DOI: 10.33470/2379-9536.1414

ORIGINAL ARTICLE Volume 10 Issue 3

Exploring Gender Variation in Medical Student Professional Identity Development: A Longitudinal Study Through the Career Eulogy Perspective

William J. Crump, MD[1], Sarah M. Fisher, MD[1], Ronald Reagan Gilley, MD[1], Whitney T. Gilley, MD[2], Craig Ziegler, PhD[1]

Author affiliations are listed at the end of this article.

Corresponding Author:
William J. Crump, MD
University of Louisville
School of Medicine
Trover Campus
william.crump@baptistdeaconess.com

ABSTRACT

Background: Empathy towards patients is a key component of a physician's professional identity. In longitudinal studies at their campus, the authors of this study observed that women had higher empathy scores as measured by a standard Likert scale survey; however, the differences were insignificant in most training years.

Methods: In this larger study, the authors confirmed this finding and used a career eulogy projective exercise to explore gender differences in professional identity formation more deeply than a Likert scale score. The study included 76 medical students from all 4 years of training at a rural, regional medical school campus in the upper Southeast of the United States.

Results: The authors found that women emphasized quality themes more than men after the third year of medical school (M3). Women also mentioned passion themes more after the first year of medical school (post-M1) and had significantly more mentions of compassion themes upon entering medical school. Women consistently mentioned patient relationship themes more across all years of medical school, particularly after the second year (post-M2). Both genders mentioned themes of enjoying life equally, except after the second year, when men mentioned these themes significantly more. Women mentioned community themes significantly less after the first year (post-M1). Family themes were mentioned equally by both genders.

Conclusion: Using stereotypes of gender roles in the Southern U.S. as a reference point, the authors suggest some possible interpretations of these findings, noting significant differences from previously published gender differences. The career eulogy exercise proved to be a valuable tool for examining professional identity formation in detail.

KEYWORDS

gender differences; medical student professional identity formation

INTRODUCTION

Professional identity formation in medical students includes adopting the values and behaviors of the medical profession and aspiring to physician characteristics such as empathy, competence, and the provision of high-quality care.[1] Conceptually, students bring their pre-medical school selves into the socialization process of medical school and residency. They ultimately develop who they wish to become and start thinking, acting, and feeling like a physician.[1] Those with different traditional gender identities on entry to the socialization process may react differently to the opportunities for socialization. Culture and family of origin influence this, and there are many differences even within traditional gender identities. Very few professional identity development studies include medical students identifying as non-binary.[2]

A study of 776 medical students in Brazil showed that women had higher scores of measured empathy, altruism, and stress. Men had higher scores of well-being and quality of life. Interestingly, these differences faded significantly across the years in medical school.[3] The group that developed the widely used Jefferson Scale of Empathy (JSE) has published several studies showing that women scored significantly higher than men. An older study of their graduates in practice 6 to 10 years out from medical school showed that women valued the psychological, social, and cultural factors addressed during their medical school education and were more satisfied with patient interactions in their practice than men. Men were slightly happier with their decision to become a physician.[4] There was no assessment done comparing attitudes across the years of training. A 2002 study of 371 M3-year medical students found that JSE scores were higher among women, with higher scores associated with better performance ratings by faculty on clinical rotations but not with MCAT or USMLE Step 1 or 2 examination scores. This study found that empathy scores for both genders decreased over the 4 years of medical school, with the difference being least after the second year and greatest after the third year, with men showing a sharper drop.[5]

Clinical competence is a frequently mentioned aspect of physician identity, and imposter syndrome—feeling undeserving of success or incompetent despite evidence to the contrary—is another facet with reported gender differences. A review of 2300 articles conducted by Thomas and Bigatti showed that between 41% and 52% of women reported this syndrome, and men ranged from 24% to 48%.[7] This review also showed no clear changes in different years of medical school training. The authors concluded that almost all the studies were cross-sectional and that a longitudinal study with multiple measures of the same individuals was needed.

The review also indicated no clear changes across different years of medical school training. A longitudinal study with multiple measures of the same individuals is needed. Among family medicine residents in Wisconsin, imposter syndrome was reported by 41% of women and 24% of men, with no variation across the 3 years of postgraduate training.[8]

There are no recent studies on the implications of traditional Southern gender stereotypes in professional identity formation, but older studies reveal their persistence.[9] These stereotypes, often depicted in Southern literature, suggest women are more nurturing and relationship-focused, which may influence their professional identity development.[10]

Over the past 7 years, a professional identity curriculum using a "career eulogy" has been developed.[11-13] This instrument allows students to describe their ideal future selves with no prompts on a blank page.[14] Previously published results show that the characteristics mentioned align closely with the widely accepted model of professional identity. Mentions of compassion in the career eulogy correlated with JSE scores, supporting the validity of the career eulogy as a projective instrument. Women were more likely to mention compassion and patient relationships in their eulogies, with no gender difference in mentions of quality of care. The sample size was too small to analyze surveys separately by each year of medical school. The current study uses a larger data set to examine longitudinal gender differences across the 4 years of medical school and expects differences to vary by training year and evidence that persistent gender stereotypes may fade as training progresses.

METHODS

The study population included 76 medical students distributed across all 4 years of training at a rural, regional medical school campus in the U.S. upper Southeast. The mean age was 23.3; 59% identified as female, and none identified as non-binary or transgender. Seventy-eight percent were from rural hometowns, and 97% were in-state students. The Jefferson Scale of Empathy (JSE), a well-validated 20-item Likert scale survey, was used as the standardized empathy measure for comparison.[16-18] Medical students completed a career eulogy (CE) and JSE on paper at 1 sitting in each of their 4 years of training.[19-20] For the CE, participants were asked to "imagine that you are ready to retire from medicine in the distant future. In about 50 words, write a short speech outlining what you would like to be said about you at the retirement ceremony." Three experienced medical educators first developed

cluster phrases to describe each phrase used by individual students in their eulogies during the pilot trials of the CE (Table 1). An iterative discussion resolved disagreements (about 5% of all scoring) until a consensus was reached. The authors of this study previously published a strong positive correlation between mentions of compassion on the CE and the total score on the JSE.11-13 Each student completed each instrument, and the Institutional Review Board (IRB) of Baptist Health Deaconess Madisonville hospital approved the study as exempt.

Statistical Analysis

Frequencies and percentages for male and female students across medical school years were tabulated. Gender comparisons were made on the total JSE score and the CE subscale clusters of quality, passion, compassion, patient relationships, enjoying life, community, and family (Table 1). The analysis did not include clusters with mentions of less than 3%. Compassion was classified as something observable without considering patient response, while patient relationships included patient response. If a phrase fitting a cluster was used more than once, the cumulative number indicated the student's high cluster value. The study population's self-identified gender by year of training was reported and is shown in Table 2. Hometowns with populations less than 30,000 were used as a proxy for rural upbringing, with no gender differences found. Independent-sample t-tests were used for the JSE, and Mann-Whitney U statistics were used for the CE, with statistical significance set at $p<.05$ using 2-tailed tests. SPSS version 29.0 was used for data analysis.

Terms used by students	Cluster
Seeking excellence; knowledgeable; seeking improvement; the best; quality of care; great doctor; contributed to medical knowledge; left a legacy	Quality
Vigor; excitement; love of medicine; impact on care; persistence; never gave up; never backed away from a challenge	Passion
Empathy; kind heart; sentimental; understanding; sympathetic; every patient mattered; gave patients hope; truly cared	Compassion
Connected with patients; puts patients' needs first; made personal connections; personable	Patient relationships
Always happy; my life was a gift; the journey was fun; the joy of practice; always had a smile; positive attitude	Enjoy life
Brought better care to my town; legacy in my town; very involved in community; educated the community	Community
Taught colleagues; taught community members about their health; hosted medical students	Teacher
Genuinely sought to help others; payment not required	Service
Blessed to serve; faith is central; servant of God; displayed faith through care	Calling
Loyal to family; puts energy into relationship with spouse; love of family	Family
Co-worker, colleagues, fellow physicians	Coworker

*Modified from Reference 12.

TABLE 1. Terms Used by Students to Describe Themselves in their Career Eulogies*

	Female		Male	
	Count	(%)	Count	(%)
Medical school Entry	49	(61%)	31	(39%)
Post M1	41	(59%)	28	(41%)
Post M2	35	(59%)	24	(41%)
Post M3	29	(62%)	18	(38%)
Post M4	16	(67%)	8	(33%)

TABLE 2: Gender by School Year

RESULTS

Because the surveys were done at existing administrative gatherings during the first 3 years of medical school, the response rate of M1-M3 students was very high. There was no such gathering at the end of the M4 year, so the response rate of M4 students was 23/53 (43%). Given this discrepancy, the M4 data were excluded from the conclusions. One student's post-M2 surveys were missed because of an extended student leave, so the overall rate for baseline and post measures across the first 3 years was 211/212 (99.1%) of survey opportunities. Male and female JSE scores did not significantly differ across medical student years (Table 3). Gender comparisons of career eulogy clusters (Table 4) showed women included quality themes more than men only after the M3 year (females: mean 1.67; males: mean 1.25, p=.040). Women also included passion themes more than men at post-M1 (females: mean 2.09; males: mean 1.54, p=.022). Women had significantly more mentions of compassion themes at medical school entry (females: 1.77; males: 1.09, p=.013). However, across the medical school years, the gender differences began to decrease, with men's compassion increasing while women's compassion

		Female	Male	
		Mean (SD)	Mean (SD)	P-Value
JSE	Medical school Entry	119.20 (9.01) N=44	115.78 (12.21) N=26	0.184
	Post M1	120.36 (8.59) N=36	118.00 (9.11) N=22	0.325
	Post M2	122.32 (9.20) N=28	121.91 (6.05) N=19	0.855
	Post M3	119.52 (10.74) N=23	119.14 (10.34) N=14	0.917
	Post M4	116.40 (11.96) N=15	121.75 (8.84) N=8	0.280

TABLE 3: Jefferson Scale of Empathy by Gender

Career Eulogy		Female Mean (SD)	Male Mean (SD)	P-Value
Quality	Medical school Entry	1.72 (0.77) N=32	1.71 (0.90) N=21	0.816
	Post M1	1.53 (0.67) N=32	1.62 (0.77) N=24	0.704
	Post M2	1.65 (0.69) N=26	1.65 (0.79) N=17	0.895
	Post M3	1.67 (0.64) N=24	1.25 (0.45) N=16	0.040
	Post M4	1.36 (0.67) N=11	2.17 (1.17) N=6	0.093
Passion	Medical school Entry	1.82 (0.90) N=28	1.38 (0.62) N=16	0.114
	Post M1	2.09 (0.93) N=32	1.54 (0.78) N=24	0.022
	Post M2	2.19 (1.60) N=26	1.64 (1.06) N=15	0.066
	Post M3	1.86 (0.99) N=22	1.60 (0.84) N=10	0.502

TABLE 4: Career Eulogy Clusters by Gender, continued on next page

Career Eulogy		Female Mean (SD)	Male Mean (SD)	P-Value
	Post M4	1.80 (1.03) N=10	1.67 (0.58) N=3	1.000
Compassion	Medical school Entry	1.77 (1.07) N=30	1.19 (0.54) N=16	0.013
	Post M1	1.75 (0.91) N=20	1.31 (0.48) N=13	0.174
	Post M2	1.50 (0.82) N=16	1.50 (0.71) N=10	0.894
	Post M3	1.61 (0.70) N=18	1.70 (1.57) N=10	0.410
	Post M4	1.27 (0.65) N=11	1.20 (0.45) N=5	1.000
Patient Relationships	Medical school Entry	1.80 (1.03) N=30	1.47 (0.92) N=15	0.231
	Post M1	1.97 (1.18) N=29	1.36 (0.67) N=11	0.094
	Post M2	2.53 (1.31) N=19	1.38 (0.65) N=13	0.010
	Post M3	1.61 (0.78) N=18	1.00 (0.00) N=7	0.064
	Post M4	1.33 (0.52) N=6	1.25 (0.50) N=4	1.000
Enjoy Life	Medical school Entry	1.09 (0.30) N=11	1.09 (0.30) N=11	1.000
	Post M1	1.36 (0.92) N=11	1.20 (0.45) N=5	1.000
	Post M2	1.11 (0.33) N=9	1.83 (0.75) N=6	0.038
	Post M3	1.25 (0.50) N=4	1.33 (0.58) N=3	1.000
	Post M4	1.0 (-) N=1	1.50 (0.71) N=2	1.000
Community	Medical school Entry	1.23 (0.44) N=13	1.33 (0.50) N=9	0.655
	Post M1	1.0 (0.00) N=19	1.27 (0.47) N=11	0.041
	Post M2	1.42 (0.51) N=12	1.40 (0.55) N=5	1.000
	Post M3	1.21 (0.43) N=14	1.17 (0.41) N=6	1.000

Career Eulogy		Female Mean (SD)	Male Mean (SD)	P-Value
	Post M4	1.33 (0.52) N=6	1.00 (0.00) N=3	0.500
Family	Medical school Entry	1.0 (0.00) N=6	1.0 (0.00) N=8	1.000
	Post M1	1.36 (0.50) N=11	1.38 (0.74) N=8	1.000
	Post M2	1.14 (0.38) N=7	1.50 (0.55) N=6	0.266
	Post M3	1.11 (0.33) N=9	1.14 (0.38) N=7	1.000
	Post M4	1.50 (0.84) N=6	1.0 (0.00) N=3	0.500

TABLE 4: Career Eulogy Clusters by Gender

showed little change. Women mentioned patient relationship themes more than men across all medical school years, but the difference was significant only at post-M2 (females: mean 2.53; males: mean 1.38, p=.010). Across medical school years, both genders mentioned enjoying life themes equally, except for the post-M2 year, where men recorded this significantly more (females: mean 1.11; males: mean 1.83, p=.038). Women mentioned community significantly less only at post-M1 (females: mean 1.00; males: mean 1.27, p=.041). Both genders mentioned family themes equally.

DISCUSSION

The results of this study confirmed what had been found previously in a smaller group of students regarding empathy and professional identity formation: women's JSE scores were higher overall but not significantly so in most training years.[13] In a previous study conducted by Hojat et al., this difference was significant only in post-M2 measures.[6] As in previous studies,[3] men's empathy scores were lower on entry to medical school, and the difference faded significantly across training years. However, unlike one study, there was no significant decrease in men's empathy measures after the M3 year, and no gender difference was found after the M3 year. This discrepancy could be due to differences in the schools' student populations or M3 training environments. Further studies in other schools and environments are needed to clarify these differences.

The career eulogy results provide a more detailed view of professional identity formation than previously published measures, which are all closed-ended Likert scales. The findings indicate that identity formation is fluid and changes across the 4 years of medical school. With 4 usable survey sessions for each student and 7 CE clusters, one would expect 1.4 session clusters (28 x .05 chance probability) to be significant by chance alone, yet 6 session clusters were found to be significantly different.

Because almost all students were from small towns in the Southern United States, traditional gender roles were expected to influence the results. As predicted, women mentioned compassion more frequently, but only at medical school entry. Women mentioned patient relationships more frequently after the M2 year, with nearly significant differences after the M1 and M3 years. The predicted preference for family mentions among women was not observed at any session. The significantly higher mentions of quality among women after the M3 year and passion after the M1 year were unexpected. Likewise, the findings that men mentioned enjoying life after the M2 year and community after the M1 year were not predicted.

Understanding differences in professional identity formation by the level of training is complex. The typical U.S. medical student begins at 22-23 years old and finishes at 27-28. Developmentally, more students would consider forming families, getting married, and other life-stage changes as training proceeds. A potentially unique variable at the urban campus where the students spend their first 2 years is gender role modeling, where 95% of course directors and 80% of faculty are women. Persistent female characteristics in modern faculty culture could create a differential effect; the increased frequency of quality mentions in women found only after the M3 year might reflect the impostor syndrome issue found in previous studies, indicating women might feel a greater need to appear confident and competent to validate that they belong. One of this study's female authors (SMF), drawing on her previous personal experience as a student at this campus, speculated that Southern small-town cultural stereotypes do not allow men to express passion in work, and women are more open to this, ignited by the M1 year. Another potentially unique aspect of the M1/M2 years is the longitudinal standardized patient (SP) experience, where a student becomes very close to an individual SP over time. This, combined with a traditional feminine nurturing tendency, might explain why the post-M2 CEs show more patient relationship mentions in women.

Conversely, almost all elected and appointed community leaders in the host city of the urban campus where these students spend their first 2 years of medical school are men. These leaders regularly participate in interactive panels discussing current community issues with students across the first 2 years. This could explain the fewer mentions of community among female students after the M1

year. Interestingly, both of this study's female authors (SMF and WG), drawing on their previous personal experience as students at this campus, proposed that the fewer enjoy life mentions among women after the M2 year could be because they had heard stories from upper-level medical students and residents in the urban environment, where women physicians potentially have more to worry about when balancing traditional domestic expectations with their clinical responsibilities.

LIMITATIONS AND STRENGTHS

The students included in this study were uniquely selected by the campus admission process for interest in rural practice, so the findings should only be generalized to similar populations. A strength of this study is the very high response rate; however, the response rate among the post-M4 students is too low to make any conclusions. Despite the small group size at the other 4 survey times, the differences found reached significance. Slightly larger group size may have brought the trends of the passion cluster post-M2 and the patient relationship theme in post-M1 and post-M3 to significance. The latter is potentially very important, as this would reveal that after all 3 years of medical school for which there is enough data, women showed a consistently greater interest in this aspect of doctoring.

Future research should include similar studies in other populations using career eulogy as a measure of professional identity development. The instrument and coding clusters are available to those interested.

CONCLUSION

In this population of rural campus medical students, the authors found no longitudinal differences by gender in a standard measure of empathy that uses a Likert scale survey. The projective career eulogy was found to be an easily accepted and useful tool to provide a deeper look into professional identity formation, where longitudinal gender differences were found in some aspects of professional identity development. Some of these mirrored traditional "female nurturing" stereotypes, and some clearly did not, which differs from previous publications on this issue. The role of gender in professional identity formation is much more complex than the simple differences reported in studies done almost a generation ago.

INFORMED CONSENT

The Institutional Review Board (IRB) of Baptist Health Deaconess Madisonville hospital approved the study as exempt. Verbal consent was obtained from participants at the start of each session.

CONFLICTS OF INTEREST

The authors declare there are no conflicts of interest.

AUTHOR AFFILIATIONS

1. University of Louisville Trover Campus, Madisonville, Kentucky
2. New Directions Psychiatry PLLC, Madisonville, Kentucky

REFERENCES

1. Cruess RL, Cruess SR, Boudreau JD, Snell L, Steinert Y. A schematic representation of the professional identity formation and socialization of medical students and residents: A guide for medical educators. Acad Med. 2015;90:718-725.
2. Dimant OE, Cook TE, Greene RE, Radix AE. Experiences of transgender and gender nonbinary medical students and physicians. Transgend. Health. 2019;4:1, 209–216.
3. Silva AC, Ezequiel OS, Lucchetti ALG, DiLalla LF, Luchetti G. Empathy, well-being, and mental health: do gender differences diminish by the end of medical school? Women Health 2021, VOL. 61, NO. 3, 254–264
4. Hojat, M., J. S. Gonnella, and X. Gang. Gender comparisons of young physicians' perceptions of their medical education, professional life, and practice: A follow-up study of Jefferson medical college graduates. Acad Med 1995;70 (4):305–12.
5. Hojat, M., J. S. Gonnella, S. Mangione, T. J. Nasca, J. J. Veloski, J. B. Erdmann, C. A. Callahan, and M. Magee. Empathy in medical students as related to academic performance, clinical competence

and gender. Med. Educ. 2002;36(6):522–27.
6. Hojat, M., M. J. Vergare, K. Maxwell, S. K. George Brainard, G. A. Herrine, J. V. Isenberg, and J. S. Gonnella. The devil is in the third year: A longitudinal study of erosion of empathy in medical school. Acad Med 2009;84 (9):1182–91.
7. Thomas M, Bigatti S. Perfectionism, impostor phenomenon, and mental health in medicine: a literature review. Int J MedEduc. 2020;11:201-213.
8. Oriel K, Plane MB, Mundt M. Family medicine residents and the impostor phenomenon. Fam Med. 2004; 36(4):248-52.
9. 9. Rice TW, Coates DL. Gender Role Attitudes in the Southern United States. Gend. Soc. 1995; 9(6):744–56.
10. 10. Roles of Gender in Southern Literature. April 15, 2019. Deep South Magazine at deepsouthmag.com. Accessed July 28, 2023.
11. Crump WJ, Ziegler CH, Fricker RS. A residency professional identity curriculum and a longitudinal measure of empathy in a community-based program. J Reg Med Campuses. 2018:1(4). doi: https://doi.org/10.24926/jrmc.v1i2.1292.
12. Crump WJ, Fricker RS, Crump-Rogers A. A Career Eulogy Reflective Exercise: A View into Early Professional Identity Formation. Marshall J Med. 2020 6(2). doi: 10.33470/2379-9536.1266. Available at: https://mds.marshall.edu/mjm/vol6/iss2/12.
13. Crump WJ, Ziegler, CH, Fricker, RS. A longitudinal measure of medical student empathy at a regional campus: are we different? Could this be a valuable method for evaluating curriculum change? J Reg Med Campuses. 2021; 4(1). doi: 10.24926/jrmc.v4i1.3475.
14. Yu E, Wright SM. "Beginning with the end in mind": Imagining personal retirement speeches to promote professionalism. Acad Med. 2015;90(6):790-793. doi: 10.1097/ACM.0000000000000690.
15. Crump WJ, Fricker RS, Ziegler, C. A closer look into empathy among medical students: The career eulogy as a lens. Marshall J Med. 2021; 7(1): Article 6. doi: 10.33470/2379-9536.1317. Available at: https://mds.marshall.edu/mjm/vol7/iss1/6.
16. Hojat M, Louis DZ, Markham FW, Wender R, Rabinowitz C, Gonnela JS. Physicians' empathy and clinical outcomes for diabetic patients. Acad Med. 2011 86(3):359-364. doi: 10.1097/ACM.0b013e3182086fe1.
17. Hojat M, Gonnella JS. Eleven years of data on the Jefferson Scale of empathy-Medical student version (JSE-S): Proxy norm data and tentative cutoff scores. Med Princ Pract. 2015 24(4):344-350. doi: 10.1159/000381954. Epub 2015 Apr 28.
18. Hojat M, Shannon SC, DeSantis J, Speicher MR, Bragan L, Calabrese LH. Does empathy decline in the clinical phase of medical education? A nationwide, multi-institutional, cross-sectional study of students at DO-granting medical schools. Acad Med. 2020;95(6):911-918. doi: 10.1097/ACM.0000000000003175.
19. Crump WJ, Fricker RS, Ziegler C, Wiegman DL, Rowland ML. Rural Track Training Based at a Small Regional Campus: Equivalency of Training, Residency Choice, and Practice Location of Graduates. Acad Med. 2013;88(8): 112-1128. doi: 10.1097/ACM.0b013e31829a3df0.
20. Crump WJ, Fricker RS, Ziegler CH, Wiegman DL. Increasing the Rural Physician Workforce: A Potential Role for Small Rural Medical School Campuses. J Rural Health. 2016 32(3):254-259. doi: 10.1111/jrh.12156. Epub 2015 Oct 30.