depersonalization. The participant DP subscale scores were higher at baseline compared with those of the leaders and did not change following completion of the curriculum, remaining above that for the leaders. Similar to EE, the mean DP subscale scores among female participants were significantly lower compared with male participants (1.53 vs 2.19, respectively; $P < .001$). Among the participant group, older age (greater than 50 years) was associated with lower mean DP scores (1.71 vs 2.01; $P < .05$).

Personal Accomplishment. The PA subscale scores among participants were lower than those for leaders at baseline and increased significantly following completion of the MAP-IT program, with the participants achieving scores equivalent to the leaders whose scores remained stable during the assessment period. Furthermore, PA subscale score was positively associated with the resilience score ($r = 0.24$; $P = .03$), such that as PA increased so did resilience.

DISCUSSION

Fornari et al¹³ showed the MAP-IT program's durable positive influence on self-care and wellness, with subsequent qualitative analyses revealing notable themes of mindfulness, mentorship, professionalism, interprofessional collaboration, and appreciative inquiry.¹⁴ These findings led the authors to hypothesize that the MAP-IT program might serve as a beneficial intervention to enhance resilience and mitigate burnout. This study confirms that inference. Completion of the program was associated with significant increases in quantitative determinations of resilience and PA over baseline among participants, while those for EE and DP were unchanged. Following the program, the participants achieved levels of resilience and PA equivalent to those reported by the leaders. Cordes and Dougherty¹⁷ discuss work suggesting the domains of burnout — EE, DP, and PA — develop in a sequential fashion, noting that this process concept is not uniformly accepted. We hypothesize that the nature of each of these domains may be impacted along

different timelines. Perhaps resilience and PA, both positive and formative characteristics, respond and evolve more quickly with DP and EE requiring a longer horizon or larger impact than that provided in this program.

Although resilience did not differ by sex, women reported significantly lower levels of EE and DP at baseline than did male participants. Age did not appear to affect the program's impact on resilience or domains of burnout other than DP, for which those older than 50 years had lower scores. The literature is inconsistent with regard to the impact of sex on the domains of burnout, with a general consideration that females have more EE and males greater DP¹⁸; our results tracked with the latter not the former. We believe that individual factors (eg, sex, age, as well as professional designation and work setting) will create variations in the manifestation of burnout and that these factors and their interaction reflect the complex environment that is modern health care.

The primary limitation of this study is the lack of a later interval re-assessment. This would have provided additional longitudinal information regarding the durability of effect and an opportunity to determine if a delayed impact of the program may occur. An additional limitation is small number of participants and leaders from professional categories other than physicians and nurses. The fourth cohort was the first to include these other professional groups. With less than one-quarter of the cohort from these other groups in the fourth cohort, we could not assess the impact of the curriculum based on professional designation. We plan these analyses as the diversity of the cohorts expands and our assessments evolve.

The growing recognition of burnout within the work force, particularly among health care professionals, has led to a greater understanding of its adverse effects not only on these individuals, but also on the patients they serve, their institutions, and the industry overall. Recent cost analyses based on modeling physician and nursing work forces in the United States estimated a financial burden of burnout to be on the order of billions of dollars annually due to turnover and decreased productivity.¹⁸⁻²¹ Associations have also been shown between burnout and both

medical error reporting and patient-centered quality outcomes.¹⁸ A broad model that includes the fiscal impact of burnout among the full spectrum of health care professionals would likely show the catastrophic circumstance that may develop if these issues are not adequately addressed.

CONCLUSION

The health care environment is experiencing a crisis from within. Its key resource, the human capital of a broad work force, is facing the devastating challenges of burnout. The recognition that led to a call for the Quadruple Aim and a growing body of literature support efforts to address this issue through institutional solutions that foster both community and individual support. This paradigm reflects transformational change and an understanding of what Shanafelt et al⁷ described as the business case for investing in ... well-being. Thibault²² sounds a call to action to create, implement, and sustain programs that foster the development of humanistic skills and recognize those who conduct themselves in this aspirational manner. The MAP-IT program is aligned with Thibault's call to action and has a shown effectiveness both in fostering resilience and a sense of personal accomplishment in the workplace, which are at the core of successful efforts to combat and, more importantly, prevent burnout and its sequelae. Ongoing analyses will examine the longitudinal impact of the program.

Abbreviations and Acronyms: **CD-RISC** = Connor-Davidson resilience scale; **DP** = depersonalization; **EE** = emotional exhaustion; **MBI** = Maslach burnout inventory; **MAP-IT** = Mentoring and Professionalism in Training; **PA** = personal accomplishment

Grant Support: The MAP-IT program was supported initially with a grant from the Arnold P. Gold Foundation and is currently supported by Northwell Health.

Potential Competing Interests: The authors report no potential competing interests.

Publication dates: Received for publication January 21, 2020; revisions received April 16, 2020; accepted for publication May 4, 2020.

Correspondence: Address to Andrew W. Menzin, MD, MBA, 9 Vermont Drive, 1st Floor, New Hyde Park, NY 11042 (amenzin@northwell.edu).

REFERENCES

1. Berwick DM, Nolan TW, Whittington J. The triple aim: care, health, and cost. *Health Aff (Millwood)*. 2008;27(3):759-769.
2. Maslach C, Leiter MP. Understanding the burnout experience: recent research and its implications for psychiatry. *World Psychiatry*. 2016;15(2):103-111.
3. Burnout Among U.S. Medical School Faculty. American Association of Medical Colleges *Analysis in Brief* 2019;19(1), 2019. <https://www.aamc.org/download/495534/data/february2019burnoutamongusmedicalschoolfaculty.pdf>. Accessed May 17, 2019.
4. A crisis in health care: A call to action on physician burnout. Massachusetts Medical Society, Massachusetts Health and Hospital Association, Harvard T.H. Chan School of Public Health, and Harvard Global Health Institute. <http://www.massmed.org/News-and-Publications/MMS-News-Releases/Physician-Burnout-Report-2018/>. Accessed May 17, 2019.
5. Bodenheimer T, Sinsky C. From triple to quadruple aim: care of the patient requires care of the provider. *Ann Fam Med*. 2014;12(6):573-576.
6. Shanafelt TD, Noseworthy JH. Executive leadership and physician well-being: Nine organizational strategies to promote engagement and reduce burnout. *Mayo Clin Proc*. 2017;92(1):129-146.
7. Shanafelt TD, Goh J, Sinsky C. The business case for investing in physician well-being. *JAMA Int Med*. 2017;177(12):1826-1832.
8. Rushton CH, Batcheller J, Schroeder K, Donohue P. Burnout and resilience among nurses practicing in high-intensity settings. *Am J Crit Care*. 2015;24(5):412-420.
9. Fitzpatrick B, Bloore K, Blake N. Joy in work and reducing nurse burnout: from triple aim to quadruple aim. *AACN Adv Crit Care*. 2019;30(2):185-188.
10. Dyrbye LN, Shanafelt TD, Johnson PO, Johnson LA, Satele D, West CP. A cross-sectional study exploring the relationship between burnout, absenteeism, and job performance among American nurses. *BMC Nurs*. 2019;18:57.
11. Branch WT Jr, Frankel R, Gracey CF, et al. A good clinician and a caring person: longitudinal faculty development and the enhancement of the human dimensions of care. *Acad Med*. 2009;84(1):117-125.
12. Branch WT Jr, Chou CL, Farber NJ, et al. Faculty development to enhance humanistic teaching and role modeling: a collaborative study at eight institutions. *J Gen Intern Med*. 2014;29(9):1250-1255.
13. Fomari A, Torte LM, Lay M, et al. Mixed-methods approach to humanistic interprofessional faculty development. *J Cont Educ Health Prof*. 2018;38(1):66-72.
14. Torte LM, Quinlan PS, Makaryus AN, et al. The long-term impact of an interprofessional humanistic faculty development programme: a qualitative investigation. *J Eval Clin Pract*. 2020;26(3):738-746.
15. Campbell-Sills L, Stein MB. Psychometric analysis and refinement of the Connor-Davidson Resilience Scale (CD-RISC): validation of a 10-item measure of resilience. *J Trauma Stress*. 2007;20(6):1019-1028.
16. Worley JA, Vassar M, Wheeler DL, Barnes LLB. Factor structure of scores from the Maslach Burnout Inventory: a review and meta-analysis of 45 exploratory and confirmatory factor-analytic studies. *Educ Psychol Measurement*. 2008;68(5):797-823.
17. Cordes CL, Dougherty TW. A review and an integration of research on job burnout. *Acad Manage Rev*. 1993;18(4):621-656.
18. West CP, Dyrbye LN, Shanafelt TD. Physician burnout: contributors, consequences, and solutions. *J Intern Med*. 2018;283(6):516-529.
19. Han S, Shanafelt TD, Sinsky CA, et al. Estimating the attributable cost of physician burnout in the United States. *Ann Intern Med*. 2019;170(11):784-790.
20. Moss M, Good VS, Gozal D, Kleinpell R, Sessler CN. A Critical Care Societies collaborative statement: burnout syndrome in critical care health-care professionals. A call for action. *Am J Respir Crit Care Med*. 2016;194(1):106-113.
21. Milliken TF, Clements PT, Tillman HJ. The impact of stress management on nurse productivity and retention. *Nurs Econ*. 2007;25(4):203-210.
22. Thibault GE. Humanism in medicine: what does it mean and why is it more important than ever? *Acad Med*. 2019;94(8):1074-1077.