ORIGINAL RESEARCH

Results of Student-Generated 'Unique Characteristics' on the Medical Student Performance Evaluation

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ABSTRACT

Importance: The Medical Student Performance Evaluation (MSPE)—formerly called the dean's letter—is an important tool for residency program directors to use in assessing student qualifications for both invitation to interview and construction of their rank order list. Many institutions are now allowing students to construct their own Unique Characteristics (UC) section for the MSPE. This study addresses the results of allowing students to construct their own UC.

Objectives: The goal of this study was to allow students to voice their thoughts regarding their participation in the construction of the UC section of the MSPE. The survey evaluated student attitude toward, value of, and support for the UC section.

Method: We conducted a cross-sectional survey of all fourth-year medical students at the Medical College of Wisconsin during the 2014-2015 academic year. Responses were received from 66% of students (133 out of 199). We developed a question bank to cover the aims of the study—to assess student perceived value, experience writing, and support for the UC section.

Results: There was agreement among students that their participation will positively affect their candidacy for interview selection and success in the match. Overall significance of regression model $P = .001$, $R^2 = .60$. Additionally, students believed they had an advantage over applicants at other schools without the opportunity to draft their UC. Other findings included that men found the task more challenging, psychiatry applicants were least satisfied with the character count, and emergency medicine applicants voiced the lowest value for the UC section.

Conclusions: The present study supports, in general terms, the utility and value of students drafting their own UC section of the MSPE. Future investigations should focus on expanding to other schools, comparing public to private institutions, and refining the interspecialty comparisons.

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INTRODUCTION

The dean's letter, officially known as the Medical Student Performance Evaluation (MSPE), has been a standard element of the medical student residency application since at least 1970.[1-3] Considerable efforts have been made to create a uniform dean's letter across all medical schools because of multiple reports declaring that it held minimal value to predict future performance due to inconsistent format and vague remarks.[4-6] A set of guidelines were implemented by the Association of American Medical Colleges (AAMC), most recently in 2002, to improve the significance of and standardize the MSPE.[6]

In recent years, there has been less importance placed on the MSPE. According to the 2012 National Residency Match Program Program Director Survey, the MSPE was ranked eighth of 31 criteria in selecting applicants for interview.[7] Increasing student involvement in constructing the MSPE may enhance its function in the application process.

The MSPE is composed of 6 sections: Identifying Information, Unique Characteristics (UC), Academic History, Academic Progress, Summary, and Appendices. The UC section allows medical students to disclose nonacademic qualifications for residency and provide a narrative about any challenges or hardships faced during medical school. In particular, students' participation in extracurricular activities, research, community service, and campus life enrichment are highlighted in the UC section.[6] Prior to the AAMC guidelines, this content was reserved for a section of the dean's letter dedicated to activities and research projects.

A previous survey (n = 103) by the principal investigator found

that 47% of schools currently allow their students to help write the UC, while another 28% would consider offering this opportunity. Thus, 75% are at least agreeable to the idea of students crafting their own UCs. Despite the extent of student participation, there are no reports of students' opinions on their inclusion in this process. Prior to the Medical College of Wisconsin (MCW) Class of 2015, senior medical students played a limited role in writing the UC section. Instead, the content was collected from an activity transcript that was updated annually by students. Starting with the Class of 2015, students were to share their extracurricular activities in 6 categories limited to 750 characters each. The categories were Research, Publications, Presentations, Leadership, Community Service, and Organization Memberships. To ensure accuracy, the Dean's offices verified activities.

This study used a survey to evaluate student attitude, value, and support of their participation in the construction of the UC section. Beyond performance in courses and clerkships, the US Medical Licensing Examination and personal statements, students have little voice when applying to residency. Their involvement increases the student role, and this study evaluated their opinion of the increased engagement.

METHODS

Study Design/Population

This was a cross-sectional survey of all fourth year medical students at MCW during the 2014-2015 academic year. Students were identified by gender as suggested by MCW faculty, based on anecdotal experiences that women seem less likely to "self-promote." In addition, students were identified by their choice of specialty.

Survey Development

The authors developed a question bank to cover the aims of the study—to assess student perceived value of, experience writing, and support for the UC. The pool of questions was reduced to 20 questions reworded as statements. A group of second-year MCW students reviewed the survey for readability and rigor, and it was then edited. Prior to its release, the associate dean for Student Affairs/Diversity provided an independent review of the survey for institutional review board (IRB) purposes. This project was determined exempt by the MCW IRB for human subjects research. The final survey asked students to report agreement with each statement on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). It was designed to be completed in 5 to 10 minutes.

Study Procedure

The survey was distributed via e-mail by the Office of Academic Affairs on October 27, 2014. Automatic reminders were sent out for 4 consecutive weeks and the survey closed on December 1, 2014. Student e-mail addresses were procured through the Office of Student Affairs. Responses were kept anonymous except to analysts who had access to the Association of American Medical Colleges identification number (AAMC ID) to determine responders versus nonresponders. The only identifying information asked in the survey was gender and choice of specialty.

Analysis Plan

Survey responses were collected on SPSS Survey Manager 7, and the raw data was extracted to SPSS 21.0 (IBM Corporation, Armonk, New York) for statistical analysis.

Kruskal-Wallis analysis of variance (ANOVA) was used to compare student responses split by gender and specialty. Follow-up pairwise differences in median scores were determined with Mann-Whitney U-tests. Principal components analysis with a Varimax rotation was used to group items into components. Inter-item reliability analysis assessed the internal consistency of the responses via Cronbach's alpha. Multivariate linear regression determined which of the 19 survey items predicted the outcome: "My drafting of the UC will have a positive effect on my candidacy for interview selection and success in the match," labeled as item 20.

The specialties were categorized into anesthesiology, emergency medicine, family medicine, internal medicine, pediatrics, psychiatry, surgery, and "other" (medicine-pediatrics, neurology, obstetrics/gynecology, ophthalmology, orthopedic surgery, otolaryngology, pathology, physical medicine and rehabilitation, radiation oncology, radiology, surgery, and urology).

RESULTS

A total of 131 students (78 male and 53 female) out of 199 completed the survey, which yielded a response rate of 66% of the total class. Table 1 reports the percentages and medians/interquartile ranges (IR) for all 131 survey responses to the individual items. The highest percent agreement, which includes agree and strongly agree, was obtained on 3 statements: item 2, regarding satisfaction with the categories of the UC (76%); item 9, regarding the UC as an important part of the MSPE (71%); and item 15, regarding appreciating the opportunity to emphasize what the respondent felt were the important aspects of the application (70%).

Two items yielded statistically significant differences when split by gender, with men rating a slightly higher agreement level than women. (Note: Given that median [IR] scores are often numerically identical for groups with statistically significant differences in medians, percent agreement scores also are reported below to more easily detect the differences in score distributions.) For item 11, 47% of men (median [IR] = 3.0 [1.0]) and 30% of women (3.0 [2.0]) agreed that they drafted the UC of their MSPE so that it pertained to their specialty of choice (P = .047). For item 17, 17% of men (3.0 [1.0]) and 6% of women (2.0 [1.0]) agreed that the UC should be eliminated from the MSPE (P = .013).

Table 1. Percentages and Medians (Interquartile Ranges) for Medical Student Performance Evaluation (MSPE) Items (N=131) Based on a 5-point Likert Scale

Item	Strongly Disagree % =1	Disagree % =2	Neither Agree nor Disagree % =3	Agree % =4	Strongly Agree % =5	Median (IR)
1. I was satisfied with the amount of guidance provided to develop the UC of my MSPE.	2	18	27	37	15	4.0 (1.0)
2. I was satisfied with the categories of the UC.	1	6	18	59	17	4.0 (0.0)
3. I was satisfied with the character limit for each category of the UC.	2	14	18	50	17	4.0 (1.0)
4. Writing the UC was a challenge.	1	13	27	43	17	4.0 (1.0)
5. I would have appreciated more instruction for constructing the UC of my MSPE.	0	17	29	40	15	4.0 (1.0)
6. I am aware that not all students construct their UC of the MSPE.	2	18	16	47	17	4.0 (1.0)
7. Drafting the UC of my MSPE gave me an advantage over students at other schools without the same opportunity.	2	12	42	34	10	3.0 (1.0)
8. All medical students should draft the UC of their MSPE.	4	14	46	25	11	3.0 (1.0)
9. The UC is an important part of the MSPE.	2	7	21	56	15	4.0 (1.0)
10. The UC is an important part of the residency application.	3	9	23	56	9	4.0 (1.0)
11. I drafted the UC of my MSPE so that it pertains to my specialty of choice.	2	26	32	34	7	3.0 (2.0)
12. My drafting of the UC offered no benefit to my residency application.	5	37	36	18	4	3.0 (1.0)
13. The UC is an unimportant part of the residency application.	5	50	23	18	4	2.0 (1.0)
14. I was excited to be involved in constructing the UC of my MSPE.	10	25	35	23	7	3.0 (2.0)
15. I appreciated the opportunity to emphasize what I felt were the important aspects of my application.	3	11	17	56	14	4.0 (1.0)
16. Drafting the UC of the MSPE was a burden.	2	19	36	31	12	3.0 (1.0)
17. The UC should be eliminated from the MSPE.	14	43	31	9	3	2.0 (1.0)
18. Students should be able to choose whether or not they participate in the construction of the UC of their MSPE.	4	12	26	45	13	4.0 (1.0)
19. I would have preferred to have the Dean's offices prepare the UC section of my MSPE.	9	32	30	20	9	3.0 (2.0)
20. My drafting of the UC will have a positive effect on my candidacy for interview selection and success in the match.	0	5	34	42	20	4.0 (1.0)

Abbreviations: UC, Unique Characteristics.

The specialties with the highest response rate frequency were internal medicine (15%), pediatrics (13%), anesthesiology (12%), and surgery (12%). The following 4 items had statistically significant differences when split by specialty: item 3, "I was satisfied with the character limit for each category of the UC" ($P = .018$); item 7, "drafting the UC of my MSPE gave me an advantage over students at other schools without the same opportunity" ($P = .005$); item 9, "the UC is an important part of the MSPE" ($P = .045$); and item 14, "I was excited to be involved in constructing the UC of my MSPE."

For item 3, there were significant pairwise differences between anesthesiology (4.0 [1.0]) and psychiatry (3.0 [2.5]) ($P = .008$) and pediatrics (4.0 [0.5]) and psychiatry ($P = .005$). In both pairs, students applying to psychiatry were less satisfied with the character limit. For item 7, there were significant pairwise differences between anesthesiology (4.0 [2.0]) and emergency medicine (3.0 [1.0]) ($P = .001$). For item 9, there were significant pairwise differences between emergency medicine (3.0 [2.0]) and pediatrics (4.0 [0.0]) ($P = .002$). No pairwise differences were generated for item 14.

The principal components analysis with a Varimax rotation extraction of the 19 items yielded 4 components accounting for 63% of the variance as reported in Table 2. The 4 components could be best described as (A) Drafting the UC (9 items), (B) importance of UC (5 items), (C) challenges of UC (3 items), and (D) participation in UC (2 items).

The inter-item reliability analysis used to measure the internal consistency of the 19 items was Cronbach's alpha = 0.89. The reliability for the 4 components of the principal component analysis was as follows: component A (alpha = 0.88), component B (alpha = 0.86), component C (alpha = 0.55), and component D (alpha = 0.24).

The 19 items were entered as predictor items in a multivariate linear regression for item 20, "My drafting of the UC will have a positive effect on my candidacy for interview selection and success in the match." Item 20 was chosen because it most accurately approximates the goal of the MSPE and the match. A statistically significant regression model ($P = 0.001$, $R^2 = 0.60$) yielded 5 significant predictors as reported in Table 3. The 3 best predictors (items 1, 7, and 15) were in the largest component of the principal components analysis: drafting the UC.

DISCUSSION

Overall, the majority of students were satisfied with the amount of instruction and logistics of the UC and appreciated the opportunity to emphasize what they felt were the important aspects of

Table 2. Principal Components Analysis of Medical Student Performance Evaluation (MSPE) Items

Component	Item	Component A	Component B	Component C	Component D
A	8. All medical students should draft the UC of their MSPE.	**0.86**	0.21	0.03	0.11
	7. Drafting the UC of my MSPE gave me an advantage over students at other schools without the same opportunity.	**0.83**	0.27	0.01	0.01
	14. I was excited to be involved in constructing the UC of my MSPE.	**0.79**	0.23	-0.01	-0.08
	19. I would have preferred to have the Dean's offices prepare the Unique Characteristics section of my MSPE.	**-0.68**	-0.19	0.42	0.22
	15. I appreciated the opportunity to emphasize what I felt were the important aspects of my application.	**0.67**	0.28	-0.16	0.06
	1. I was satisfied with the amount of guidance provided to develop the UC of my MSPE.	**0.57**	0.29	-0.21	0.40
	2. I was satisfied with the categories of the UC.	**0.56**	0.40	0.01	0.32
	16. Drafting the UC of the MSPE was a burden.	**-0.56**	-0.28	0.51	0.04
	11. I drafted the UC of my MSPE so that it pertains to my specialty of choice.	**0.46**	0.02	0.36	0.09
B	13. The UC is an unimportant part of the residency application.	-0.10	**-0.82**	0.03	0.02
	12. My drafting of the UC offered no benefit to my residency application.	-0.23	**-0.80**	0.27	0.00
	10. The UC is an important part of the residency application.	0.45	**0.69**	0.17	0.04
	9. The UC is an important part of the MSPE.	0.53	**0.64**	0.05	0.04
	17. The UC should be eliminated from the MSPE.	-0.41	**-0.61**	0.40	0.15
C	5. I would have appreciated more instruction for constructing the UC of my MSPE.	-0.20	-0.01	**0.81**	-0.08
	4. Writing the UC was a challenge.	-0.07	-0.08	**0.74**	0.19
	6. I am aware that not all students construct their UC of the MSPE.	0.22	-0.01	**0.49**	-0.19
D	18. Students should be able to choose whether or not they participate in the construction of the UC of their MSPE.	-0.13	-0.18	-0.04	**0.69**
	3. I was satisfied with the character limit for each category of the UC.	0.25	0.15	0.09	**0.66**

Abbreviations: UC, Unique Characteristics.

Table 3. Multivariate Linear Regression for Item 20[a] Onto 19 Medical Student Performance Evaluation (MSPE) Items

Predictor Item	Beta	Sig (p)
1. I was satisfied with the amount of guidance provided to develop the UC of my MSPE.	.289	.001
15. I appreciated the opportunity to emphasize what I felt were the important aspects of my application.	.246	.001
7. Drafting the UC of my MSPE gave me an advantage over students at other schools without the same opportunity.	.225	.005
13. The UC is an unimportant part of the residency application.	-.171	.006
3. I was satisfied with the character limit for each category of the UC.	.163	.009

[a] Item 20: "My drafting of the UC will have a positive effect on my candidacy for interview selection and success in the match."
Overall statistical significance and goodness-of-fit of linear regression model: $P = .001$, $R^2 = .60$.
Abbreviations: UC, Unique Characteristics.

their application. However, students also indicated they would have appreciated more instruction and should be able to choose whether or not they participate in the construction of the UC. This was the first year MCW students drafted their own UC.

There was agreement among students that their participation will positively affect their candidacy for interview selection and success in the match. Additionally, they believed they had an advantage over students at other schools without the opportunity to draft their UC.

The survey results don't support the idea that women are less inclined to self-promote than men. Drafting the UC was a greater challenge for men. The only other significant difference between men and women was in their disagreement that the UC should be eliminated from the MSPE. Generally, women and men agreed across 90% of the items on the MSPE, indicating that gender does not influence the importance, challenges, or participation in the UC and has only minor effects on drafting the UC.

Students applying to psychiatry residencies were less satisfied with the character count compared to anesthesiology and pediatrics groups, who reported significantly higher satisfaction levels. They also were the only specialty group to disagree with the character count.

Students who chose emergency medicine least agreed with the statements that drafting the UC provided an advantage over students without the same opportunity and that the UC is an important part of the MSPE. They also also least agreed that the UC is an important part of the MSPE, suggesting some relation between applicant character and the specialty to which they apply.

Four reliable components were created from the MSPE items, suggested that the instrument is fundamentally capturing data

on student attitudes toward drafting the UC, the importance and challenges of the UC, and their participation. The large numbers of items in the drafting component (9 of 19) and the 3 of 5 drafting predictor items for candidacy suggest that not only was the evaluation emphasizing this drafting component in the content of the items, but that student responses are aligned with it as well.

CONCLUSION

The present study supports, in general terms, the utility and value of students drafting their own UC section of the MSPE. Future investigations should focus on expanding to other schools, comparing public to private institutions, and refining the inter-specialty comparisons. Increasing student input may provide better candidate representation and satisfaction in the residency application process, and ultimately improve match rates.

This study has several limitations, the first being that it only examined the experiences of a single medical school. Additionally, the study reflects student perceptions regarding the UC section rather than their actual experience regarding its

effectiveness. Future studies should examine match outcomes in addition to these student perceptions. The authors have a plan to expand the study to other schools.

REFERENCES

1. Tremonti LP. Intern selection. *Ann Intern Med.* 1973;79(2):277.

2. Gordon MJ, Lincoln JA. Selecting a few residents from many applicants: A new way to be fair and efficient. *J Med Educ.* 1976;51(6):454-460.

3. Stanton BC, Burstein AG, Kobos JC, Loucks S. The dean's letter of recommendation and resident performance. *J Med Educ.* 1979;54(10):812-813.

4. Yager J, Strauss GD, Tardiff K. The quality of deans' letters from medical schools. *J Med Educ.* 1984;59(6):471-478.

5. Leiden LI, Miller GD. National survey of writers of dean's letters for residency applications. *J Med Educ.* 1986;61(12):943-953.

6. Association of American Medical Colleges. A Guide to the Preparation of the Medical Student Performance Evaluation. https://www.aamc.org/download/64496/data/mspeguide.pdf. Accessed April 21, 2016.

7. National Resident Matching Program, Data Release and Research Committee. *Results of the 2012 NRMP Program Director Survey.* Washington, DC: National Resident Matching Program; 2012.

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