

# The association of stress resilience and humor among medical students

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## Abstract

**Context:** Students are one of the most sensitive groups of the society and they face challenges through academic situations. Resilience has a protective role against the stressful situation.

**Aims:** The aim of this study was the investigation of humor and stress resilience associations among students.

**Setting and Design:** Two hundred and sixty students were selected from Qom University of medical sciences during multi-stage cluster random sampling for this cross-sectional study in 2020.

**Material and Methods:** The study instruments were the Samuels Academic Resilience Indicator and the multidimensional humor questionnaire. Students were divided into different groups based on their field of study, then using random sampling method, the number of sample in each class was selected from all in the same category.

**Statistical Analysis Used:** The collected data were analyzed by using multiple regression and descriptive statistical analysis by SPSS version 18.

**Results:** The results showed the association between the stress resilience and humor was direct and significant. Multiple regression results also showed laughter ( $P = 0.001$  and  $\beta = 0.26$ ), humor enjoyment ( $P = 0.010$  and  $\beta = 0.16$ ) and social humor ( $P = 0.010$  and  $B = 0.19$ ) predicted the students' stress resilience; with a total of 22% of the variance of resilience.

**Conclusions:** According to the findings, humor may play an important effective role in increasing resilience to stress, by creating and empowering these components, we may promote their resilience among medical students.

**Keywords:** Humor, Medical students, Resilience, Stress

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## INTRODUCTION

Student life is very important because they are in the most powerful and readiness time of their lives, as well as a great talent and more mental ability. Therefore, they are expected to be the model of success in society, but in some cases, they face challenges through academic situations that can reduce their abilities.<sup>[1]</sup> Meanwhile, medical students are more vulnerable than others due to the hospital; one of the most stressful environments.<sup>[2]</sup> Resilience has a protective role against the stressful situation; it causes effective adaptation to risk factors.<sup>[3,4]</sup> Resilience determines the individuals' endurance response to stressful events and is one of the important variables in the field of positive psychology that considered by researchers in recent years.<sup>[5]</sup> According to the HAmDan-Mansour study, 50% of students had moderate to high resilience.<sup>[6]</sup> Waller considers resilience to be a person's positive adaptation to adverse conditions.<sup>[7]</sup> Resilience is the ability to successfully positive adaptation to threatening situations and experiences.<sup>[8,9]</sup> Resilience does not only mean endurance against damages or threatening conditions, but also the active and constructive participation of the individual in the environment.<sup>[8]</sup> Resilience can moderate stress levels and disability through stressful situations and increase life satisfaction;<sup>[10]</sup> those with higher resilience have better mental health than those with less. Resilient people are emotionally calm and able to adapt to stressful situations.<sup>[11]</sup> Stress and bad events cause some people to feel helpless and surrender to harsh situations, but many people develop their abilities to solve problems, challenges, learning, and growth.<sup>[12]</sup> People who have resilience will gain their normal state soon by creating positive emotions after dealing with stressors; they experience stressful events without mental health loss or illness.<sup>[1]</sup> Rahimi *et al.* found medical students had more stress, less adjustment, and more negative coping than their peers. Male students also had less stress and more resilience than females.<sup>[13]</sup> Resilient students are highly motivated to progress and maintain an optimal performance despite stressful events and situations that expose them to poor academic performance and even dropout.<sup>[1]</sup> On the other hand, it should be noted that joking and humor are both universal and generally positive activities experienced by people from different social and cultural contexts around the world.<sup>[14]</sup> Having the sense of humor is one of the most important aspects of social communication, ability or cognitive process, interpersonal communication behavior, and adaptive strategy or defense style.<sup>[15]</sup> Human beings may lose their nerves control during their lives. There are useful mechanisms for that; one of the most important of them is humor.<sup>[16]</sup> The American Psychiatric Association, in 2013, defined humor as a

defensive mechanism that focuses on the hilarious and funny aspects of a conflicting and stressful situation.<sup>[17,18]</sup> Humor can be assumed as a tool for communicating to others and manifesting deep feelings, beliefs, and desires of people. The humor role is important to coping with daily stress, creating appropriate social relationships, facilitating the life problems solution, as well as emotion and motivation management.<sup>[19]</sup> Humorous people tend to enjoy routines and experiences; they are able to evaluate, express and manage emotions, so, humor eliminates the negative effects of stress and increases well-being and mental health.<sup>[20]</sup> Humor, in particular, is a life skill to get rid away from trouble. Research shows that joking is a way to deal with life's problems. Having the sense of humor and joking reduce physical and mental pains; it has positive consequences, including gratification, satisfaction, adaptation to physical disabilities, life satisfaction, coping with stress and protection against many diseases like cancer and suicide prevention.<sup>[21]</sup> The mean of humor in students in the humility study was  $103.30 \pm 27.71$ .<sup>[22]</sup> A study showed people who had high scores of humor, experienced less stress. There was also a negative association between humor and anxiety in this study.<sup>[16]</sup> On the other hand, Torgheh and Alipour study showed humor reduced nurses' burnout and increased their resilience.<sup>[23]</sup> Therefore, since students are one of the most sensitive groups of the society and they are the future of any country, due to the importance of their mental health, this study conducted to determine the association of students' humor and stress resilience of Qom University of Medical Sciences, Qom city, Iran.

## MATERIALS AND METHODS

This cross sectional study was conducted to determine the association of humor and stress resilience among the students of Qom University of Medical Sciences in 2020. (Code of ethics: MUQ. REC.1394.159) Two hundred and sixty students from different semester were participated in this study. Stratified random sampling was performed. They were divided into different groups based on their field of study, then using random sampling method, the number of sample in each class was selected from all at the same category. It was mandatory not to have a history of known psychiatric disorders (based on personal statements) and available evidence, as well as being as a student at the time of the participation. Prior to the study, the necessary permits were obtained from the Qom University of Medical Sciences authorities. All students had oral consent to participate in the study; they were assured that all data were collected anonymously only for research.

**The questionnaire consisted of the following two sections**

The Samuels Academic Resilience questionnaire, developed in 2004, was used to assess resilience. This questionnaire was published, in 2009, with the collaboration of Woo. The final version of the questionnaire consists of 40 questions that participants are asked to rate their academic resilience on a 5-point Likert scale from “Strongly disagree<sup>[1]</sup>” to “Strongly agree.<sup>[5]</sup>” Some questions are scored in reverse. Psychometrics of this scale was performed by Soltani nejad *et al.*, in 2013, on 319 students of Allameh Tabatabai University of Tehran, Iran. The study Cronbach’s alpha was reported to be 0.62–0.72, which showed this tool had a high reliability and internal consistency (alpha) among the Iranian sample.<sup>[24]</sup>

In order to assess humor in this study, the humor questionnaire of Khoshouei *et al.* was used. The validity of the spatial hearing questionnaire (SHQ) structure was analyzed by its constructors, using the principal components analysis and varimax rotation. Base on that, a five-factor structure (humor pleasure, laughter, verbal humor, having the sense of humor in social communication, and humor in stressful situations) which explains 63.75% of the variance. In addition, the results of SHQ reliability by Cronbach’s alpha and retesting (after 21 days) showed SHQ had good reliability coefficients. SHQ found to be a suitable scale for measuring humor with satisfactory reliability and validity coefficients.

Data were analyzed by SPSS (Statistical Package for the Social Sciences, spss, Inc.,chicago, IL,USA) version 18. Univariate and multivariate logistic regression (ENTER model) was used to determine the variables. Significance level for all variables was considered 0.05. Mean and standard deviation were used for quantitative data analysis; also, percentage and frequency were used for qualitative data analysis.

**RESULTS**

The mean age of participants was 22.31 and the standard deviation was 3.56. The average grade point average of students was 16.33 with a standard deviation of 1.35 [Table 1]. The mean and standard deviation of students’ academic resilience scores were 103.30 ± 12.23 and the mean and standard deviation of students’ scores on humor scale was 114.03 ± 24.54. Linear regression was performed to achieve the relationship of variables. Linear regression analysis in the univariate model showed humor subscales were associated with academic resilience ( $P < 0.05$ ) [Table 2]. As shown in Table 3, when all the variables in the multivariate regression model were added by ENTER method, it was found educational

**Table 1: Demographic characteristics of students**

Variable	n	Measure (%)
Sex		
Male	91	35
Female	169	65
Marital status		
Single	194	74.6
Married	65	25
Employment status		
Employed	76	29.2
Unemployed	184	70.8
Housing		
Dormitory	112	43.4
Nondormitory	146	56.6
Academic year		
First year	78	30
Second year	68	26.2
Third year	79	30.4
Fourth year	20	7.7
Fifth year	15	5.8
Field of study		
Anaesthesia	23	8.8
Operation room	18	6.9
Medical emergencies	21	8.1
Laboratory science	19	7.3
Occupational health	15	5.8
Public health	20	7.7
Environmental health	18	6.9
Nursing	35	13.5
Midwifery	8	3.1
Medicine	60	23.1
Dentistry	23	8.8

**Table 2: Univariate regression**

Variable	$\beta$	SE	$\beta$	T	P
Sex	0.24	0.21	0.07	1.15	0.25
Age	0.17	1.60	0.007	0.11	0.91
Semester	-0.14	0.86	-0.01	-0.16	0.86
Marital status	-0.73	0.30	-0.14	-2.39	0.01
Mean	0.39	0.59	0.04	0.66	0.50
Humor enjoyment	0.76	0.12	0.35	6.15	0.000
Laughter	0.79	0.11	0.41	7.25	0.000
Verbal humor	0.51	0.11	0.28	4.69	0.000
Social humor	0.74	0.11	0.37	6.41	0.000
Humor in stress	0.62	0.11	0.32	5.53	0.000

B: Unstandardized beta, SE: Standard error,  $\beta$ : Standardized beta, T: T-test statistic

**Table 3: The result of multivariate regression of the association humor and stress resilience**

Variable	$\beta$	SE	$\beta$	T	P	F	R	R <sup>2</sup>
Model 1	-	-	-	-	-	11.46	0.49	0.24
Fixed	78.79	3.69	-	21.31	0.000	-	-	-
Semester	-0.55	0.28	-0.11	-1.98	0.04	-	-	-
Age	0.29	0.19	0.08	1.52	0.13	-	-	-
Humor enjoyment	0.34	0.14	0.16	2.41	0.01	-	-	-
Laughter	0.50	0.14	0.26	3.57	0.000	-	-	-
Verbal humor	-0.10	0.13	-0.05	-0.79	0.42	-	-	-
Social humor	0.38	0.16	0.19	2.36	0.01	-	-	-
Humor in stress	0.003	0.15	-0.002	-0.01	0.98	-	-	-

B: Unstandardized beta, SE: Standard error,  $\beta$ : Standardized beta, F: F statistic, T: T-test statistic, R: correlation coefficient, R<sup>2</sup>: R squared

semester, laughter, humor enjoyment of and having the sense of humor in social communication are related to

academic resilience and determine 22% of resilience variance changes ( $R = 0.49$  and  $R^2 = 0.24$ ).

## DISCUSSION

This study showed there is a significant positive association between humor and resilience. The results of regression analysis also showed laughter, humor enjoyment and having the sense of humor in social communication play an important role in explaining stress resilience. In other words, the greater sense of humor, the greater stress resilience, and the more humor among students. It can be explained that people with a high level of humor have a special ability to problem solving; according to Wolff, resilience is one of these abilities. The results of the present study were consistent with the Wolff, Ulloth,<sup>[25]</sup> Powell<sup>[26]</sup> and Madah Karani *et al.*<sup>[27]</sup> Inzlicht *et al.* found resilience reduced anxiety and depression. According to their study, resilient people can overcome all kinds of adverse effects, physical and emotional burnout caused by work; they are able to maintain their mental health.

Resilience can help students against environmental events and challenges; a protective factor to reduce the academic burnout by reducing the stressful factors.<sup>[28-30]</sup> The other useful way to stress reduction is humor.<sup>[16]</sup> De Francisco *et al.* found that having the sense of happiness and self-esteem were greater among humorous people than others; they, therefore, act better and more adapted against stressful situations.<sup>[31]</sup> The Tanay *et al.*<sup>[32]</sup> study showed humor and laughter are also effective for patient adaption to clinical condition; they can cope with negative emotions caused by the diseases, make them feel more comfortable in the hospital wards, and better acceptance of treatment process. Nurses will also experience less clinical stress, thus increasing the patient care quality. It also creates a sense of mutual trust by establishing a good relationship between the patient and the nurse.<sup>[16]</sup> There are commonalities between resilient and humorous people. They have a strong sense of progress and high self-esteem. They can use the necessary strategies to change the critical situation. In contrast, people with low sense of humor, exaggerate their problems; they assumed as like as victims of events!<sup>[33]</sup> It was found, in the present study, there was a significant relationship between academic semester and resilience. 1<sup>st</sup> year students have lots of stress due to changing educational environment and family distance, increasing the amount of educational courses, parent's high expectations, less or lack of knowledge about the effective and useful study methods, and the end of the course evaluation.<sup>[34]</sup> When students move on next and higher semesters, the number of specialized courses has also increased and

they take steps to the clinical stage. They will be in direct contact with the patient and will need a greater sense of responsibility. Studies have shown that worries about future careers, fear of harming patients, and poor skills are the most important causes of high stress in older students than in younger students. Increased stress causes students to not be able to overcome perceived stress, as a result, their feelings and level of adjustment are reduced and they are more exposed to the risks of stress.<sup>[35,36]</sup>

There are some limitations. One of them is the use of self-report method to measure students' psychological variables. On the other hand, the option of "native and regional students in the field of medical sciences" in recent years may be limited in generalizing the study findings to other students.

## CONCLUSION

The results of this study showed there is a direct relationship between humor and resilience among students. Humorous students seem to be more adaptable to stress and more protected from its side effects. Therefore, it is better to teach the art of joking and laughter to medical students, because humor and laughter by overcoming fear and anxiety during education and clinical efforts, increase adaptation and ultimately improving students' performance in the classroom and at hospital.<sup>[25]</sup>

## Conflicts of interest

There are no conflicts of interest.

## Authors' contribution

All authors contributed to this research.

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