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ORIGINAL RESEARCH

Optimist Prime- Emergency Medicine Residents are an Optimistic Group

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Abstract

Introduction: Few studies have been conducted on the level of optimism in emergency medicine residents and how it may be linked to resident burnout. This is the first national-level assessment of these personality factors.

Methods: This was a prospective survey leveraging data obtained through the 2017 National Emergency Medicine Resident Wellness Survey, which included the Life Orientation Test-Revised (LOT-R). The Life Orientation Test-Revised (LOT-R) is a 10-item tool that measures levels of optimism.

Results: We found that the majority of our resident respondents scored in the moderate category of the LOT-R. 12.4% fell into the more optimistic category. Additionally, we found that the LOT-R score was not a significant predictor of resident burnout.

Conclusion: The results indicate that emergency medicine residents are generally optimistic, but levels of optimism are unlikely to affect resident burnout and emotional distress.

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INTRODUCTION

Although some studies investigating physician burnout suggest that trends are overall improving, emergency medicine (EM) physicians remain particularly vulnerable to burnout, with reported rates of more than 60% [1, 2, 3]. A recent study focusing on the wellbeing of emergency medicine (EM) residents identified nearly 76% of residents as meeting criteria for burnout [4].

The Life Orientation Test-Revised (LOT-R) is a 10-item tool that measures levels of optimism and pessimism and can be used to assess the relationship with personality factors [5, 6]. Three of the items measure optimism, three measure pessimism, and four serve as fillers (not used in the calculation of a final score) [6]. This revised instrument is considered a good measure of optimism in relation to self-esteem and personality factors [7].

The scale originally assessed optimism only, but over time it has been modified and validated to fit a two factor model [8]. In contrast to burnout, optimism is broadly defined as a tendency to expect good things. It is a mental attitude associated with a variety of positive health behaviors including regular physical activity, moderate alcohol consumption, and decreased incidence of smoking [9]. It is also correlated with decreased risk of depressive symptoms, suicidal ideation, and increased tendency toward feeling hopeful about the future. Optimists tend to use active, problem-focused coping tactics, facilitating success in everyday social and working life [7].

Large population studies have identified factors that influence LOT-R scores including gender and age. Education, professional situation, and income are substantial predictors of optimism, with the highest levels of optimism among well educated people with high income,

working full-time [8]. No study to date has used a validated tool to measure the degree of optimism in resident physicians. We aim to describe the level of optimism and examine the relationship between optimism and burnout in the EM resident population.

METHODS

By employing a self-administered, incentivized online questionnaire, EM residents were surveyed during the 12-day period of March 20-31, 2017. The survey included the MBI-HSS and the LOT-R questions about lifestyle habits, and other demographic questions. The LOT-R tool divides scores into three categories: low optimism (score of 0-6), moderate optimism (score of 7-16), and high optimism (score of 17-24). For each of the Likert options, a score is assigned. Questions three, seven, and nine of the LOT-R are reverse scored. Scores for the main six questions are tallied resulting in a low score of zero (low optimism) and a high score of 24. The respondents are then subdivided into three categories based on the following scoring: those with a total score of zero to six are considered low optimism (pessimistic), those with a total score of seven to 16 are moderately optimistic, and those scoring 17 to 24 are highly optimistic.

The survey was hosted online with REDCap (Research Electronic Data Capture; Version 8.1.4). Emergency medicine residents were made aware of the survey through multiple channels including EM residency leadership listservs, Twitter, and Facebook. The survey participants' status as current emergency medicine residents was verified by obtaining and cross-referencing resident rosters

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from program directors, program coordinators, and chief residents of accredited emergency medicine residency programs. Duplicate, unverified, and submissions from dual or triple residency programs were excluded. Verified respondents who completed the survey were provided a five-dollar Starbucks gift card and coupon codes to meal delivery services.

Programs with more than 90% survey completion rates were entered into a lottery for a free pizza party and access to live-streamed recordings from a national emergency medicine education conference. All data was anonymized prior to analysis.

Data analysis and statistics

Descriptive statistics were obtained for age, sex, and postgraduate year (PGY). Due to low numbers of respondents in the 40-49 and 50-59 age ranges, individuals from these categories were combined. Statistically significant correlations were determined using Chi-square analyses (alpha=0.05).

RESULTS

Surveys were completed by 1,522 residents (21.1% of all US emergency medicine residents), representing 193 of 247 US emergency medicine residency programs (78.1%) Among respondents, 1,321 (86.8%) scored in the moderate category, 188 (12.4%) respondents scored in the high optimism category and, 13 (0.85%) in the low optimism category (Table 1). The mean LOT-R score for the group was 13.6 (Figure 1).

Table 1: LOT-R score by age, gender, and post graduate year

		Low n=13(0.9)	Moderate n=1321(86.8)	High n=188(12.4)	P-value
Age Range n(%)	20-29	5(45.5)	645(49.1)	88(46.8)	0.923
	30-39	6(54.5)	648(49.4)	98 (52.1)	
	40-59	0(0)	20 (1.5)	2(1.1)	
Gender n(%)	female	3(27.3)	563(42.6)	75 (39.9)	0.470
	male	8(72.7)	758(57.4)	113 (60.1)	
Post Graduate Year (PGY) n(%)	PGY1	3(27.3)	456(34.5)	64(34.0)	0.578
	PGY2	3(27.3)	373(28.2)	60(31.9)	
	PGY3	5(45.5)	351(26.6)	47(25.0)	
	PGY4	0(0)	132(10.0)	14(7.5)	
	PGY5	0(0)	9(0.7)	3(1.6)	

No significant associations were noted between LOT-R score and age, sex or post graduate year (PGY) (Chi-Square, $P > 0.05$). A trend was noted in optimism levels between male and female respondents, with a higher proportion of males exhibiting moderate (758, 49.8%) and high optimism (113, 7.4%) compared to females exhibiting moderate (563, 37%) and high optimism (75, 4.9%). Though this trend was noticed, the results were not statistically significant. The highest level of optimism exhibited was among males between the ages of 30-39 (60, 3.9%). When this subset is cross-referenced with postgraduate year (PGY), males between 20-29 in their PGY 1 year had the highest levels of optimism (25, 1.6%) (Tables 2-8). Additionally the LOT-R score was not significantly correlated with Emotional Exhaustion, Depersonalization or Personal Accomplishment overall ($P = .81, .31$ and $.14$ respectively.)

Frequency of LOT-R Scores

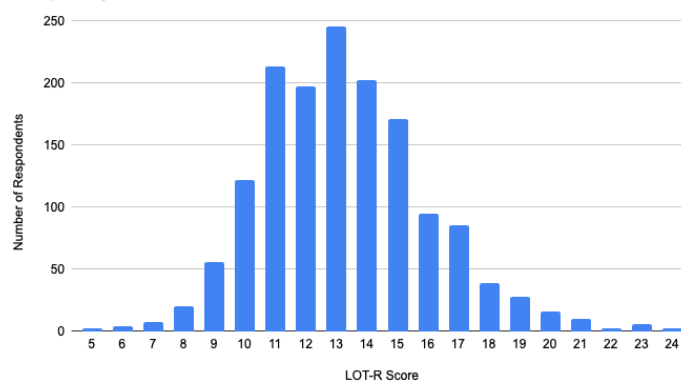


Figure 1: Frequency of LOT-R Scores

DISCUSSION

This study used the LOT-R tool to evaluate levels of optimism and pessimism in EM resident survey participants. It is unknown if studies looking at EM resident burnout are confounded by pessimistic or optimistic viewpoints, as optimism appears to confer resilience to stressful life events. General optimism also decreases the risk for both onset and relapse of psychopathology [10,11]. Approximately 87% of the participating residents demonstrated a similar moderate outlook on life, based on the LOT-R tool with an average LOT-R score of 13.6. Additionally, the LOT-R score was not significantly correlated with the three scales of burnout. This suggests that the residents' personal outlook is not a strong predictor for burnout.

There is limited data to establish population-based levels of optimism, though studies have commented on the populations of Germany, Columbia, the UK and Norway. Additionally, a study on 142 countries from Gallagher et. al. showed that most individuals and most countries are optimistic. Levels of optimism were highest among those who were young, female, or highly educated [12]. A recent population study from Norway queried 1,792 citizens, representative of their population, finding a mean LOT-R score of 17.2 (high optimism)[13]. As a comparison, studies from Columbia had a mean LOT-R score of 16.1, Germany had a mean LOT-R score of 15.2 and various regions of the UK had mean LOT-R scores of 13.9 - 14.7 [5, 14, 15].

No study has determined population norms for the LOT-R in the United States. In addition, no studies have investigated large groups of resident physicians and their levels of optimism. One study surveyed residents from various departments and showed average LOT-R scores of 13.89 (neurology) - 19.43 (neurosurgery), though the number of respondents were low [16]. Some studies looking at the association between various health concerns and levels of optimism have shown that generally, optimism is correlated with fewer health problems [17, 18]. These studies are limited by composition of subjects mostly over the age of 40, which is not consistent with the average age of the respondents in our study.

The average LOT-R score for our study population was less than that of the general populations of other countries. Additionally, our population was overall "young" and "highly educated", both characteristics that have been strongly associated with higher levels of optimism in other studies.

Large population studies using the LOT-R have shown small but statistically significant differences in the level of optimism between males and females, with females having slightly higher optimism scores [8]. Though our study showed that our male respondents had higher levels of optimism, this was not statistically significant.

It is unknown if the survey non-responders were more optimistic or pessimistic than responders. Perhaps the very optimistic and very pessimistic residents did not feel that a survey was worth their time. Additionally, recent studies suggest that contrary to initial conception of the LOT-R, optimism and pessimism may not be polar opposites [20]. Does this idea augment the argument that wellness should not fall squarely on the shoulders of the individual, as residents are already showing adequate levels of optimism? Individual outlook is important to overall wellness, but efforts should look at the healthcare systems in which physicians work and how systems-based changes can improve physician wellness.

CONCLUSION

We found that the majority of our resident respondents scored in the moderate category of the LOT-R. Additionally, 12.4% fell into the more optimistic category. This indicates that EM residents are generally optimistic. The average LOT-R score seen in our study population was lower than that of large populations in prior studies, but the level of optimism was not a predictor for the three sub-scales of burnout. Despite a pervasive presence of optimism in the population of EM residents surveyed, nearly 76% of them are suffering from burnout symptoms.

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