

## Original Article

# The Relationship between Resilience, Happiness, and Life Satisfaction in Dental and Medical Students in Jeddah, Saudi Arabia

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### ABSTRACT

**Objectives:** Few studies have investigated positive psychological health among medical and dental students. This study aimed to investigate the relationship between resilience, satisfaction with life, and happiness among medical and dental students in private colleges in Jeddah, Saudi Arabia. **Materials and Methods:** A total of 607 participants, from 3<sup>rd</sup>-year students to interns, were involved in a cross-sectional study. Data were collected through a self-reported questionnaire. Resilience was measured by the Resilience Scale-14, happiness was measured by the subjective happiness scale, and life satisfaction was measured by the satisfaction With life scale. Data were analyzed by *t*-test, ANOVA, and linear regression. **Results:** There was a significant correlation between resilience and life satisfaction ( $P < 0.001$ ), and between resilience and happiness ( $P < 0.001$ ). There were 66.3% who have resilience below average and 24.7% who have satisfaction with life below average. Resilience was higher in females, dental students, and students with high family income than it was in the opposite subgroups. **Conclusion:** Students with high resilience are happier and more satisfied with their lives. Establishing programs to help students improve their resilience is recommended.

**KEYWORDS:** Dental students, happiness, life satisfaction, medical students, resilience, Saudi Arabia

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## INTRODUCTION

Most studies and systematic reviews of the psychological health of medical and dental students worldwide have investigated the negative aspects of psychological health, including depression, anxiety, stress, and burnout.<sup>[1-5]</sup> There have been relatively few studies that investigated the positive aspects of students' psychological health, such as life satisfaction, happiness, and resilience.<sup>[6]</sup> Despite the inverse relation between the positive and the negative aspects of psychological health,<sup>[7]</sup> some researchers have found that medical and dental students have high levels of psychological distress and high levels of satisfaction at the same time.<sup>[8]</sup> However, these levels change differently across time for medical students than for dental students.<sup>[9]</sup> The positive aspects of psychology have been linked to mortality, morbidity, and suicidal ideation.<sup>[10]</sup> This highlights the importance of studying the positive aspects of

psychological health in medical and dental students. In fact, positive psychology is a broad term to describe wellness and wellbeing rather than illness. In addition, there are many constructs that can give an indication about personal positive psychological health including, but not limited to, satisfaction with life, happiness and resilience.


Satisfaction with life is defined as "a global assessment of a person's quality of life according to his chosen criteria."<sup>[11]</sup> Studies where life satisfaction among medical students was investigated using the satisfaction with life scale (SWLS),<sup>[12]</sup> showed relatively similar

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means (M) and standard deviations (SDs), such as in China (M = 23.5–24.3, SD = 6.86–6.77),<sup>[13]</sup> New Zealand (M = 26.4, SD = 6.4),<sup>[7]</sup> India (M = 22.45, SD = 6.26),<sup>[14]</sup> and Saudi Arabia (M = 23.60, SD = 6.37).<sup>[8]</sup> These results indicated that medical students are generally satisfied with their lives, despite suffering from symptoms of psychological distress at the time of the investigation.<sup>[7,8]</sup> However, studies from Norway and Canada indicated that medical students' life satisfaction was lower than their peers.<sup>[15,16]</sup> A limited number of studies on life satisfaction among dental students gave conflicting results. One study found dental students to be less satisfied than medical students,<sup>[17]</sup> and another found life satisfaction to be similar between the two groups.<sup>[8]</sup>

Happiness is another aspect that has recently become an area of interest for researchers.<sup>[18]</sup> Happiness combines different aspects including positive emotion, low depression, and mood.<sup>[19,20]</sup> Happiness was linked to appropriate sleep, psychological health, memory, and social life.<sup>[21,22]</sup> Studies of happiness in medical and dental students showed a relation between happiness and individuals' religious attitude,<sup>[23]</sup> spiritual intelligence,<sup>[24]</sup> and self-efficacy,<sup>[25]</sup> but not to students' academic achievement.<sup>[24]</sup> Most of these studies were conducted in Iran. Happiness in dental students has not been investigated, and happiness in medical or dental students in Saudi Arabia has not been investigated.

One explanation for the high level of positive aspects of psychological health in the students, despite numerous psychological challenges, is resilience.<sup>[26]</sup> Resilience is defined as the ability to withstand stressful events with adequate physical and psychological functioning.<sup>[27]</sup> Resilience correlates negatively with stress,<sup>[28,29]</sup> and positively with life satisfaction.<sup>[30]</sup> A multi-institutional study of medical students in the United States showed the positive effect of resilience associated with low levels of depression, stress, and burnout.<sup>[26]</sup> These findings were supported by other studies in China and Australia, where a relation was found between resilience and low psychological distress,<sup>[13,31,32]</sup> subjective well-being,<sup>[33]</sup> and satisfaction with life.<sup>[13]</sup> However, studies on resilience among dental and medical students, including those in Saudi Arabia, are lacking. Assessing the positive aspect of the students' psychological health can give a baseline measures for future interventional studies aiming to raise students' wellness, rather than helping the students to cope with their psychological distress. In addition, investigating medical and dental students groups can give more insights to tailor more specified intervention for each group accordingly, as the previous literature illustrated the difference between the two students groups.

The aims of this study were (1) to assess the levels of life satisfaction, happiness, and resilience among medical and dental students in private colleges in the Western region of Saudi Arabia; and (2) to identify the relations between these three positive aspects of psychological health in the students.

## MATERIALS AND METHODS

A cross-sectional study was conducted to assess happiness, life satisfaction, and resilience among male and female dental and medical students from private schools in Saudi Arabia during the last week of the academic year and during final examination weeks. A total of 607 were recruited from a population of 3703 students. Students and interns were recruited from Alfarabi College for Dentistry and Nursing, Batterjee Medical College, and Ibn Sina National College for Medical Studies in Jeddah. The inclusion criteria were all medical and dental students in their fourth, fifth, sixth, or internship year. Data were collected through a self-reported questionnaire in English, in either hard-copy or electronic format. Participants needed 5–10 min to fill out the questionnaire. For the hard-copy format, male and female data collectors met with participants to minimize missing data. Each participant signed a consent form before completing the questionnaire. For the electronic format, a link was sent to each designated male and female academic year leader to disseminate to the students. The electronic questionnaire included a consent form, which was completed electronically. Students were instructed to fill the questionnaire only once as hard copy or electronically. All data were treated anonymously, and any identifiable information was removed. As an incentive, all participants were included in a drawing for six vouchers of 100 SR each from a famous bookstore. The winners were selected randomly.

The questionnaire comprised four sections. Section one contained eight demographic questions, including gender, marital status, faculty (medicine/dentistry), college name, academic year, family monthly income, nationality, and age. Section two measured happiness using the subjective happiness scale (SHS).<sup>[34]</sup> Section three measured life satisfaction using the SWLS,<sup>[12]</sup> and section four measured resilience using the Resilience Scale (RS-14).<sup>[35]</sup>

SHS is a set of four questions assessed on a 7-point Likert-type scale, with 1 representing the lowest score (not happy at all) and 7 representing the highest score (very happy). The total score of the SHS was the mean of the scores of the individual questions (including one reserve question). SHS is a valid questionnaire, with a Cronbach's alpha of 0.86.<sup>[34]</sup>

The SWLS is a set of five questions assessed on a 7-point Likert-type scale, where 1 is the lowest score (strongly disagree) and 7 is the highest score (strongly agree). The total score of the SWLS was figured as the sum of the scores of individual questions, with a potential range of 5–35. A high score indicates very satisfied. The cutoff points of SWLS are 5–9 = “Extremely Dissatisfied,” 10–14 = “Dissatisfied,” 15–19 = “Slightly dissatisfied,” 20 = “Neutral,” 21–25 = “Slightly satisfied,” 26–30 = “Satisfied,” and 31–35 = “Highly satisfied.” The SWLS is a validated and reliable questionnaire with a Cronbach’s alpha of 0.86–0.87.<sup>[36,37]</sup> The RS-14 is a set of 14 questions on a 7-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree), with 4 representing a neutral response. The total score of the RS-14 is the sum of the scores of all the questions, with a potential range of 14–98. These scores can be classified into very high resilience (82–98), high resilience (64–81), average (49–63), low resilience (48–31), and very low resilience (4–30), according to the scale guidelines.<sup>[35]</sup> The RS-14 has good psychometric properties as a valid questionnaire, with a Cronbach’s alpha of 0.91.<sup>[38]</sup> The RS-14 was rated as the most commonly used scale to measure resilience, and it has been translated into many languages.<sup>[36]</sup>

SPSS v. 16 (Statistical Package for the Social Science, SPSS Inc., Chicago, IL, USA) was used for data analysis.

Descriptive data included frequency, percentages, means, and SD. Research questions were tested by *t*-test, ANOVA, and linear regression. Statistical significance was achieved with a *P* = 0.05. The research team performed data entry on a private, password-protected computer, which could be accessed only by the research team.

This study was approved by Umm Al-Qura University, Faculty of Dentistry Institute Review Board, as part of a large project to assess the psychological health among medical and dental students in Saudi Arabia.

## RESULTS

A total of 607 students and interns were included in this study. The mean age of participants was 24.08 (SD = 2.06). Participants’ demographic data are presented in Table 1.

The mean of the participants’ resilience was 68.68 (SD = 14.06), with Cronbach’s alpha of 0.9 for RS-14. According to the RS-14 cutoff, 20.8% of participants had very low resilience, 45.5% had low resilience, 25.4% had average resilience, 7.6% had high resilience, and 0.8% had very high resilience. The mean of participants’ life satisfaction scores was

**Table 1: Demographic data of 607 student and intern participants**

	<i>n</i> (%)
Gender	
Male	219 (36.1)
Female	388 (63.9)
Academic year	
Students	396 (65.2)
Intern	211 (34.8)
Nationality	
Saudi	442 (72.8)
Non-Saudi	165 (27.2)
Family monthly income (Saudi riyal)	
<5000	43 (7.1)
5000-15,000	292 (48.1)
>15,000	272 (44.8)
Marital status	
Married	94 (15.5)
Not married	513 (84.5)
College name	
BMC	190 (31.3)
Alfarabi	166 (27.3)
Ibn Sina	251 (41.4)
Faculty	
Medicine	318 (52.4)
Dentistry	289 (47.6)

BMC=Batterjee Medical College

**Table 2: The relation between demographic variables and resilience, satisfaction with life, and happiness**

	Mean (SD)		
	Resilience	SWLS	Happiness
Gender			
Male	66.64 (13.45)*	22.70 (4.83)	4.60 (0.88)
Female	69.83 (14.28)	23.11 (5.63)	4.68 (0.99)
Academic year			
Student	67.41 (14.17)*	22.44 (5.33)*	4.57 (1.0)*
Intern	71.06 (13.58)	23.95 (5.31)	4.80 (0.86)
Nationality			
Saudi	68.93 (13.73)	23.17 (5.34)	4.69 (0.92)
Non-Saudi	68.00 (14.93)	22.41 (5.39)	4.54 (1.04)
Family monthly income (Saudi riyal)			
<5000	65.30 (14.79)	21.34 (6.19)	4.13 (0.88) <sup>†‡</sup>
5000-15,000	67.45 (14.45) <sup>§</sup>	22.81 (5.36)	4.62 (0.87)
>15,000	70.54 (13.30)	23.39 (5.18)	4.76 (1.02)
Marital status			
Married	69.70 (15.03)	23.38 (5.87)	4.76 (0.92)
Not married	68.49 (13.88)	22.89 (5.26)	4.63 (0.96)
Faculty			
Medicine	67.23 (14.05)*	22.90 (5.32)	4.61 (0.95)
Dentistry	70.28 (13.92)	23.03 (5.42)	4.69 (0.96)

\**P*<0.05, <sup>†</sup>Significant difference between participants with family income (<5000) and (5000-15,000), <sup>‡</sup>Significant difference between participants with family income (<5000) and (>15,000), <sup>§</sup>Significant difference between participants with family income (5000-15,000) and (>15,000). SWLS: Satisfaction with life scale; SD=Standard deviation

22.96 (SD = 5.36), with Cronbach's alpha of 0.76 for SWLS. Using the cutoff measures of the SWLS, 0.8% of participants were classified as extremely dissatisfied, 6.1% were dissatisfied, 17.8% were slightly dissatisfied, 6.3% were neutral, 34.4% were slightly satisfied, 28.7% were satisfied, and 5.9% were extremely satisfied. The mean values of participants' happiness were 4.65 (SD = 0.95).

There was a significant person's correlation between resilience and life satisfaction (0.653), resilience and happiness (0.475), and life satisfaction and happiness (0.532). A linear regression analysis showed a significant correlation between resilience as independent variable (IV) and life satisfaction as dependent variable (DV) ( $P < 0.001$ ,  $R^2 = 0.426$ ). There was also a statistically significant relation between resilience (IV) and happiness (DV) ( $P < 0.001$ ,  $R^2 = 0.226$ ) and between life satisfaction (IV) and happiness (DV) ( $P < 0.001$ ,  $R^2 = 0.283$ ).

Using simple linear regression, age was not significantly related to resilience, life satisfaction, or happiness. Table 2 shows the relations between demographics and resilience, life satisfaction, and happiness.

## DISCUSSION

The mean of participants' life satisfaction was lower than that in a previous study in New Zealand,<sup>[7]</sup> but similar to that in other studies in China, India, and Saudi Arabia.<sup>[8,13,14]</sup> Approximately two-thirds of the participants were, on average, satisfied with their lives. This was in agreement with results from a previous study in Saudi Arabia,<sup>[8]</sup> which showed that dental and medical students have high levels of satisfaction with life, despite having high levels of depression, anxiety, and stress. One possible explanation for this is that students and interns may have difficulties during their academic lives, but they are satisfied with their chosen professions, which provide an ample income and are considered prestigious in Saudi Arabia.

The mean level of happiness for participants was above the SHS midpoint. Happiness was higher in interns than in other participants and was low for participants with low family income. It was difficult to compare these results with those of other studies, due to differences in scales used. There was a correlation between life satisfaction and happiness. Neither happiness nor life satisfaction was influenced by nationality or marital status, but both were influenced by the participants' family income. In contrast to life satisfaction, happiness was not influenced by gender or faculty.

Even though data were collected during the last week of the academic year and during examination periods,

life satisfaction, and happiness levels were high and comparable to those in other Saudi studies that were conducted at the beginning or in the middle of the academic year.<sup>[8,9]</sup> This contradicts a previous longitudinal study that indicated that life satisfaction was affected by the time of measurement.<sup>[9]</sup> It is not known if this contradiction is due to the participants involved or the types of colleges (public or private). Participants in this study were students in their third through 6<sup>th</sup> years of study and interns in private colleges, while the previous study was conducted among 2<sup>nd</sup>- and 3<sup>rd</sup>-year students at one public university. Further studies are needed to validate the results.

Nearly two-thirds of the participants had below average resilience. Females, interns, those with high family income, and dental participants had higher levels of resilience than did other participants. Resilience was significantly correlated with life satisfaction. However, using the scales cutoffs, the number of participants with low resilience was high, but the number with average or high levels of life satisfaction was also high. These results are in agreement with those of a previous study.<sup>[30]</sup> Resilience was also significantly correlated with happiness.

When reader see our result, s/he got an impression that our results are contradicting, as the majority of the students have below average resilience and at the same time have life satisfaction and happiness above average, in addition to the positive linear relationships between resilience with both life satisfaction and happiness. This impression comes from using our data in categorical formats during data description and using our data in continuous formats during the conduction of the linear regression tests. In fact, there is no contradiction, as our results indicate that students' resilience is low in general, and as the resilience increase, the life satisfaction and happiness also increase. This is despite the fact that student' life satisfaction and happiness can be high for other reasons, as resilience according to R-square, can explain 42% of the student' life satisfaction and 22% of their happiness, which are considerably a high percentages but cannot explain life satisfaction and happiness completely.

The weaknesses of the study were the use of a convenient sample and a self-reported questionnaire for data collection. In addition, the low response rate makes it difficult to generalize such results to the dental students' population. In fact, the results should be taken with cautious as further investigation is needed to adjust for possible confounding factors. The strength of the study is that it was the first to use validated questionnaires to examine resilience, satisfaction with life, and happiness

among dental and medical students in private colleges in Saudi Arabia.

## CONCLUSION

Resilience is very important for participants' positive psychology. Resilience may be the critical aspect to focus on when developing programs to support dental and medical students' and interns' psychological health, such as self-development and personal coaching programs.<sup>[39,40]</sup> Males, medical students, and those with average or low family income may be more prone to low resilience, suggesting a need for supportive programs to target these populations.

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## Conflicts of interest

There are no conflicts of interest.

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