

# Character Strength Profile Related to Courage as Virtue among Dental Professionals

## Abstract

**Background:** In the background of reported high distress among medical students and health professionals, character building at the level of health institutions may be helpful for augmenting academic performance and nurturing well-being during the training period of budding health professionals. **Aim:** This study aims to assess non-cognitive positive traits, particularly Values in Action-character strengths related to the virtue of courage among trainees and doctors. It may reveal the association of challenging situations being faced in health profession with inculcation of the virtue of courage. **Materials and Methods:** Data regarding character strengths profile with reference to the psychological virtue of courage among students and residents of dental institution ( $n = 54$ ) were collected and analyzed. **Results:** Participants of all the three groups were found to display at least a minimum of each of the character strengths included in the virtue of courage. Perseverance was significantly higher in postgraduate students than undergraduate students and senior residents. Recurrent physician burnout has been reported to be associated with distress symptoms during their medical education at least once. **Conclusion:** Positive institutions may play an important role to reduce the intensity and incidence of distress sequelae among medical students by taking initiatives for character building, with reference to augmenting character strengths of virtue of courage.

**Keywords:** *Courage, medical, psychological distress, students, well-being*

## Introduction

Health practitioners strive for quality health care to improve the health and well-being of their patients. Their own well-being is as important as that of their patients. Bagging a seat at premium teaching health institution in an intense competition is just the beginning of a struggle against distress of academic performance and fear of failure. Character building during the infancy of student training in health-care profession could be beneficial for their optimum performance not only during the training period but throughout their professional work life also. It may also be helpful to augment their joy of caring for patients along with acting as a deterrent against burnout during a perceived stressful work environment. The focus of professional educational institutions should not be restricted to academic excellence only. An approach to student well-being needs to be included also.

The relevance of decision-making cannot be underestimated for normal

functioning of individuals in our day-to-day routine activities. It becomes even more important for health professionals where situation-specific decision-making is an important consideration to deliver quality health care. The virtue of psychological courage may be conceptualized as mediating or moderating variable influencing personality-associated ability to make decisions, particularly in situation-specific decision-making in the background of management of emergency situations with concerns of high comorbidity and fear of unknown. Character-development-assisted scaling-up of well-being in the teaching institutions is the need of the hour. Perceived risk in terms of personal and family safety concern is believed to be at its peak during the delivery of quality health care during the coronavirus disease pandemic. Howard *et al.* stressed the significance of courage as an important resource for optimum functioning in stressful working environments and occupations.<sup>[1]</sup> Moreover, links of courage as a personal resource with better life outcomes by improving coping strategies, ethical decision-making, and quality of life are being appreciated in the recent studies.<sup>[2-4]</sup>

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Courage is believed to be precipitated through circumstances. Consensus is emerging over situation of perceived personal risk as one of the salient features for an intentional meaningful act to be included under the umbrella of courage.<sup>[5-8]</sup>

It is, therefore, not unreasonable to explore whether the working environments impregnated with subtle perceived risks may be taken into consideration for courage inculcation. Furthermore, routine courageous acts of colleagues and seniors in these circumstances may also contribute towards courage augmentation through modeling and inadvertent courage coaching. Applications of positive organizational behavior may also prove to be particularly effective in these institutions. In the background of perceived fear of personal and family safety concerns during the management of infectious diseases, working environment with a routine of courageous acts of decision making amid implications of high comorbidity and mortality associated fear, distress of academic excellence prevailing in teaching health institutions, the present study was undertaken to estimate the character strength profile with reference to psychological virtue of courage among undergraduate students, postgraduate students, and senior residents belonging to health institution with the aim to assess the association of duration of exposure to such working environment in these institutions with a display of the character strengths included in virtue of courage.

## Materials and Methods

This cross-sectional study was conducted according to the revised 2013 guidelines of the Declaration of Helsinki, and is based on 54 students/professional participants comprising 18 each in (1) undergraduate studies, (2) postgraduate studies, and (3) senior residents/faculty with experience up to 3 years after postgraduation. Character strength profile of character strengths grouped under the virtue of courage: bravery, perseverance (persistence), honesty (integrity), and zest (Vitality) were assessed using Values in Action Inventory of Strengths (VIA-IS).

### Measures of courage

Courage among participants was measured with the self-reported VIA character strength related to the virtue of courage consisting of 40 questions in total. The responses to questionnaire were rated on a five-point Likert scale ranging from 1 (very much unlike me) to 5 (very much like me). 40 items of courage were further grouped into 4 domains: bravery; perseverance; honesty; and zest. Each domain consisted of 10 questions. The average score of each domain as well as courage was calculated by dividing the total score by the number of questions.

### Statistical analysis

Statistical analysis was performed using the statistical software program (SPSS; v. 20, IBM, Chicago, IL, USA).

The normality of data was determined using the Shapiro–Wilk test. As age, bravery, perseverance, honesty, zest, and courage followed a normal distribution, one-way Analysis of Variance was used to verify the hypothesis. Parameters with statistically significant differences among groups were further assessed with Bonferroni *post hoc* analysis. Statistical significance was set at  $P < 0.05$ .

## Results

### Demographic variables and various domains of courage

Bravery was comparable among the three groups ( $P \geq 0.05$ ) [Table 1]. There was a significant difference in perseverance among groups ( $P = 0.032$ ). Perseverance was significantly higher in postgraduate students than senior residents ( $P = 0.003$ ). As compared to undergraduates, postgraduate students had significantly higher perseverance ( $P = 0.04$ ). However, it was comparable between senior residents and undergraduate students ( $P \geq 0.05$ ). There was insignificant difference in honesty among groups ( $P = 0.327$ ). Zest was comparable among the three groups ( $P \geq 0.05$ ). There was no significant difference in courage among groups ( $P \geq 0.05$ ) [Table 1]. Significant positive correlation existed between the following parameters: bravery/perseverance ( $r = 0.625$ ,  $P = 0.006$ ), bravery/honesty ( $r = 0.730$ ,  $P = 0.001$ ), bravery/zest ( $r = 0.750$ ,  $P = 0.000$ ), bravery/courage ( $r = 0.905$ ,  $P = 0.000$ ), perseverance/honesty ( $r = 0.583$ ,  $P = 0.011$ ), perseverance/zest ( $r = 0.527$ ,  $P = 0.025$ ), perseverance/courage ( $r = 0.794$ ,  $P = 0.000$ ), honesty/courage ( $r = 0.893$ ,  $P = 0.000$ ), zest/honesty ( $r = 0.739$ ,  $P = 0.000$ ), zest/courage ( $r = 0.856$ ,  $P = 0.000$ ) [Table 2]. Significant positive correlation was observed between age/bravery ( $r = 0.661$ ,  $P = 0.003$ ), age/honesty ( $r = 0.646$ ,  $P = 0.004$ ), age/zest ( $r = 0.625$ ,  $P = 0.006$ ), age/courage ( $r = 0.634$ ,  $P = 0.005$ ) [Table 2]. Significant positive correlation existed between the following parameters: bravery/perseverance ( $r = 0.777$ ,  $P = 0.000$ ), bravery/honesty ( $r = 0.656$ ,  $P = 0.003$ ), bravery/zest ( $r = 0.718$ ,  $P = 0.001$ ), bravery/courage ( $r = 0.923$ ,  $P = 0.000$ ), perseverance/honesty ( $r = 0.553$ ,  $P = 0.017$ ), perseverance/zest ( $r = 0.650$ ,  $P = 0.003$ ), perseverance/courage ( $r = 0.867$ ,  $P = 0.000$ ), honesty/courage ( $r = 0.893$ ,  $P = 0.000$ ), zest/honesty ( $r = 0.548$ ,  $P = 0.018$ ), zest/courage ( $r = 0.847$ ,  $P = 0.000$ ) [Table 3]. Significant positive correlation existed between the following parameters: bravery/courage ( $r = 0.740$ ,  $P = 0.000$ ), perseverance/honesty ( $r = 0.579$ ,  $P = 0.012$ ), perseverance/zest ( $r = 0.572$ ,  $P = 0.013$ ), perseverance/courage ( $r = 0.731$ ,  $P = 0.001$ ), honesty/courage ( $r = 0.753$ ,  $P = 0.000$ ), zest/courage ( $r = 0.685$ ,  $P = 0.002$ ) [Table 4]. Significant positive correlation existed between the following parameters: bravery/perseverance ( $r = 0.554$ ,  $P = 0.000$ ), bravery/honesty ( $r = 0.626$ ,  $P = 0.000$ ), bravery/zest ( $r = 0.607$ ,  $P = 0.000$ ), bravery/courage ( $r = 0.851$ ,  $P = 0.000$ ), perseverance/honesty ( $r = 0.582$ ,  $P = 0.000$ ), perseverance/zest ( $r = 0.627$ ,  $P = 0.000$ ), perseverance/courage ( $r = 0.825$ ,  $P = 0.000$ ),

**Table 1: Comparison of demographic variables and various domains of courage among groups**

Characteristics	Senior residents	Undergraduate students	Postgraduate students	P
Demographic characteristics				
Age (years)	31.2±2.32 31.00 (29.75–32.25)	23.8±1.20 24.00 (23.00–25.00)	28.8±1.82 29 (27.75–30.00)	0.000 <sup>a,b</sup>
Gender (female: male), n (%)	12 (66.7):6 (33.3)	11 (61.1):7 (38.9)	12 (66.7):6 (33.3)	0.922
Domains of courage				
Bravery	3.70±0.43 3.70 (3.57–4.0)	3.67±0.49 3.80 (3.07–4.02)	3.80±0.38 3.65 (3.55–3.92)	0.676
Perseverance	3.61±0.38 3.65 (3.30–3.92)	3.67±0.44 3.75 (3.27–3.90)	3.94±0.33 3.95 (3.60–4.20)	0.032 <sup>b,c</sup>
Honesty	3.83±0.43 4.00 (3.50–4.12)	3.76±0.46 3.80 (3.52–4.10)	3.97±0.32 4.00 (3.75–4.15)	0.327
Zest	3.76±0.30 3.80 (3.50–4.00)	3.70±0.48 3.75 (3.30–3.95)	3.97±0.29 4.05 (3.80–4.20)	0.089
Courage	3.73±0.33 3.78 (3.53–3.95)	3.70±0.41 3.83 (3.30–4.02)	3.92±0.25 3.93 (3.75–4.09)	0.109

<sup>a</sup>Significant difference between senior residents and undergraduate students ( $P<0.05$ ) using one-way ANOVA and *post hoc* Bonferroni correction;

<sup>b</sup>Significant difference between postgraduate students and undergraduate students ( $P<0.05$ ) using one-way ANOVA and *post hoc* Bonferroni correction;

<sup>c</sup>Significant difference between senior residents and postgraduate students ( $P<0.05$ ) using one-way ANOVA and *post hoc* Bonferroni correction. Data is presented as mean±SD and median (IQR). SD: Standard deviation; IQR: Inter-quartile range; ANOVA; Analysis of variance

**Table 2: Correlation among demographic variables and various domains of courage in Group 1 (senior residents)**

	Age	Gender	Bravery	Perseverance	Honesty	Zest	Courage
Age							
<i>r</i>	1	−0.244	0.661**	0.249	0.646**	0.625**	0.634**
<i>P</i>		0.330	0.003	0.320	0.004	0.006	0.005
Gender							
<i>r</i>	−0.244	1	−0.009	−0.275	−0.092	−0.240	−0.165
<i>P</i>	0.330		0.971	0.269	0.717	0.337	0.512
Bravery							
<i>r</i>	0.661**	−0.009	1	0.625**	0.730**	0.750**	0.905**
<i>P</i>	0.003	0.971		0.006	0.001	0.000	0.000
Perseverance							
<i>r</i>	0.249	−0.275	0.625**	1	0.583*	0.527*	0.794**
<i>P</i>	0.320	0.269	0.006		0.011	0.025	0.000
Honesty							
<i>r</i>	0.646**	−0.092	0.730**	0.583*	1	0.739**	0.893**
<i>P</i>	0.004	0.717	0.001	0.011		0.000	0.000
Zest							
<i>r</i>	0.625**	−0.240	0.750**	0.527*	0.739**	1	0.856**
<i>P</i>	0.006	0.337	0.000	0.025	0.000		0.000
Courage							
<i>r</i>	0.634**	−0.165	0.905**	0.794**	0.893**	0.856**	1
<i>P</i>	0.005	0.512	0.000	0.000	0.000	0.000	

\*Statistically significant ( $P<0.05$ ), \*\* High Correlation. *r*: Pearson's correlation coefficient (between continuous variables) and point-biserial correlation coefficient (gender and continuous variables)

honesty/courage ( $r = 0.826$ ,  $P = 0.000$ ), zest/honesty ( $r = 0.551$ ,  $P = 0.000$ ), zest/courage ( $r = 0.827$ ,  $P = 0.000$ ) [Table 5]. Significant correlations were observed between age/bravery ( $r = 0.308$ ,  $P = 0.025$ ), age/honesty ( $r = 0.329$ ,  $P = 0.016$ ), age/zest ( $r = 0.333$ ,  $P = 0.015$ ), age/courage ( $r = 0.351$ ,  $P = 0.010$ ). Positive correlation was also observed among bravery, perseverance, honesty, zest and the virtue of courage [Table 6].

## Discussion

Positive psychology attends to scaling up well-being and worth living through fostering human functioning by taking into consideration three domains (a) positive subjective experiences; (b) positive individual traits; and (c) positive institutions such as school, workplace, and family.<sup>[9,10]</sup>

**Table 3: Correlation among demographic variables and various domains of courage in Group 2 (undergraduate students)**

	Age	Gender	Bravery	Perseverance	Honesty	Zest	Courage
Age							
<i>r</i>	1	0.016	0.218	0.366	0.138	0.396	0.317
<i>P</i>		0.949	0.385	0.136	0.585	0.104	0.200
Gender							
<i>r</i>	0.016	1	-0.143	0.067	0.212	-0.082	0.018
<i>P</i>	0.949		0.572	0.791	0.399	0.746	0.944
Bravery							
<i>r</i>	0.218	-0.143	1	0.777**	0.656**	0.718**	0.923**
<i>P</i>	0.385	0.572		0.000	0.003	0.001	0.000
Perseverance							
<i>r</i>	0.366	0.067	0.777**	1	0.553*	0.650**	0.867**
<i>P</i>	0.136	0.791	0.000		0.017	0.003	0.000
Honesty							
<i>r</i>	0.138	0.212	0.656**	0.553*	1	0.548*	0.797**
<i>P</i>	0.585	0.399	0.003	0.017		0.018	0.000
Zest							
<i>r</i>	0.396	-0.082	0.718**	0.650**	0.548*	1	0.847**
<i>P</i>	0.104	0.746	0.001	0.003	0.018		0.000
Courage							
<i>r</i>	0.317	0.018	0.923**	0.867**	0.797**	0.847**	1
<i>P</i>	0.200	0.944	0.000	0.000	0.000	0.000	

\*Statistically significant ( $P < 0.05$ ), \*\* High Correlation. *r*: Pearson's correlation coefficient (between continuous variables) and point-biserial correlation coefficient (gender and continuous variables)

**Table 4: Correlation among demographic variables and various domains of courage in Group 3 (postgraduate students)**

	Age	Gender	Bravery	Perseverance	Honesty	Zest	Courage
Age							
<i>r</i>	1	0.067	0.434	-0.180	0.198	-0.085	0.181
<i>P</i>		0.793	0.072	0.475	0.431	0.738	0.473
Gender							
<i>r</i>	0.067	1	-0.215	-0.097	-0.012	-0.541*	-0.304
<i>P</i>	0.793		0.391	0.703	0.961	0.020	0.220
Bravery							
<i>r</i>	0.434	-0.215	1	0.174	0.451	0.307	0.740**
<i>P</i>	0.072	0.391		0.489	0.060	0.215	0.000
Perseverance							
<i>r</i>	-0.180	-0.097	0.174	1	0.579*	0.572*	0.731**
<i>P</i>	0.475	0.703	0.489		0.012	0.013	0.001
Honesty							
<i>r</i>	0.198	-0.012	0.451	0.579*	1	0.219	0.753**
<i>P</i>	0.431	0.961	0.060	0.012		0.382	0.000
Zest							
<i>r</i>	-0.085	-0.541*	0.307	0.572*	0.219	1	0.685**
<i>P</i>	0.738	0.020	0.215	0.013	0.382		0.002
Courage							
<i>r</i>	0.181	-0.304	0.740**	0.731**	0.753**	0.685**	1
<i>P</i>	0.473	0.220	0.000	0.001	0.000	0.002	

\*Statistically significant ( $P < 0.05$ ), \*\* High Correlation. *r*: Pearson's correlation coefficient (between continuous variables) and point-biserial correlation coefficient (gender and continuous variables)

Medical professionals belong to a moral community with virtue-based ethics. Courage is one of the virtues entailed for the ethical decision-making based commitment of health professionals to the well-being of the patients. Character strengths related to virtue of courage reflect the ability to act

in a challenging situation containing putative risks. These are the primary determinants of coping behavior-associated outcomes during adversity.<sup>[11]</sup> Moreover, the contribution of character strengths to well-being outcomes has also been investigated.<sup>[12-15]</sup>

**Table 5: Correlation among demographic variables and various domains of courage in pooled data**

	Age	Gender	Bravery	Perseverance	Honesty	Zest	Courage
Age							
<i>r</i>	1	-0.083	0.270*	0.068	0.276*	0.250	0.263
<i>P</i>	.	0.551	0.048	0.624	0.043	0.068	0.054
Gender							
<i>r</i>	-0.083	1	-0.129	-0.090	0.035	-0.243	-0.127
<i>P</i>	0.551		0.352	0.516	0.800	0.076	0.362
Bravery							
<i>r</i>	0.270*	-0.129	1	0.554**	0.626**	0.607**	0.851**
<i>P</i>	0.048	0.352		0.000	0.000	0.000	0.000
Perseverance							
<i>r</i>	0.068	-0.090	0.554**	1	0.582**	0.627**	0.825**
<i>P</i>	0.624	0.516	0.000		0.000	0.000	0.000
Honesty							
<i>r</i>	0.276*	0.035	0.626**	0.582**	1	0.551**	0.826**
<i>P</i>	0.043	0.800	0.000	0.000		0.000	0.000
Zest							
<i>r</i>	0.250	-0.243	0.607**	0.627**	0.551**	1	0.827**
<i>P</i>	0.068	0.076	0.000	0.000	0.000		0.000
Courage							
<i>r</i>	0.263	-0.127	0.851**	0.825**	0.826**	0.827**	1
<i>P</i>	0.054	0.362	0.000	0.000	0.000	0.000	

\*Statistically significant ( $P < 0.05$ ), \*\* High Correlation. *r*: Pearson's correlation coefficient (between continuous variables) and point-biserial correlation coefficient (gender and continuous variables)

**Table 6: Correlation among demographic variables and various domains of courage in pooled data controlling for groups**

	Age	Gender	Bravery	Perseverance	Honesty	Zest	Courage
Age							
<i>r</i>	1.000	-0.086	0.308	0.179	0.329*	0.333*	0.351*
<i>P</i>		0.539	0.025	0.200	0.016	0.015	0.010
Gender							
<i>r</i>	-0.086	1.000	-0.130	-0.096	0.036	-0.250	-0.130
<i>P</i>	0.539		0.355	0.495	0.800	0.071	0.353
Bravery							
<i>r</i>	0.308	-0.130	1.000	0.559**	0.622**	0.605**	0.857**
<i>P</i>	0.025	0.355		0.000	0.000	0.000	0.000
Perseverance							
<i>r</i>	0.179	-0.096	0.559**	1.000	0.576**	0.602**	0.815**
<i>P</i>	0.200	0.495	0.000		0.000	0.000	0.000
Honesty							
<i>r</i>	0.329*	0.036	0.622**	0.576**	1.000	0.540**	0.825**
<i>P</i>	0.016	0.800	0.000	0.000	.	0.000	0.000
Zest							
<i>r</i>	0.333*	-0.250	0.605**	0.602**	0.540**	1.000	0.818**
<i>P</i>	0.015	0.071	0.000	0.000	0.000		0.000
Courage							
<i>r</i>	0.351*	-0.130	0.857**	0.815**	0.825**	0.818**	1.000
<i>P</i>	0.010	0.353	0.000	0.000	0.000	0.000	

\*Statistically significant ( $P < 0.05$ ), \*\* High Correlation. *r*: Partial correlation coefficient (between continuous variables) and point-biserial correlation coefficient (gender and continuous variables)

In the background of perusal of literature suggesting courage being vital to decision-making under challenging situations, coping behavior during stressful situations and psychological well-being; courage profile of

community of health professionals and students of health institution was recorded to assess the impact of shared working environment impregnated with a routine of at-risk of acquiring infectious diseases and courageous

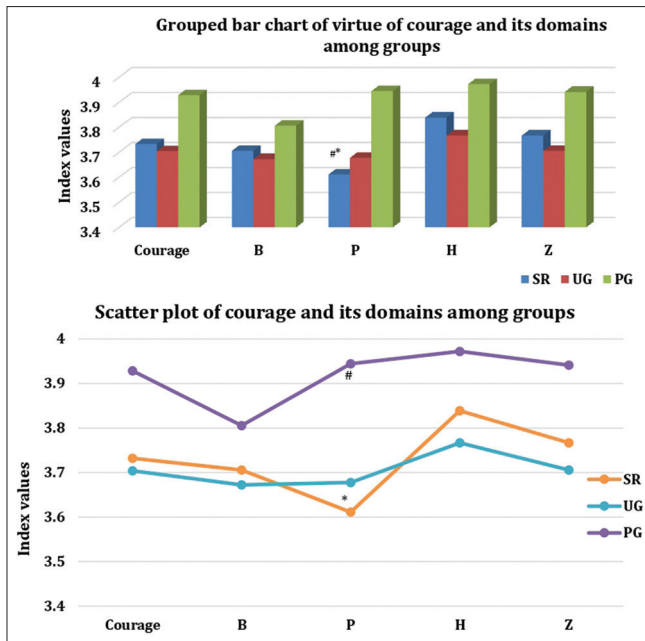


Figure 1: Bar chart and scatter plot of courage and its domains among groups

decision-making under challenging situations for the well-being of the patients with concomitant exposure to academic and nonacademic distress.

Courage is not synonymous with fearlessness; it is about overcoming fear to act for a good cause. Studies have suggested that the virtue of courage can be cultivated through positive education. Academic excellence is meant to make the world a better place to live and to improve the quality of life of others. It is difficult to efficiently accomplish these goals of academic excellence without the personal well-being of those who are striving for academic excellence.

A homogeneous character strength profile is reported among health-care trainees and the professionals.

The observations of the present study support this finding with reference to the virtue of courage and the associated character strengths [Figure 1]. Comparable and moderately high mean values are observed among undergraduate students, postgraduate students, and senior residents. In the present study average score of more than 3.5 in VIA-IS, considered to be suggestive of possession of the particular character strength<sup>[15]</sup> was found in all the three groups with reference to the character strengths included in the virtue of courage [Figure 2]. Perseverance is the only character strength related to courage in which significant differences were recorded among undergraduate students, postgraduate students, and senior residents. Postgraduate students were found to possess higher perseverance as compared to undergraduate students and senior residents. However undergraduate students and senior residents also reported to display the positive traits of perseverance as the average score as well as median value was more than 3.5 in all the three groups.

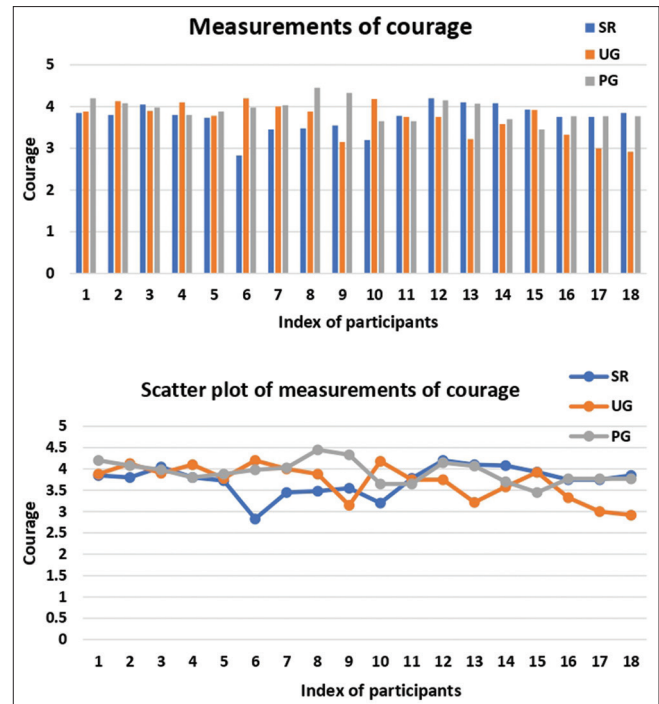


Figure 2: Bar chart and scatter plot of Measurement of courage

Gander *et al.*, in 2012, studied the relevance of positively value traits in workplaces and found that character strength profile differed among those with healthy work-related behavior from those with unhealthy behavior in workplaces.<sup>[12]</sup> The character strengths of zest and persistence were found to be of critical importance in healthy work behavior. Although outcomes of work-related behavior were beyond the scope of our study, it may be assumed that most of the participants of the three groups were found to possess the healthy ambitious behavior as they possessed the positive traits of perseverance and zest. Moreover, healthy ambitious behavior may be more marked among postgraduate students as the mean score as well as median value with reference to these two character strengths is close to 4.0 in this group.

Age was found to be strongly correlated with character strengths of bravery and honesty along with the virtue of courage ( $r$  more than 0.62 in each case) among senior residents. However, these correlations were missing in the other groups. After controlling for the groups in the pooled data, age was moderately correlated with bravery, honesty, zest, and courage.

PERMA model of five elements of well-being in terms of positive emotions, engagement, positive relationship, meaning, and accomplishment was introduced by Seligman in 2011.<sup>[16]</sup> White and Murray (2015) advocated virtue inculcation in positive education programs.<sup>[17]</sup>

Well-being of medical community is reported to be at risk with a high probability of distress, burnout, and depression among students and health professionals.<sup>[18,19]</sup> Personal

resources of health-care professionals may act as a buffer against the stressors associated with challenging and stressful job requirements in this profession to reduce the risk of ill-being and to promote well-being among them.

Identifying and augmenting personal resources have been reported to be correlated with well-being.<sup>[20]</sup>

The presence of the virtue of courage among undergraduate students of medical institute who have not been exposed to the working environment of courageous acts such as facing challenging situations of decision-making for the well-being of patients may hint towards the probability that the career choice of medical profession is preferred by personalities displaying at least somewhat gradient of strengths of courage. However, the role of a shared working environment cannot be completely ruled out as the students enrolled for the study were in 3<sup>rd</sup> and 4<sup>th</sup> year of their study in the health institute. Gander *et al.*, in 2012, studied the relevance of positively value traits in workplaces and found that character strength profile differs among those with healthy work-related behavior from those with unhealthy behavior at workplaces.<sup>[12]</sup> The character strengths of zest and persistence were found to be of critical importance in healthy work behavior. The compatibility of work requirements in a profession and personal character strengths of related professionals is reported to be important for well-being of individuals.<sup>[15]</sup> Character strengths are reported to be associated with fulfillment; however, the correlation was highest for zest, hope, curiosity, and gratitude.<sup>[21,22]</sup>

Hausler *et al.*, in 2017, examined the relationship between character strengths, psychological well-being, and subjective well-being.<sup>[13]</sup> They observed that character strength “zest” is at least moderately related to psychological well-being aspects of relationship and engagement. The study results reveal “persistence” to have the highest correlation with mastery. Fostering work-related satisfaction among the students of medical institutions was emphasized by Dyrbye (2013).<sup>[23]</sup>

Studies have traced physician burnout to the associated symptoms during their training period in health education at least once.<sup>[24]</sup>

Moreover, the incidence of substance abuse and suicide occurred at above-average by Gold *et al.*, in 2013.<sup>[25]</sup> In the background of exposure to challenging circumstances, applying one’s character strengths could be particularly beneficial for their positive experiences, well-being, and health.<sup>[26]</sup> The use of alcohol among young university students is reported to be related to their perception of alcohol being helpful to enhance courage during academic activities such as seminars.<sup>[27]</sup> Perseverance during academic difficulty is found to yield positive educational outcomes. Courage inculcation in health institutions may prove to be an effective strategy for preventing alcohol abuse among future health professionals.

Specific character strengths within certain professions might be due to common work requirements, experiences, and study conditions. Among the 24 character strengths, honesty was found to be the top-ranking character strength of medical students as well as physicians in a recent study.<sup>[14]</sup>

Whereas the other character strengths comprising the virtue of courage, i.e. bravery, perseverance, and zest were at lower order among medical students and physicians.

This study suggested that the character strengths of hope, perseverance, self-regulation, teamwork, and zest are most relevant when it comes to fostering medical students’ and physicians’ well-being and work engagement. However, these were not part of the top five character strengths reported by the medical professionals.<sup>[14]</sup> Creating a positive institutional environment could be beneficial for medical professionals’ future well-being and health.

Studies have reported that medical students report more depressive symptoms and higher levels of distress with regard to their health compared to the general United States population,<sup>[18]</sup> impaired mental health<sup>[19]</sup> and well-being,<sup>[28]</sup> or early onset of burnout symptoms.<sup>[29]</sup> Moreover, origins of recurrent physician burnout were identified with studies showing a prevalence of 45% up to 70% to have these symptoms during medical education at least once<sup>[24]</sup> entailing health-impairing consequences.<sup>[30]</sup> Character strengths constitute well-being,<sup>[21]</sup> contribute to work enjoyment and academic achievement,<sup>[31]</sup> and build resilience toward life’s hardships, illness, and loss.<sup>[9,32]</sup>

Congruence of goals of care considered by health-care professionals, patients, and their families is vital for decision-making in healthcare. Courage may be vital to challenging the viewpoints of your colleagues and seniors during deliberations for collective decision-making in healthcare, particularly in emergency medicine, for actions that are right for the patients.

Social desirability has the potential to influence participants’ ratings. As the participants reported their ratings anonymously, bias in reporting character strengths is largely ruled out. However, research finds that some positive traits are associated with measures of social desirability. The social desirability factor is not restricted to niceness strengths of kindness and fairness, but is also observed with reference to honesty. This finding is not in agreement with Peterson and Seligman (2004) assertion that the VIA-IS is free of social desirability effects because all items are positive traits.<sup>[11]</sup> Therefore, additional character strengths assessments by peer ratings (e.g. friends, family, or colleagues) may be a useful adjuvant. Our study reported significantly higher perseverance in both postgraduate and undergraduate students ( $P \leq 0.05$ ) than in senior residents. Moreover, significantly higher honesty ( $P = 0.026$ ) and courage ( $P = 0.006$ ) are seen in postgraduate students

as compared to senior residents in our study. However, zest and bravery were comparable among the three groups ( $P \geq 0.05$ ). Courage, honesty, bravery, zest, and perseverance are positively correlated to each other. Moreover, in these recent times of COVID-19 pandemic, medical professionals have been exposed to various challenging situations. Studies have shown that exposure to challenging circumstances helps in actively pleading individual's positive experiences in terms of applying one's character strengths. This could be particularly beneficial for their well-being and health.<sup>[26]</sup>

### Limitations of the study

As it is a pilot study, the major limitation included a small sample size. A study using a larger sample size is required. The data were self-reported by the participants implying possible bias in terms of distortion effects. Hence, bias in self-reporting cannot be underestimated particularly in the context of small sample size.

### Conclusion

Dental professionals exhibit high score in the character strengths related to the virtue of courage namely bravery, perseverance honesty, and zest. This may be due to institutionally challenging work exposure or imbibed virtues from colleagues in the institutional environment and/or preference of persons with particular character profile for medical profession. Data were self-reported by the participants implying probable bias in terms of distortion effects.

### Author contribution

Each author has made a substantial contribution to the conception or design of work; acquisition, analysis, and interpretation of data and has drafted the work and substantively revised it.

### Informed consent statement

Informed consent was obtained from all subjects involved in the study.

### Data availability statement

The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy reasons.

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### Conflicts of interest

There are no conflicts of interest.

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