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The Correlation of Emergency Medicine Residents' Grit and Non-Cognitive Characteristics

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Background: The AAMC Standardized Video Interview (SVI) was recently added as a component of emergency medicine (EM) residency applications to provide additional information about knowledge of professionalism (PROF) and interpersonal communication skills (ICS).

Objectives: Our objective was to ascertain the correlation between the SVI and residency interviewer assessments of PROF and ICS. Secondary objectives included examination of (a) inter- and intra-institutional assessments of ICS and PROF; (b) correlation of SVI scores with rank order list (ROL) positions; and (c) the influence of gender on interview day assessments.

Methods: We conducted an observational study using prospectively-collected data from seven EM residency programs during 2017-2018 using a standardized instrument. Correlations between interview day PROF / ICS scores and the SVI were tested. We used a one-way analysis of variance to analyze the association of SVI and ROL position. Gender differences were assessed with independent-groups t-tests.

Results: A total of 1,264 interview-day encounters from 773 unique applicants resulted in 4,854 interviews conducted by 151 interviewers. Both PROF and ICS demonstrated a small positive correlation with the SVI score ($r_s = .16$ and $.17$, respectively). ROL position was associated with SVI score ($p < .001$), with mean SVI scores for top-, middle-, and bottom-third applicants being 20.9, 20.5, and 19.8, respectively. No gender bias was identified on assessments of PROF or ICS.

Conclusion: Interview assessments of PROF and ICS have a small, positive correlation with SVI scores. These residency selection tools may be measuring related, but not redundant, applicant characteristics.

Table. Correlations between SVI, ICS, and PROF Scores (N=1264 applicants).

Variable	1. SVI	2. ICS	3. Prof	M	SD
1. SVI	–			20.4	2.8
2. ICS score	0.17**	–		3.7	0.6
3. PROF score	0.16**	0.81**	–	3.7	0.6

* $p < .05$. ** $p < .01$.

Table 2. Descriptive statistics for applicants, interviewers, and interviews.

Institution	A	B	C	D	E	F	G	Total
Applicants (N)	203	132	196	171	177	229	156	1,264
SVI, M (SD)	20.2 (2.7)	20.6 (2.9)	20.3 (2.7)	20.8 (2.9)	20.2 (2.5)	20.6 (2.9)	20.3 (2.9)	20.4 (2.8)
ICS, M (SD)	3.8 (0.5)	3.9 (0.6)	3.8 (0.5)	3.6 (0.5)	3.8 (0.5)	3.5 (0.7)	3.6 (0.7)	3.7 (0.6)
Prof, M (SD)	3.8 (0.5)	3.9 (0.5)	3.8 (0.5)	3.7 (0.5)	3.9 (0.5)	3.6 (0.7)	3.6 (0.6)	3.7 (0.6)
% Female	43.3%	43.2%	40.3%	49.1%	33.3%	38.9%	41.0%	41.1%
Interviewers (N)	32	36	25	10	15	11	22	151
Years experience M (SD)	5.5 (5.5)	7.7 (9.5)	8.3 (8.2)	5.2 (8.1)	6.7 (7.3)	10.4 (10.2)	9.6 (9.4)	7.5 (8.3)
% Female	40.6%	44.4%	40.0%	60.0%	26.7%	36.4%	40.9%	41.1%
Interviews (N)	1,015	360	588	839	787	849	416	4,854
Interviews / interviewer M (SD)	31.7 (41.8)	10.0 (10.9)	23.5 (12.3)	83.3 (50.4)	52.5 (53.1)	77.2 (65.0)	18.9 (33.4)	

3 The Correlation of Emergency Medicine Residents' Grit and Non-Cognitive Characteristics

Olson N, Williamson K, Hartman N, Cheema N, Olson A / University of Chicago, Pritzker School of Medicine, Chicago, Illinois; Advocate Christ Medical Center, Oak Lawn, Illinois; Wake Forest School of Medicine, Wake Forest, North Carolina

Background: Identification and assessment of trainees at risk for burnout, depression, and career dissatisfaction can challenge educators. Grit, defined as “perseverance and passion for long-term goals,” is a means to quantify an aspect of personality that has been shown to predict future outcomes such as higher grade point average, fewer career changes, and increased retention in vigorous military programs. Grit-S is a validated eight-question scale scored from 1-5 (5 is the highest score); the average of the responses represents a person’s grit. Higher grit scores have been associated with positive non-cognitive outcomes including lower burnout rates in physicians in a number of contexts.

Objectives: Our objective was to determine the correlation between emergency medicine (EM) resident Grit-S scores and the non-cognitive characteristics of burnout, a positive depression screen, and career satisfaction.

Methods: This was a prospective, multicenter trial

involving 10 EM residencies over a one-year period. Study subjects were postgraduate year 1-4 EM residents at each site. A survey containing the Grit-S, the Maslach Burnout Inventory, a depression screen, and a career satisfaction scale was administered to participating residents. Correlation coefficients were computed to assess the relationship between residents' grit and non-cognitive characteristics.

Results: A total of 434 residents participated in the study; 49 residents were excluded who did not complete a Grit-S. The mean Grit-S score was 3.62. There was a negative correlation between grit and burnout ($r = -0.22$, $n = 355$, $p < 0.001$) and grit and a positive depression screen ($r = -0.16$, $n = 382$, $p = 0.001$). There was a positive correlation between grit and career satisfaction ($r = 0.15$, $n = 381$, $p = 0.003$).

Conclusion: Our findings suggest that those EM residents with higher Grit-S score are less likely to experience burnout or to screen positive for depression and are more likely to have career satisfaction. These findings may be useful in early identification of residents who may be at risk for burnout, depression, and dissatisfaction with their career choice.

Table. Correlation of grit and non-cognitive characteristics.

	Correlation coefficient	p-value
Grit and burnout	$r = -0.22$	$p < 0.001$
Grit and positive depression screen	$r = -0.16$	$p = 0.001$
Grit and career satisfaction	$r = 0.15$	$p = 0.003$

4 The Correlation of Emergency Medicine Residents' Grit And Achievement

Olson N, Williamson K, Hartman N, Cheema N, Olson A / University of Chicago, Pritzker School of Medicine, Chicago, Illinois; Advocate Christ Medical Center, Oak Lawn, Illinois; Wake Forest School of Medicine, Wake Forest, North Carolina

Background: Early recognition of emergency medicine (EM) residents who may struggle with educational attainment and career success can be difficult. While performance on the in-service examination (ITE) is predictive of success on the EM boards, results are not available until late in the academic year. The use of assessments of non-cognitive traits has emerged as a promising domain for predicting achievement. The non-cognitive trait "grit," defined as "perseverance

and passion for long-term goals," is a means to quantify an aspect of personality. Grit-S is a validated eight-question scale scored 1-5 (5 is the highest score); the average of the responses represents a person's grit. Grit has been shown to predict educational attainment in spelling bees, high school graduation rates, undergraduate grade point average, and success in gross anatomy.

Objectives: Our objective was to determine the correlation between EM resident Grit-S scores and achievement as measured by Medical College Admission Test (MCAT) percentiles, ITE scores, and need for remediation.

Methods: This was a prospective, multicenter trial involving 10 EM residencies over a one-year period. Study subjects were postgraduate year (PGY)1-4 EM residents. The Grit-S was administered as part of a larger survey. MCAT percentile, remediation rates, ITE scores and the ITE score's prediction of percent chance of passing EM boards were collected. We computed correlation coefficients to assess the relationship between residents' grit and achievement.

Results: A total of 434 residents participated in the study; 49 residents were excluded who did not complete a Grit-S. The mean Grit-S score was 3.62. Grit was positively correlated with the likelihood of passing EM boards as measured on the ITE ($r = 0.134$, $n = 382$, $p = 0.025$). There was no correlation between grit and the need for remediation ($r = -0.04$, $n = 378$, $p = 0.46$) or between grit and MCAT percentiles ($r = -0.08$, $n = 262$, $p = 0.22$).

Conclusion: The positive correlation between grit and prediction of passing EM Boards demonstrates grit's potential for the early prediction of success and achievement in EM residents.

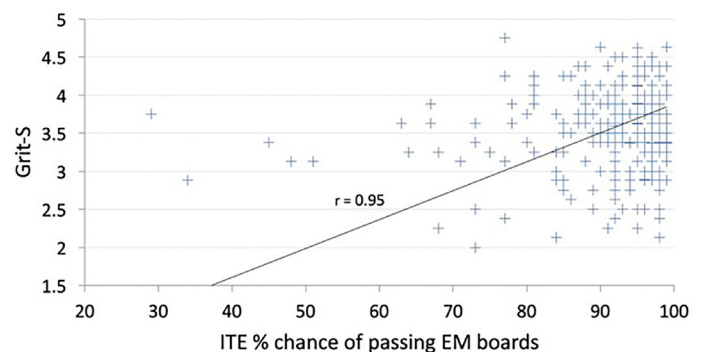


Figure. Correlation of grit score and percent change of passing emergency medicine boards.