Sense of Purpose and Perceived Person-Environment Fit's Effect on Burnout in Vascular Surgery Residents

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Introduction & Objectives

Burnout is a condition that causes emotional exhaustion, depersonalization, and a decreased sense of accomplishment which can lead to unfavorable outcomes both personally and professionally[1,2]. A 2019 study in the New England Journal of Medicine found that trainees in surgical subspecialties face the highest risk of burnout in part due to mistreatment[2]. There have since been numerous studies to further assess the degree of burnout amount surgical residents and the factors that drive burnout. Most of the factors identified to contribute to burnout such as work hours or EMR/documentation are enmeshed into the fundamental practice of medicine in such a way that remediation is difficult to address and physician burnout continues[3-6].

Businesses or corporations have historically used the psychosocial work environment to promote employee satisfaction and productivity in businesses[7]. Psychosocial interventions such as team culture or management style can impact both individual and organizational success[7]. A cross-sectional study of vascular surgeons in Europe showed a strong association between psychosocial work environment and burnout; however, recent surveys of US vascular surgery residents have not fully addressed psychosocial factors[8,9].

Shifting the evaluation of US vascular surgery resident burnout to include an evaluation of the psychosocial work environment could provide program directors with a set of attainable changes to combat resident burnout. This study seeks to utilize the Psychosocial Work Environment survey from Møller et al and Meaning of Life Questionnaire from Steger et al to correlate validated psychosocial metrics to burnout among vascular surgery residents.

Methods

A Qualtrics survey which compiled the Psychosocial Work Environment Survey from Møller et. al[9], Meaning of Life Questionnaire from Steger et. Al, the Oldenburg Burnout Inventory, and a series of demographic questions was sent to program directors of every Vascular Surgery program in the nation. We asked the program directors to forward the survey to their trainees (residents and fellows) and then used STATA, a data analysis software, to analyze the results.

Results

Table 1	SS	df	F-Statistic	p-value
Psychosocial Work Enviornment (PWE)	0.158	1	10.11	0.002
Presence of Purpose (PP)	0.085	1	5.45	0.023
Searching for Purpose (SP)	0.003	1	0.17	0.683
PWE + PP	0.008	1	0.52	0.475
PWE + SP	0.007	1	0.47	0.494
PP + SP	0.016	1	1.04	0.313

Table 1 shows a three-way ANOVA between the independent variables Psychosocial work environment (PWE), Presence of purpose (PP), and Search for Purpose (SP) in relation to burnout scores

Table 2	High PWE Score	Low PWE Score	p-value Ha: diff<0	High PP Score	Low PP Score	p-value Ha: diff>0
Burnout Score	0.48 ± 0.02	0.61 ± 0.02	0.0000	0.62 ± 0.02	0.49 ± 0.02	0.0001

Table 2 shows t-tests between PWE and burnout scores as well as PP and burnout scores. A value greater than the sample mean was placed in the high score group. A score less than or equal to the mean was place in the low score group.

Table 4	Total	Not Male	Male	p-value (Ha: diff>0)
PWE Score	83	0.422 ± 0.014	0.391 ± 0.013	0.0585
Work Conditions	83	0.41 ± 0.03	0.35 ± 0.03	0.0637
Work Pace	79	0.59 ± 0.03	0.641 ± 0.015	0.9385
Trust Between Collegues	72	0.30 ± 0.03	0.23 ± 0.02	0.0348
Possibilities for Performing Work Tasks	72	0.28 ± 0.03	0.25 ± 0.03	0.2645
Emotional Demands	72	0.49 ± 0.04	0.52 ± 0.03	0.8096
PP Score	70	0.72 ± 0.03	0.75 ± 0.03	0.7573
SP Score	70	0.59 ± 0.03	0.64 ± 0.04	0.8531
Burnout Score	68	0.51 ± 0.03	0.57 ± 0.02	0.9568

Table 4 shows t-tests between gender and subcategories of the PWE score as well as PP, SP, and Burnout

Table 5	Has Mentor	Does Not Have Mentor	p-value diff>0
Total	60	8	
Burnout score	0.56 ± 0.02	0.43 ± 0.04	0.007

Table 5 shows a t-test between those who have and don't have a mentor in vascular surgery and burnout score

Table 3	Total	High PWE Score	Low PWE Score	p-value	High PP Score	Low PP Score	p-value
Age							
21-30	27 (39.7%)	16 (47.1%)	11 (32.4%)	0.061	9 (30.0%)	18 (47.4%)	0.282
31-40	38 (55.9%)	15 (44.1%)	23 (67.7%)		20 (66.7%)	18 (47.37%)	
41-50	3 (4.4%)	3 (8.8%)	0 (0%)		1 (3.3%)	2 (5.3%)	
Years of Training							
First Year Fellow	9 (13.4%)	5 (15.2%)	4 (11.8%)	0.391	4 (13.3%)	5 (13.5%)	0.938
Second Year Fellow	13 (19.4%)	6 (18.2%)	7 (20.6%)		6 (20.0%)	7 (18.9%)	
PGY 1 Vascular Resident	10 (14.9%)	5 (15.2%)	5 (14.7%)		5 (16.7%)	5 (13.5%)	
PGY 2 Vascular Resident	9 (13.4%)	6 (18.2%)	3 (8.8%)		3 (10.0%)	6 (16.2%)	
PGY 3 Vascular Resident	12 (17.9%)	5 (15.2%)	7 (20.6%)		4 (13.3%)	8 (21.6%)	
PGY 4 Vascular Resident	6 (9%)	1 (3.0%)	5 (14.7%)		3 (10.0%)	3 (8.1%)	
PGY 5 Vascular Resident	5 (7.5%)	2 (6.1%)	3 (8.8%)		3 (10.0%)	2 (5.4%)	
PGY 6 Vascular Resident	3 (4.5%)	3 (9.1%)	0 (0%)		2 (6.7%)	1 (2.7%)	
Gender							
Female	26 (38.2%)	16 (47.1%)	10 (29.4%)	0.04	11 (36.7%)	15 (39.5%)	0.254
Male	39 (57.4 %)	15 (44.1%)	24 (70.6%)		19 (63.3%)	20 (52.6%)	
Prefer Not to Answer	3 (4.4%)	3 (8.8%)	0 (0%)		0 (0.0%)	3 (7.9%)	
Region of US							
New England	2 (3.0%)	1 (3.0%)	1 (2.9%)	0.794	1 (3.3%)	1 (2.7%)	0.876
Middle Atlantic	18 (28.9%)	7 (21.2%)	11 (32.3%)		7 (23.3%)	11 (29.7%)	
East North Central	13 (19.4%)	6 (18.2%)	7 (20.6%)		5 (16.7%)	8 (21.6%)	
West North Central	10 (14.9%)	5 (15.2%)	5 (14.7%)		4 (13.3%)	6 (16.2%)	
South Atlantic	7 (10.5%)	3 (9.1%)	4 (11.8%)		4 (13.3%)	3 (8.1%)	
East South Central	2 (3.0%)	1 (3.0%)	1 (2.9%)		1 (3.3%)	1 (2.7%)	
West South Central	9 (13.4%)	5 (15.2%)	4 (11.8%)		6 (20.0%)	3 (8.1%)	
Pacific	6 (9%)	5 (15.2%)	1 (2.9%)		2 (6.7%)	4 (10.8%)	
Weekends off per month							
0	2 (2.9%)	1 (3.0%)	1 (2.9%)		0 (0.0%)	2 (5.3%)	
1	4 (5.9%)	3 (8.8%)	1 (2.9%)		2 (6.7%)	2 (5.3%)	
2+	62 (91.2%)	30 (88.2)	32 (94.1%)	0.429	28 (93.3%)	34 (89.4%)	0.562
Married	29 (43.3%)	12 (36.4%)	17 (50.0%)	0.260	16 (53.3%)	13 (35.1%)	0.135
Have Children	14 (20.9%)	8 (24.2%)	6 (17.7%)	0.507	8 (26.7%)	6 (16.2%)	0.295
Have Mentor in VS	60 (88.2%)	29 (85.3%)	31 (91.2%)	0.452	30 (100.0%)	30 (79.0%)	0.007

Table 3 shows chi^2 tests between PWE and PP compared to demographic information from the survey

Conclusions

83/319 (26%) trainees at 54 accredited programs completed the questionnaire. Higher psychosocial work environment score had an inverse relationship with burnout (p<0.0001). Male trainees were found to have lower trust between colleagues (p=0.0348) and higher burnout scores (p=0.0432).

Higher presence of purpose had a direct correlation with burnout (p<0.0001). Those who had mentors in vascular surgery were found to have significantly different presence of purpose scores than those who did not have mentors in vascular surgery (p=0.007). Additionally, those with mentors in vascular surgery were found to have higher burnout scores (p=0.007).

This project upholds the results of prior studies that have used psychosocial analysis to evaluate burnout among surgical trainees and further demonstrates how actionable items may be deduced from this approach to trainee burnout.

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