

Can a Brief Values Affirmation Help Achieve Gender Parity Within the Surgical Profession? The Promise and Limitations of “Wise” Interventions

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“As a female surgeon you need to work and fight harder to receive the same privileges and respect than your male colleagues need to.”

—Anonymous respondent to a survey of female surgeons, published in 2016¹

The number of women graduating from medical school has increased substantially over the past decades. At the same time, although women comprised almost half of medical school graduates in the United States in 2013–2014, they remain underrepresented in traditionally male-dominated specialties, such as surgery. Female surgeons are more likely than men to leave the field and less likely to move into leadership roles and progress through the academic ranks.² This mirrors the larger pattern among women in academic medicine.^{3,4} An analysis of 10-year attrition rates from surgical residency programs found that women were more likely than men to leave training,⁵ and a survey of general surgical residents found that women were more likely than men to have serious thoughts about leaving their residency.⁵

Stereotype threat, the feeling of being at risk of confirming a negative expectation about one's group, which can lead to decrements in performance and well-being, has been identified as a potential contributor to women's underrepresentation and lack of advancement in surgery.^{6,7} Indeed, prior research has shown that women and men in surgical residency believed that others viewed men as having more surgical ability than women.⁸ Greater endorsement of this stereotypical perception was associated with poorer psychological health, including burnout, among female but not male surgical residents.⁸

In this issue of the *Journal of Graduate Medical Education*, Salles and colleagues⁹ examined whether a brief “values affirmation” intervention could protect female surgical residents from the deleterious effects of stereotype threat, as manifested by ratings of performance. The intervention was successful. Female surgical residents in the values affirmation condition

had higher clinical evaluation scores 6 months later compared to their female counterparts in the control condition. As would be expected from stereotype threat theory, male surgical residents did not benefit from the intervention, presumably because they did not suffer stereotype threat.

Given documentation of a negative climate for women in surgery, which includes observed and experienced gender bias^{1,2,10} as well as negative stereotypical expectations of female surgeons, it is striking that, in this study by Salles et al,⁹ women performed as well as men prior to the intervention, and women in the values affirmation condition were the only group that did not show a decline in performance ratings, as compared to all men and the women in the control group. Women, as well as racial and ethnic minorities, are often told that they have to be “twice as good” as men, and whites, to succeed. Given these barriers, it is plausible that female surgical residents possessed greater talents or psychological resources, such as grit or resilience, than their male counterparts. In the absence of stereotype threat, due to the values affirmation intervention, these greater strengths could have led to comparatively better performance by female surgical residents over time (ie, a lack of decline).

The values affirmation intervention is an example of what Gregory Walton has called a “wise intervention,” in which a brief intervention produces disproportionately large effects because it precisely targets the psychological processes that contribute to the phenomenon.¹¹ In addition to improving the performance of individual women in surgery, values affirmations and other wise interventions could, over time, create conditions in which stereotype threat is less likely to occur. If such interventions lower attrition rates and lead to greater professional advancement of female surgeons, stereotype threat may decline in prevalence. The result would be more female mentors, role models, and leaders, which could further reduce the likelihood of stereotype threat.⁶

The simplicity and brevity of this type of values affirmation is appealing. This is particularly true

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given the herculean efforts needed to tackle many of the entrenched barriers to women's success in male-dominated medical specialties such as surgery.^{1,2,9,12} It is intriguing to speculate how, in addition to improving performance, this intervention might also reduce burnout and attrition. Yet, in moving forward, caution is warranted, and questions remain. From a scientific perspective, it is important that these findings be replicated in other settings. Other published studies aimed at reducing stereotype threat among women and minorities in medicine have had mixed results, and it is plausible that, because of the so-called "file-drawer effect," other unsuccessful interventions have gone unpublished.¹³ For example, one intervention aimed at reducing stereotype threat for orthopedic residents was not successful,¹⁴ although the investigators did not use the values affirmation protocol successfully utilized by Cohen and colleagues¹⁵ in prior studies and did not measure actual performance. Another study that conducted a values affirmation with ethnic minority medical students, in a manner consistent with Cohen et al's methods,¹⁵ found that values affirmation did lead to improved scores on 1 measure among minority group members who had completed an affirmation exercise, but this was due to decreased scores in the white intervention group; furthermore, on another measure, both white and minority students in the affirmed group outperformed controls.¹⁶ The need for replication is particularly important, in light of recent failures to replicate a number of classic social psychological experiments,¹⁷ which has brought scrutiny to systemic problems in science, including the file-drawer effect, "p-hacking," and other questionable research practices.¹³

Although the authors emphasize the ease of implementing this intervention outside the realm of a study, there can be considerable challenges to implementing interventions within the health care context. One would need to persuade administrators of its worth, especially because the idea that such a brief intervention can have such a large effect could be difficult for many to believe. Another practical consideration is the fact that, for value affirmations to work, it appears that people need to be unaware of its purpose.¹⁸ Outside the context of a research study, this requirement provides several challenges. For instance, is there a "cover story" that is plausible to this audience? What are the ethical considerations of hiding the true purpose of the intervention? If this intervention were to garner attention, would it lose effectiveness over time? One potential solution would be to cycle through different types of stereotype threat reduction interventions each year. Additional research, guided by implementation theory, is needed

to determine how best to translate these types of promising interventions into practice.

Another concern is that, if a psychological intervention targeting women is believed to be sufficient, leaders may conclude that key organizational changes to improve the conditions for female surgeons are unnecessary. These organizational-level conditions include gender discrimination and harassment, lack of female mentors and role models, lower likelihood of promotion, and disparities in pay. Although researchers have been careful to emphasize that stereotype threat is "in the air" and is external to the group subjected to stereotyping,¹⁹ an intervention focused on female surgeons may give the impression, to those less familiar with the nuances of the literature, that it is individual women rather than the system that needs to be fixed.

It is critical to address the considerable barriers faced by women in medicine, particularly those in traditionally male-dominated fields such as surgery. Interventions such as the one by Salles et al⁹ are vitally important as part of larger, more comprehensive efforts. Such efforts have the potential to enable women to flourish in surgical fields. Also, these efforts might also benefit other at-risk groups, such as racial and ethnic minorities, who are likely to experience stereotype threat as well as subtle and overt forms of discrimination and feelings of isolation in medicine.

References

1. Seemann NM, Webster F, Holden HA, Moulton CA, Baxter N, Desjardins C, et al. Women in academic surgery: why is the playing field still not level? *Am J Surg.* 2016;211(2):343–349.
2. Cochran A, Hauschild T, Elder WB, Neumayer LA, Brasel KJ, Crandall ML. Perceived gender-based barriers to careers in academic surgery. *Am J Surg.* 2013;206(2):263–268.
3. Yu PT, Parsa PV, Hassanein O, Rogers SO, Chang DC. Minorities struggle to advance in academic medicine: a 12-y review of diversity at the highest levels of America's teaching institutions. *J Surg Res.* 2013;182(2):212–218.
4. Association of American Medical Colleges. The state of women in academic medicine: the pipeline and pathways to leadership, 2013–2014. <https://members.aamc.org/eweb/upload/The%20State%20of%20Women%20in%20Academic%20Medicine%202013-2014%20FINAL.pdf>. Accessed April 4, 2016.
5. Gifford E, Galante J, Kaji AH, Nguyen V, Nelson MT, Sidwell RA, et al. Factors associated with general surgery residents' desire to leave residency programs: a

- multi-institutional study. *JAMA Surg.* 2014;149(9):948–953.
6. Burgess DJ, Joseph A, van Ryn M, Carnes M. Does stereotype threat affect women in academic medicine? *Acad Med.* 2012;87(4):506–512.
 7. Fassiotto M, Hamel EO, Ku M, Correll S, Grewal D, Lavori P, et al. Women in academic medicine: measuring stereotype threat among junior faculty. *J Womens Health.* 2016;25(3):292–298.
 8. Salles A, Mueller CM, Cohen GL. Exploring the relationship between stereotype perception and residents' well-being. *J Am Coll Surg.* 2016;222(1):52–58.
 9. Salles A, Mueller CM, Cohen GL. A values affirmation intervention to improve female residents' surgical performance. *J Grad Med Educ.* 2016;8(3):xx–xx.
 10. Bruce AN, Battista A, Plankey MW, Johnson LB, Marshall MB. Perceptions of gender-based discrimination during surgical training and practice. *Med Educ Online.* 2015;20:25923.
 11. Walton GM. The new science of wise psychological interventions. *Current Directions Psychol Sci.* 2014;23(1):73–82.
 12. Cochran A, Elder WB, Crandall M, Brasel K, Hauschild T, Neumayer L. Barriers to advancement in academic surgery: views of senior residents and early career faculty. *Am J Surg.* 2013;206(5):661–666.
 13. Nosek BA, Alter G, Banks GC, Borsboom D, Bowman SD, Breckler SJ, et al. Scientific standards. Promoting an open research culture. *Science.* 2015;348(6242):1422–1425.
 14. Gomez E, Wright JG. A simple strategy to reduce stereotype threat for orthopedic residents. *Can J Surg.* 2014;57(2):e19–e24.
 15. Cohen GL, Garcia J, Purdie-Vaughns V, Apfel N, Brzustoski P. Recursive processes in self-affirmation: intervening to close the minority achievement gap. *Science.* 2009;324(5925):400–403.
 16. Woolf K, McManus IC, Gill D, Dacre J. The effect of a brief social intervention on the examination results of UK medical students: a cluster randomised controlled trial. *BMC Med Educ.* 2009;9:35.
 17. Open Science C. Psychology. Estimating the reproducibility of psychological science. *Science.* 2015;349(6251):aac4716.
 18. Sherman DK, Cohen GL, Nelson LD, Nussbaum AD, Bunyan DP, Garcia J. Affirmed yet unaware: exploring the role of awareness in the process of self-affirmation. *J Pers Soc Psychol.* 2009;97(5):745–764.
 19. Steele CM. A threat in the air: how stereotypes shape intellectual identity and performance. In: Eberhardt JL, Fiske ST, eds. *Confronting Racism: The Problem and the Response.* Thousand Oaks, CA: SAGE Publications Inc; 1998:202–233.



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