

Optimism among Medical Students at the Faculty of Medicine and Pharmacy in Casablanca

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Abstract

Original Research Article

Background: Optimism plays a crucial role in the journey of medical students. A high degree of optimism can translate into commendable academic outcomes, while a diminished level may precipitate setbacks. Multiple factors can exert influence on the optimism levels of students, thereby impacting their academic achievements. **Objective:** To describe the level of optimism and explore the factors that impact the optimism levels in medical students. **Methodology:** A cross-sectional study was conducted at the Faculty of Medicine and Pharmacy in Casablanca from June to July 2023. A random sampling method was used to enroll the study participants, and data were collected through self-administered questionnaires encompassing sociodemographic characteristics, academic performance, lifestyle practices, self-esteem, social support, and optimism score. Statistical analyses incorporated Chi-square test, Student's t-test, Mann-Whitney test, ANOVA, and correlations. **Results:** In total, 234 participants responded to the questionnaire, 64.5% of which were female. The average age was 20.4 years (± 1.8). The majority of the students came from a medium socio-economic level (88.9%) and lived with their parents (76.9%). The primary sources of subsistence were predominantly familial (59.8%). Academic challenges were evident, with 5.6% of the students experiencing repetition and 42.7% requiring catch-up exams. The median number of friends per student stood at 3 (IQR=3), and a considerable proportion engaged in leisure activities (55.1%) and physical activities (51.7%). Stress was prevalent among 64.5% of students, while 19.3% grappled with chronic illnesses. Instances of trauma, psychiatric consultations, contemplation of seeking help (48.2%), and psychiatric treatments (10.6%) were also reported. The mean optimism score was 13.5 (± 3.8 SD), indicating a modest level of optimism. Notably, 51.5% exhibited a low level of optimism, 37.3% a moderate level, and 11.6% a high level. Optimism scores showed positive correlations with self-esteem and social support scores. The optimism level was correlated with psychiatric consultations ($p < 0.001$), use of toxic substances ($p = 0.024$), repetition ($p = 0.009$), and academic failure ($p = 0.034$). **Conclusion:** The study identifies diverse factors linked to the levels of optimism among medical students, including self-esteem, social support, academic impediments, and psychiatric dimensions. Targeted interventions addressing these factors hold the potential to elevate optimism levels, thereby enhancing the academic performance of students.

Keywords: Optimism, LOT-R, Medical Students, Satisfaction, Self-esteem.

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INTRODUCTION

Medical studies present a significant challenge for many students pursuing medical education, which often leads to considerable academic stress [1]. This stress stems from various sources such as an extensive

curriculum, emotional aspects of medical training, a lack of self-confidence, a substantial workload, frequent and challenging exams, and the need for continuous education, extending to affect other aspects of their daily lives [1, 2]. Consequently, many medical students may lose their initial motivation, resulting in a state of

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pessimism with negative impacts on their physical and psychological well-being after enrollment in a medical education program [2, 3]. Physical and mental stability, along with a certain level of optimism, are essential for succeeding in medical studies.

Optimism is defined as a tendency or attitude to view and interpret situations and events positively, which can be considered a human strength and virtue [4, 5]. According to Bryant and Cvengros, optimism is a general expectation of positive future outcomes [6]. In contrast, pessimism is a negative perception of life, resulting in a negative anticipation of outcomes [7]. It is associated with a lack of energy, dynamism, and motivation, hindering goal achievement [3].

Optimism can be influenced by various factors, including genetics, education, environment, and personal experience. Studies indicate a genetic component of about 25% [8], [9] with parental impact evident in shaping their children's optimism levels [9, 10]. Factors such as age, gender, personality, self-esteem, religious faith, belief in a just world, and media also impact optimism [2, 9, 11]. Furthermore, social support, childhood environment, personal history [12] and financial security play a crucial role in influencing optimism [3].

Optimism is associated with positive values, good psychological adaptation, low aggressiveness, high self-esteem, life satisfaction, positive humor, and a strengthened immune system [13, 14]. Studies have demonstrated that optimism predicts goals, career planning [15], professional adaptability, and resistance to stressful events [16, 17]. Optimistic students are more active, relaxed, and engaged in their tasks, resulting in better academic performance [18], [19]. Moreover, they adopt a proactive approach to health promotion, leading to the development of healthier lifestyle habits [18].

However, factors such as traumatic experiences, lack of socio-economic support, social isolation or rejection, major failures, and the influence of televised media featuring recurrent scenes of violence may contribute to a decrease in optimism [9, 20]. Age and gender also seem to contribute to the development of a pessimistic outlook according to Nolen-Hoeksema and Girgus [9, 11]. A pessimistic person tends to withdraw from both physical and mental activities [18]. High pessimism is associated with adverse health outcomes such as cardiovascular diseases and mental disorders [21]. The lack of optimism among medical students can lead to mediocre academic results, increased rates of addiction and suicide, and can negatively influence the quality of future healthcare [1].

While the literature has primarily addressed mental distress in medical students (depression, anxiety), little attention has been given to their level of optimism [1]. In this context, our study aims to describe the level

of optimism and explore the factors influencing it among students of the Faculty of Medicine and Pharmacy in Casablanca.

MATERIALS AND METHODS

This was a cross-sectional study conducted among medical students at the Faculty of Medicine and Pharmacy in Casablanca, between June and July 2023.

Inclusion criteria for the selection of subjects included medical students from the 1st year to the 5th year. The sampling frame consisted of lists of students in workshops or clinical internship groups. The sample selection was made through a random cluster sampling, stratified by years of study.

Data were collected using a self-administered questionnaire distributed to students at the faculty or various internship services. The questionnaire was divided into three key parts: sociodemographic characteristics (age, gender, nationality, lifestyle, education level, socioeconomic level, sources of financial means), academic performance (perception of academic failure, repeating a year, making up for failed courses, invalidated internships), social and lifestyle aspects (number of close friends and time spent with them, leisure activities, physical activities, stressful situations, traumatic events, chronic illnesses, psychiatric consultation or treatment, substance abuse).

The questionnaire also included items for different scales used. The Rosenberg Self-Esteem Scale comprises 10 items to which each participant must respond. Self-esteem levels are defined as follows: Score < 25: very low self-esteem; 25 to 30: low self-esteem; 31 to 34: medium self-esteem; 35 to 39: high self-esteem; Score > 39: very high self-esteem.

The Life Orientation Test - Revised or LOT-R scale (Optimism score) consists of 10 items, with 4 not counting in the total score as they are considered distractors. A high total score indicates a good level of optimism, while a low total score indicates a lack of optimism. The score interpretation is as follows: 0-13: low level of optimism (high pessimism); 14-18: moderate level of optimism; 19-24: high level of optimism (low pessimism).

The SSQ-6 scale on the availability of social support specifies the number of people supporting each participant, their relationship, and the degree of satisfaction with this support. It comprises 6 items allowing the calculation of Availability scores (ranging from 0 to 54) and Satisfaction scores (ranging from 6 to 36) for each participant.

The data were initially entered into Microsoft Excel spreadsheet and then underwent a cleaning process. A descriptive analysis was conducted using the JAMOVI 2.4.8 software. Chi-square tests or its

correction and Fisher's exact test were used for frequency comparisons. Student's t-test, Mann-Whitney test, and ANOVA test were used for mean comparisons. Correlations were performed to investigate any potential relationship between quantitative variables and a correlation coefficient (r) was used to assess the relationship. This coefficient ranges from -1 to 1, and the closer it is to -1 or 1, the stronger the association. A positive coefficient indicates a positive correlation (variation in the same direction), and a negative coefficient equates to a negative correlation (variation in opposite directions). In our study, we used the following thresholds: $|r| \leq 0.3$: weak correlation; $0.3 < |r| \leq 0.6$: moderate correlation; $|r| > 0.6$: strong correlation.

In terms of ethical considerations, the study ensured that all participants granted voluntary and informed consent, with a strict adherence to conditions of anonymity and data confidentiality.

RESULTS

A total of 234 students responded to the questionnaire, with females comprising 64.5%. The mean age was 20.4 years (± 1.8 SD). The majority of students (76.9%) resided with their parents, while 14.5%

lived in shared accommodation with colleagues. The majority of students, 88.9%, belonged to a middle socio-economic level, while only 7.7% having a high socio-economic level. More than half of the students (59.8%) relied solely on their families for financial support, and 4.2% relied solely on scholarships. During their studies, 5.6% of students had repeated a year at least once, 42.7% had at least one catch-up exam, 9.0% experienced academic failure, and 1.7% experienced the invalidation of at least one internship.

The median number of friends for each student was 3 (IQR=3), with 39.9% stating that they spent more than 2 hours and 30 minutes per day with their friends, while 16.3% spent less than 30 minutes per day with them. Leisure activities were practiced by 55.1% of students, with 37.2% engaging in them frequently. Additionally, 51.7% of students participated in physical activities, of which 32.8% did so regularly.

The majority of students (64.5%) had experienced a stressful situation during their medical studies, and 19.3% had a chronic illness. Almost a third of the participants (32.5%) had undergone a traumatic event, 14.5% had sought psychiatric consultation, and 10.6% were undergoing psychiatric treatment (Table 1).

Table 1: Description of socio-demographic characteristics and academic and social factors

Variables	Quantities	Frequencies (%)
Gender		
Male	83	35.5
Female	151	64.5
Age (Mean \pmSD)	20.4 \pm 1.8	
Number of friends: Median (IQR)	3 (3)	
Level of education		
1 st year	47	20.1
2 nd year	50	21.4
3 rd year	32	13.7
4 th year	46	19.7
5 th year	59	25.2
Socio-economic level		
Low	8	3.4
Medium	208	88.9
High	18	7.7
Source of funds		
Family	140	59.8
Bursary	10	4.2
Family and bursary	77	32.9
Others	4	1.7
University failure perception		
Yes	21	9.0
No	213	91.0
Catch-up exams		
Yes	100	42.7
No	134	57.3
Repetition		
Yes	13	5.6
No	221	94.4

Variables	Quantities	Frequencies (%)
Invalidated internship		
Yes	4	1.7
No	230	98.3
Leisure activities		
Yes	129	55.1
No	105	44.9
Stressful situation		
Yes	151	64.5
No	83	35.5
Chronic illness		
Yes	45	19.4
No	187	80.6
Psychiatric treatment		
Yes	25	16.8
No	124	83.2

Legend: **SD**: Standard deviation; **IQR**: Inter-quartile range

The mean score for optimism among students was 13.5 (± 3.8 SD), indicating a low level of optimism. More than half of the students, 51.5%, exhibited a low

level of optimism, while 37.3% had a moderate level of optimism (Table 2).

Table 2: Level of optimism and self-esteem among students

Scales	Quantities	Frequencies (%)
Level of self esteem		
Very high	1	0.7
High	25	17.1
Medium	34	23.3
Low	54	37.0
Very low	32	21.9
Optimism level		
High	27	11.6
Medium	87	37.3
Low	119	51.1

As for the self-esteem score, the mean was 28.8 (± 3.5 SD), indicating a low level of self-esteem. Thus, 37.0% of students had low level of self-esteem, and 23.3% had a moderate level of self-esteem (Table 2).

The mean score for "Availability" was 16.6 (± 10.8 SD) among students, while the median score for "Satisfaction" was 29.9 (IQR = 10).

The study found a moderate positive correlation between optimism score and self-esteem score with $r = 0.50$ ($p < 0.001$). The optimism score was also weakly positively correlated with the scores of Availability and Satisfaction on the social support scale, with $r = 0.14$ ($p = 0.029$) and $r = 0.25$ ($p < 0.001$) respectively (Table 3).

Table 3: Correlation between variables and optimism and self-esteem scores

Variables	Optimism		Self-esteem	
	r	p	r	p
<i>Self-esteem</i>	0.50	<0.001		
<i>Availability</i>	0.14	0.029	0.20	0.002
<i>Satisfaction</i>	0.25	<0.001	0.25	<0.001
<i>Age</i>	0.01	0.916	0.14	0.038
<i>Number/sources of funds</i>	- 0.11	0.109	0.03	0.669
<i>Number of friends</i>	0.04	0.573	0.01	0.917
<i>Number of repetitions</i>	- 0.20	0.531	- 0.28	0.376
<i>Number of catch-up exams</i>	0.01	0.955	0.33	0.013
<i>Number of invalidated internships</i>	- 0.63	0.371	0.16	0.842

Legend: **r**: Correlation coefficient; **p**: p-value

A low level of optimism was significantly associated with psychiatric consultation ($p < 0.001$), being under psychiatric treatment ($p = 0.014$), the number of sources of financial support ($p = 0.024$) and substance use

($p = 0.024$). It was also significantly associated with year repetition and perceiving academic failure, with p -values of 0.009 and 0.034, respectively (Table 4).

Table 4: Association between variables and optimism and self-esteem scores

Variables	Optimism		Self-esteem	
	Mean \pm SD	p	Mean \pm SD	p
Total sample	13.4 \pm 4.6		27.9 \pm 5.1	
Gender				
Male	13.5 \pm 5.4	0.882	27.6 \pm 5.6	0.417
Female	13.3 \pm 4.1		28.1 \pm 4.8	
Level of education				
1 st year	13.4 \pm 4.7	0.175	26.5 \pm 3.5	< 0.001
2 nd year	12.2 \pm 3.1		26.0 \pm 3.2	
3 rd year	14.1 \pm 4.6		30.7 \pm 4.7	
4 th year	13.0 \pm 5.3		28.0 \pm 6.0	
5 th year	14.3 \pm 5.0		29.2 \pm 6.0	
Socio-economic level				
Low	11.9 \pm 5.7	0.384	26.4 \pm 7.2	0.675
Medium	13.5 \pm 4.5		28.0 \pm 5.1	
High	12.4 \pm 6.0		27.9 \pm 4.7	
Number/sources of funds				
One source	13.6 \pm 4.7	0.196	27.63 \pm 4.8	0.213
Two sources	13.3 \pm 4.3		28.3 \pm 5.6	
Three sources	7.0 \pm 3.6		25.8 \pm 7.0	
Repetition				
Yes	10.2 \pm 3.9	0.009	25.8 \pm 6.2	0.128
No	13.6 \pm 4.6		28.1 \pm 5.0	
Catch-up exams				
Yes	13.3 \pm 4.7	0.525	27.5 \pm 5.2	0.262
No	13.5 \pm 4.6		28.3 \pm 5.1	
Number of catch-up exams				
Once	14.4 \pm 6.3	0.054	27.1 \pm 4.2	0.012
2 times	13.9 \pm 3.8		29.4 \pm 5.2	
3 times	14.5 \pm 3.7		30.6 \pm 4.5	
4 times or more	11.4 \pm 4.4		25.8 \pm 5.5	
University failure perception				
Yes	11.3 \pm 3.7	0.034	25.1 \pm 5.4	0.007
No	13.6 \pm 4.7		28.2 \pm 5.0	
Invalidated internship				
Yes	11.3 \pm 5.5	0.500	27.3 \pm 7.2	0.407
No	13.4 \pm 4.6		28.0 \pm 5.1	
Time with friends per day				
Less than 30 min	11.8 \pm 5.3	0.123	27.4 \pm 5.1	0.801
30 min to 1h30 min	13.7 \pm 3.9		28.0 \pm 4.5	
1h30 min to 2h 30 min	13.9 \pm 4.5		28.5 \pm 5.8	
More than 2h 30 min	13.6 \pm 4.7		27.8 \pm 5.1	
Physical activity				
Yes	13.1 \pm 4.4	0.324	27.7 \pm 5.1	0.439
No	13.7 \pm 4.8		28.2 \pm 5.1	
Leisure activities				
Yes	12.9 \pm 4.5	0.125	27.8 \pm 5.1	0.541
No	14. \pm 4.8		28.2 \pm 5.1	
Stressful situation				
Yes	13.0 \pm 5.0	0.088	27.3 \pm 5.3	0.006
No	14.1 \pm 3.8		29.2 \pm 4.6	

Variables	Optimism		Self-esteem	
	Mean ± SD	p	Mean ± SD	p
Chronic illness				
Yes	13.0±4.9	0.761	27.6±5.9	0.635
No	13.5±4.6		28.0±4.9	
Traumatic event				
Yes	12.9±4.2	0.266	27.6±5.3	0.535
No	13.6±4.8		28.1±5.0	
Substance use				
Never	13.7±4.6	0.024	28.0±5.0	0.523
Former consumer	12.6±4.3		26.1±5.2	
Current consumer	10.4±4.9		28.6±6.3	
Psychiatric treatment				
Yes	10.5±4.0	0.014	25.4±5.0	0.09
No	12.8±4.4		27.0±4.5	
Psychiatric consultation				
Yes	10.4±4.6	< 0.001	25.3±5.2	< 0.001
No	13.9±4.4		28.4±5.0	
Considering psychiatric consultation				
Yes	13.4±3.9	0.348	27.8±4.4	0.278
No	14.2±4.7		28.6±5.2	
Number/sources of funds				
One source	13.6±4.7	0.024	27.7±4.8	0.636
Two sources	13.3±4.3		28.3±5.6	
Three sources	7.0±3.6		25.8±7.0	

Self-esteem score was weakly positively correlated with age and the number of catch-up exams undertaken, with $r = 0.14$ ($p = 0.038$) and $r = 0.33$ ($p = 0.013$) respectively. It was also correlated with Availability and Satisfaction scores on the social support scale, with $r = 0.20$ ($p = 0.002$) and $r = 0.25$ ($p < 0.001$) respectively (Table 3). The level of self-esteem was significantly associated with the level of education ($p < 0.001$), the number of catch-up exams undertaken ($p = 0.012$), and the perception of academic failure with $p = 0.007$. A low level of self-esteem was also significantly associated with psychiatric consultation and experiencing a stressful situation with $p < 0.001$ and $p = 0.006$ respectively (Table 4). No association was found between the level of optimism and gender, age, invalidated internships, catching up, socio-economic level, or the number of friends of each student.

DISCUSSION

Our study predominantly identified students with a low level of optimism (51.1%), and the overall mean optimism score was 13.4 (± 4.6 SD). This finding closely aligns with Jaimily A. Stoecker's study, where the average optimism score among Psychology students was 15.9 (± 3.5 SD) [22]. The low optimism level among students in our study may be attributed to challenging academic conditions, such as repeating years or academic failures, as well as difficult socio-economic conditions, insufficient social support or concerns related to mental health. All these unfavorable conditions likely contributed to the low average self-esteem score of 27.9 (± 5.1 SD), with more than 58.9% of students having very

low or low self-esteem. This mirrors the findings of a study by D. Edwards *et al.*, in the UK, where a majority of nursing students had self-esteem scores ranging from 20 to 28, indicating a similar level of self-esteem [23].

Optimism and self-esteem scores showed a positive correlation with Availability and Satisfaction scores on the social support scale; students with adequate support tended to be more optimistic and had a positive self-esteem (Table 3). This result supports İlhan Yalçın's findings on student satisfaction in Turkey [24]. This correlation underscores the crucial role of social support in the well-being of students, a role also acknowledged by Carver and Scheier (2014) in their study [14, 18].

Optimism levels were significantly associated with year repetition and university failure. This aligns with the findings of a study conducted among Italian and Swiss students by Santilli *et al.*, (2017), where failure and academic difficulties were linked to a lack of optimism among students [16]. Similarly, Rottinghaus *et al.*'s study indicated that optimistic students exhibited better study and career planning, leading to fewer academic and professional failures [17].

The level of optimism was also significantly associated with the use of toxic substances. Lack of optimism seemed to drive students to engage in substance use to boost their morale. Optimism and self-esteem levels were significantly associated with consulting a psychiatrist or undergoing psychiatric treatment. Similarly, Martin-Krumm's study found that

stressful situations and psychological disturbances contribute to a lack of optimism and self-esteem [9].

Advanced students had higher self-esteem scores in this study, indicating that academic success allows students to regain confidence and rekindle a sense of self-esteem. This aligns with the findings of Bachman, J. G., and O'Malley, P. M. (1977), where self-esteem levels increased with career advancement [25].

In this study, optimism levels did not differ between genders, which is consistent with Khallad Yacoub's study involving American and Jordanian student groups [26]. However, Susan Nolen-Hoeksema (1995) found gender differences in optimism levels, depending on age groups. Males became increasingly optimistic from the age of 13 years, while females experienced a decline in optimism from adolescence onward [27]. This could be attributed to morphological and physiological changes during human development and cultural considerations.

Optimism levels did not correlate with age in our study, resembling the findings of You *et al.*, (2009) in their study where there was no correlation between optimism and age among Americans. Conversely, the same study reported an opposite result for young Chinese individuals, who were more optimistic compared to the elderly [28]. This discrepancy could be attributed to cultural and socio-economic differences between the two populations.

Our study did not demonstrate the effect of socio-economic level on optimism levels. However, Carver *et al.*, (2010) found a significant association between socio-economic status and optimism in their study [29]. In our study, the lack of significance could be due to limited statistical power resulting from a small sample size. Similarly, the number of friends and time spent with them were not significantly associated with optimism levels. In contrast, Carver and Scheier (2014) showed that optimists have more friends and maintain very good relationships with their peers [18]. Physical exercise and leisure activities did not seem to influence optimism levels in our students. This result differs from Carver *et al.*'s (2010) findings, indicating that engaging in such activities is associated with higher levels of optimism [29].

In summary, our study unveiled various factors associated with the optimism of medical students, including the perception of academic failure, self-esteem, social support, funding sources, year repetition, substance use, psychiatric consultation and psychiatric treatment. Additional influences, whose impact could be significant with improved study conditions, have been observed in other studies.

Despite strengths such as reliable data and in-depth analysis using modern tools, there are areas for

improvement. Future studies could enhance study power by expanding the sample size. Focusing on more distinct age groups would be relevant to assess the effect of age on optimism. Exploring racial and cultural diversity is also necessary, given that our study primarily involved subjects of the same origin and culture. These adjustments could contribute to improving the academic and socio-economic conditions of medical students, thus fostering an optimistic academic and professional journey.

CONCLUSION

Optimism plays a significant role among medical students, and its level may depend on various factors. Controlling these factors could enhance optimism levels, preventing students from succumbing to a state of pessimism with all its detrimental consequences.

By understanding these aspects, targeted interventions could be developed to support the mental and physical health of medical students, thereby improving their overall well-being and their ability to provide quality care as future physicians.

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