

Impact of COVID-19 on Quality of Life of Medical Students and its Relationship with Resilience

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ABSTRACT

Introduction: Quality of life (QoL) is a concept designed to measure the overall well-being of an individual or population, encompassing both positive and negative aspects of their existence at a particular moment in time. Various stressors impact quality, and any unforeseen pandemic can alter this among medical students too. Resilience is an individual capacity to bounce back from this type of event. This study tries to find the impact of COVID-19 among medical students regarding quality of life and their resilience.

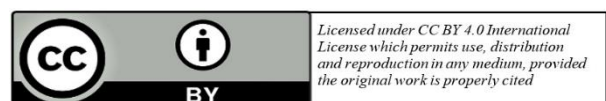
Methods: All 379 consenting medical students of Manipal College of Medical Sciences were included in the study. QoL was measured using the World Health Organization Quality of Life - Brief version (WHOQOL-BREF) questionnaire, and resilience was measured by Connor-Davidson Resilience Scale 10 Item (CD-RISC-10). SPSS ver. 16.0 was used for calculation of descriptive statistics and to find the association between dependent and independent variables.

Results: The total score for QoL ranged from 47 to 125 with the mean and standard deviation score being 90.56 ± 13.70 . Among the individual domains, physical domain had the highest mean score of 65.42 ± 15.207 , while psychological domain had the lowest mean score of 59.34 ± 16.92 . Self-reported mean resilience score was 25.81 ± 6.66 .

Conclusions: Overall QoL of the students was found to be good. COVID-19 was found to affect psychological well-being in the medical students more than other domains of quality of life. Students with high resilience were found to have better quality of life.

Keywords: COVID-19; QoL; Resilience; Students.

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INTRODUCTION

The World Health Organization (WHO) defines Quality of Life (QoL) as “an individual’s perception of their position in life, in the context of culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns”.[1] Various stressors influence the QoL of medical students,[2] and COVID-19 was added as unplanned one. Resilience is an individual’s ability to recover from stressful events and identified as protective factor against psychological dysfunctions.[3] Resilience influences medical student’s learning and medical professionalism.[4]

Medical students are vulnerable with a higher risk of having stress, depression and suicidal ideation than the general population.[5] Disruption of daily physical classes, absence of peer interactions, uncertainty regarding examination schedules, add on to the mental stress, and affect their QoL.[6]

Our study aimed to understand and investigate the impact of COVID-19 pandemic on quality of life of medical students along with their resilience.

METHODS

The cross-sectional analytical study was conducted from October 2020 to March 2021 among 379 undergraduate medical students of Manipal College of Medical Sciences (MCOMS) after taking ethical approval from the Institutional Ethical Committee of MCOMS, Pokhara (Reference no: MCOMS/IRC/407GA). All undergraduate MBBS students of MCOMS from first year to fourth year, along with the interns who consented for the study, were considered. The proforma containing standard World Health Organization Quality of Life - Brief version (WHOQOL-BREF) questionnaire and Connor-

Davidson Resilience Scale - 10 Item Version (CD-RISC-10) scale along with demography made on Google form were sent through MS teams.

Quality of life (QOL) was assessed using the standard WHOQOL-BREF, which has 26 items on a 5-point Likert scale, consisting of two items about overall QOL and general health, as well as 24 items relating to each of the following four QOL domains: physical (7 items), psychological (6 items), social (3 items), and environmental QOL (8 items). The raw score ranges from 0 to 100, and a higher score indicated better QOL. An overall score below 60-65 might be considered a general indicator of poor quality of life, though this varies by population. [7,8]

CD-RISC-10 is designed as a self-rating scale to assess resilience and scoring of the scale is based on summing the total of all items, each of which is scored from 0-4 where 0 stands for not true at all and 4 stands for true nearly all the time, and the total score ranges from 0-40. Scores between zero and 20 is categorized as low resilience, while scores between 21 and 30 is considered as moderate and scores between 31 and 40 as high resilience.[9] For statistical analysis, the SPSS statistical program, version 16.0 (SPSS Inc.; Chicago) was used. Frequencies with percentages were calculated for categorical variables, while mean with standard deviations were calculated for numerical variables. Unpaired t-test and ANOVA were used to determine the association of different domains of QoL and self-reported resilience with different independent variables at 95% confidence interval. Pearson correlation was used to see the correlation between resilience score and QoL.

RESULTS

Out of a total 500 students studying and doing internship in the institute, 379 (75.80%) participated and completed the questionnaire. The mean age of the respondents was 22.25

years with a standard deviation of 2.21. Out of them, 195 (51.45%) respondents were males, 219 (57.78%) were from Nepal and 293 (77.30%) were Hindu by religion. Most

respondents 114 (30.07%) were third year MBBS students. Twenty-two (5.80%) of them replied that they had some type of illness during the time of data collection (Table 1).

Table 1. Socio-demographic characteristics of the study participants (n = 379)

Characteristics	Categories	Frequency	Percentage
Gender	Male	195	51.45
	Female	184	48.55
Age (in years) (Mean \pm SD) = 22.25 \pm 2.21			
Batch	1 st year MBBS	104	27.44
	2 nd year MBBS	48	12.66
	3 rd year MBBS	114	30.07
	4 th year MBBS	65	17.15
	Intern	48	12.68
Marital status	Single	375	98.94
	Married	4	1.06
Nationality	Nepali	219	57.78
	Indian	105	27.70
	Sri Lankan	43	11.34
	Maldivian	10	2.63
	Others	2	0.55
Religion	Hinduism	293	77.30
	Buddhism	47	12.40
	Islam	20	5.27
	Christianity	12	3.163
	Others	7	1.87
Current illness	Yes	22	5.80
	No	357	94.20

On being asked to rate their QoL, more than 47% of the students perceived their QoL to be good, while 31.40% felt their QoL was neither good nor bad, and 4.20% students felt that their QoL was very poor as shown in Figure 1.

More than half of the student replied that they were satisfied with their own life, while 24.80% of the students were of the opinion that they were neither satisfied nor dissatisfied with their life. About 4.20% of the students opined that they were very dissatisfied with their own health as shown in Figure 2.

Figure 1. Self-rating of Quality of Life by the study participants (n = 379)

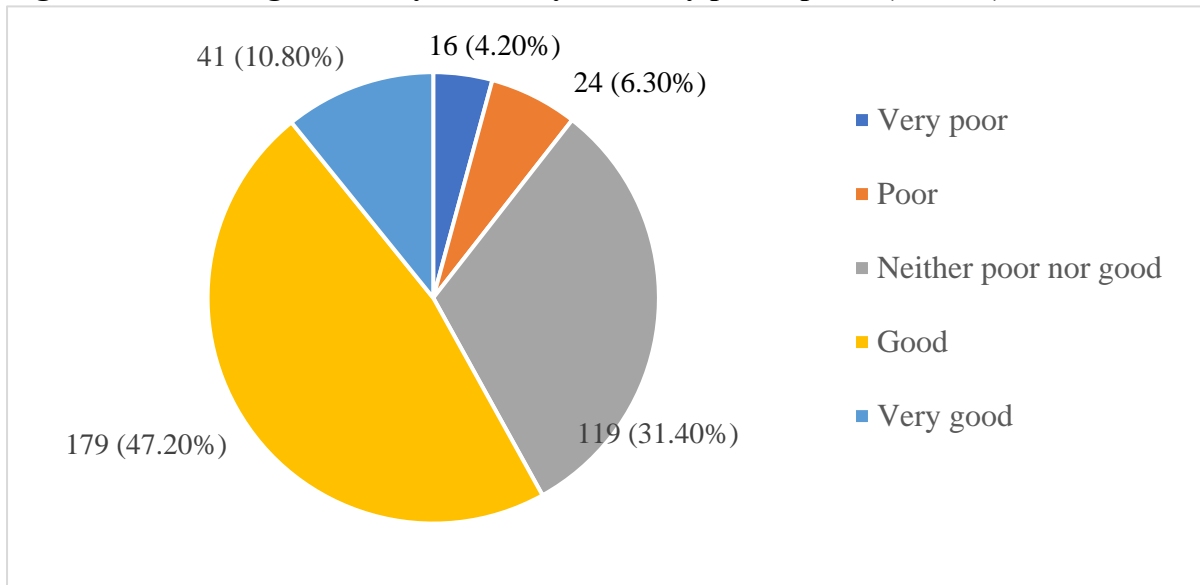
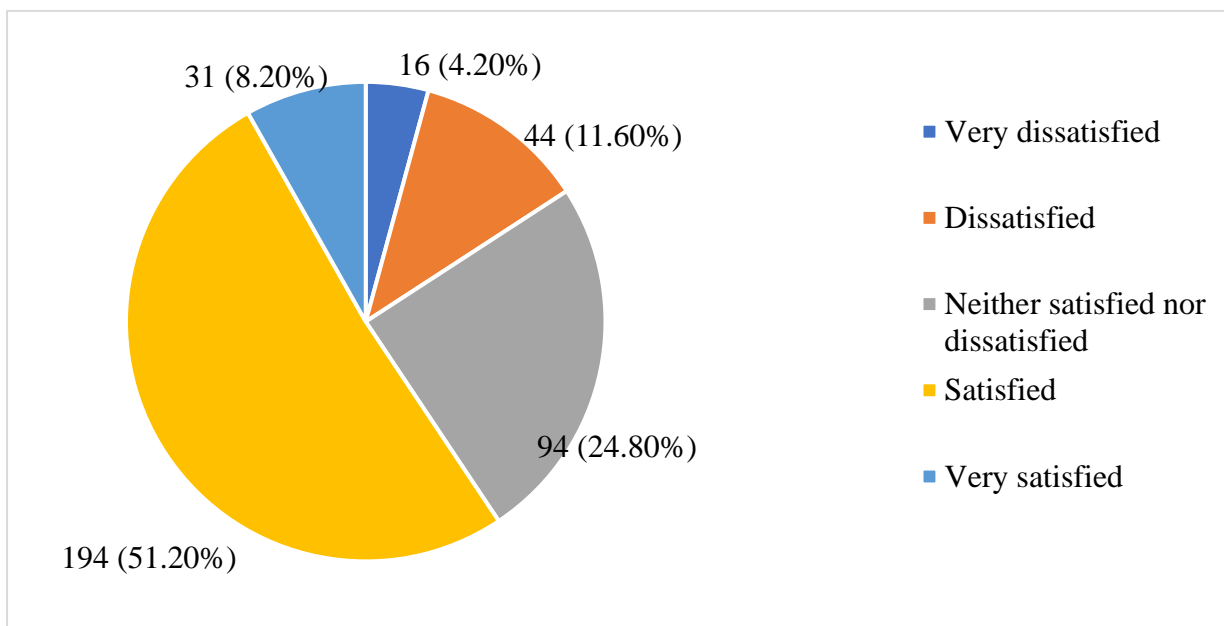


Figure 2. Participants' level of satisfaction with own health (n = 379)



The total score for the quality of life ranged from 47 to 125 with the mean and standard deviation score being 90.56 ± 13.70 . Among the individual domains, physical domain had the highest mean score of 65.42 ± 15.21 , while psychological domain had the lowest mean score of 59.34 ± 16.92 . Self-reported resilience

score ranged from four to forty, with mean resilience score of 25.81 ± 6.66 (Table 2).

Table 2. Quality of life due to COVID-19 and self-reported resilience among the study participants (n = 379)

	Mean ± SD
Quality of Life	
Total score	90.56 ± 13.70
Physical domain	65.42 ± 15.21
Psychological domain	59.34 ± 16.92
Social domain	60.86 ± 19.44
Environmental domain	63.29 ± 17.02
Self-reported resilience	25.81 ± 6.66

On bivariate analysis to see the association of quality of life due to COVID-19 with different

socio-demographic characteristics of the study participants, psychological (p-value = 0.03) and social domains (p-value < 0.01) were found to have statistically significant association with the gender, with male participants showing better psychological well-being and female participants showing better social relationships. Environmental domain was found to be better in students of first year, while the score showed decreasing trend with increasing levels and this association was statistically significant (p-value < 0.001). Physical (p-value = 0.01), psychological (p-value = 0.001) and environmental (p-value = 0.002) domains of quality of life were also found to have statistically significant association with nationality of the students (Table 3).

Table 3. Association of socio-demographic characteristics of the study participants and their quality of life due to COVID-19 and resilience (n = 379)

Variables	Quality of life domains (Mean ± SD)				Resilience score (Mean ± SD)
	Physical	Psychological	Social	Environmental	
Gender					
Male	66.91 ± 14.95	61.09 ± 17.12	58.11 ± 18.81	61.82 ± 15.68	26.33 ± 6.63
Female	63.85 ± 15.35	57.48 ± 16.55	63.78 ± 19.72	64.86 ± 18.24	25.26 ± 6.67
p-value	0.05	0.03	<0.01	0.08	0.11
Batch					
1 st year	64.96 ± 16.711	58.91 ± 19.48	61.06 ± 21.01	69.16 ± 16.83	26.18 ± 7.77
2 nd year	65.42 ± 9.12	59.10 ± 13.62	58.06 ± 16.84	67.58 ± 17.15	24.27 ± 5.36
3 rd year	67.57 ± 14.21	60.42 ± 15.39	61.20 ± 19.21	63.11 ± 17.15	25.79 ± 5.87
4 th year	64.62 ± 16.42	60.09 ± 18.36	63.68 ± 18.88	60.72 ± 16.37	26.86 ± 6.56
Intern	62.42 ± 16.42	56.90 ± 15.71	58.63 ± 19.83	50.19 ± 15.67	25.19 ± 6.67
p-value	0.35	0.79	0.55	< 0.01	0.29
Marital status					
Single	65.42 ± 15.18	59.32 ± 16.95	60.88 ± 19.39	63.47 ± 16.99	25.83 ± 6.66
Married	66.00 ± 20.70	61.00 ± 15.47	59.50 ± 27.15	47.00 ± 13.29	23.75 ± 7.81
p-value	0.93	0.84	0.88	0.08	0.53
Nationality					
Nepali	66.92 ± 14.71	62.18 ± 15.69	61.02 ± 18.82	63.32 ± 15.85	26.10 ± 6.36

Indian	61.81 ± 16.25	54.41 ± 18.63	59.60 ± 21.04	66.85 ± 19.10	25.17 ± 7.27
Sri Lankan	68.53 ± 11.72	59.35 ± 15.16	60.49 ± 18.11	57.91 ± 14.57	26.67 ± 6.68
Maldivian	58.40 ± 18.94	51.30 ± 16.85	70.00 ± 22.59	48.10 ± 12.56	22.50 ± 6.45
Others	59.50 ± 30.41	47.00 ± 31.11	72.00 ± 4.24	66.00 ± 39.59	26.00 ± 4.24
p-value	0.01	< 0.01	0.50	< 0.01	0.33
Religion					
Hinduism	65.17 ± 15.54	59.68 ± 16.94	60.14 ± 19.43	64.45 ± 17.17	25.71 ± 6.61
Buddhism	69.23 ± 12.66	62.30 ± 14.99	64.38 ± 19.67	60.13 ± 16.04	27.32 ± 6.16
Islam	62.10 ± 14.77	52.95 ± 14.39	67.20 ± 18.39	54.10 ± 14.65	25.08 ± 9.04
Christianity	62.33 ± 16.32	57.92 ± 17.76	52.75 ± 19.26	63.08 ± 17.81	23.60 ± 6.48
Others	65.29 ± 15.50	45.71 ± 26.04	63.43 ± 18.24	62.57 ± 15.57	27.71 ± 7.80
p-value	0.34	0.05	0.17	0.06	0.25

All the domains of quality of life were found to have positive correlation with self-reported resilience score of the study participants, which was statistically significant (p-value < 0.001).

Physical and social domains were found to have weak positive correlation with total resilience score, whereas psychological and environmental domains were found to have medium positive correlation and very weak positive correlation respectively (Table 4).

Table 4. Correlation between total resilience score and different domains of quality of life (n = 379)

		Total QoL score	Physical domain	Psychological domain	Social domain	Environmental domain
Total resilience score	Correlation coefficient	0.49	0.41	0.59	0.39	0.27
	p-value	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

DISCUSSION

In our study, the MBBS students of MCOMS were found to perceive relatively better physical quality of life (65.42 ± 15.20), than environmental (63.29 ± 17.02), social (60.86 ± 19.44) and psychological (59.34 ± 16.92) domains. Male (61.09 ± 17.12) and Nepali students (62.18 ± 15.69) were found to have better psychological quality of life, while females (63.78 ± 19.72) were found to have a better social quality of life. Self-reported resilience was found to be positively correlated with all the domains of quality of life.

A study conducted in a medical college of Karachi, Pakistan showed similar scores in all domains of QoL,[10] while in our study physical, environmental and social domains had similar scoring but psychological domain had the least scoring. This could be due to the anxiety and fear of acquiring COVID.

Psychological domain was found to be higher among male students (61.09 ± 17.12) than the female students in our study. This finding was similar to other studies done in Maharashtra, India,[11] Telangana, India,[12] China,[13] and Saudi Arabia.[14] The more emotional and anxious nature of females and their fear of

COVID could be the reason for their lower psychological quality of life. A study done in Visakhapatnam; India showed different results as no significant difference in the score of psychological domains was observed between genders.[15]

Social domain was found to be higher among female students in studies done in India, [12,15] China [13] and Saudi Arabia.[14] Most females like to remain in close contacts with their friends, families and relatives. Even during the lockdown most of them might have remained in contact with their friends through social media, contrary to their male counterparts. This could explain their higher social well-being even during the pandemic.

In our study, we found that mean score for environmental domain decreased on increasing academic levels. In our college, pre-clinical students reside in hostels with a secure home-like environment. Afterwards, during their clinical classes most of them tend to stay in rented rooms, while self-managing for food, lodging and finances. With increasing academic levels, students are exposed to more duties/postings with less time for recreational activities. This could explain the decreasing environmental well-being. Contrary to our study, studies done in India [15] and Saudi Arabia [2] showed maximum mean score for environmental domains for the final year students.

Even though there is no significant difference among students of different academic levels in psychological domain, the mean score for 3rd year students is slightly higher in our study. Similar findings can be observed in a study done in Telangana, India [12]. Third year MBBS is a transition phase of medical study when the students start clinical subjects and have face-to-face contact with patients. This could be tougher for some students, but equally

interesting for most of them. Contrary to our study, third year MBBS had the lowest psychological domain scoring in a study done in China.[13]

A longitudinal nation-wide study done in New Zealand found that with increasing academic levels, the level of satisfaction of the students decreased, while their level of stress increased.[16] In our study, all academic levels had similar mean scores for psychological domains of quality of life. Our students are subjected to regular tests, problem-based learnings, seminars, and postings at all academic levels. Like our study, a study done in Saudi Arabia [14] showed no difference in psychological domain scorings in different academic levels.

In our study, the self-reported resilience score was 25.81 ± 6.66 , which is lower than the resilience scores of studies done in Philippines (27.32 ± 5.60) [17] and Kolkata of India (33.60 ± 4.50).[18] Similar to our study, the studies done in Philippines [17] and Brazil [19] showed positive correlation between all domains of quality of life and resilience among the students. Another research done in Iran in 2016 [20] indicates a strong positive correlation between resilience and overall quality of life (QOL), including its various domains. Individuals with higher resilience tend to score higher on measures of QOL, while those with lower resilience tend to score lower which are consistent with our results. However, as in our study, the study of Kolkata [18] found that resilience was not associated with academic levels. With time and increasing academic levels, the students might have developed different coping mechanisms and learnt to adapt to stress.

CONCLUSIONS

Overall QoL of the students was found to be good. The psychological domain of QoL of the

medical students was more affected during COVID-19 than the other domains. Female students were found to have lower psychological quality of life, while having higher social quality of life compared to their male counterparts. The environmental well-being was found to be more affected with increasing academic level. Students with higher resilience were found to have higher quality of life among all domains.

CONFLICT OF INTEREST

None

SOURCES OF FUNDING

None

REFERENCES

1. Group W. Development of the WHOQOL: Rationale and Current Status. *Int J Ment Health*. 1994 Sep 2;23(3):24-56. [\[Full Text\]](#)
2. Mahmoud MA, Fareed M. Assessment of Quality of Life among Medical Students in Saudi Arabia: A Study Based on WHO-QOL-BREF Protocol. *Int J Med Res Heal Sci*. 2018;7(10):1–11. [\[Full Text\]](#)
3. Sharma S, Pathak A, Abbott JH, Jensen MP. Measurement properties of the Nepali version of the Connor Davidson resilience scales in individuals with chronic pain. *Health Qual Life Outcomes*. 2018;16(1):1–11. [\[Full Text\]](#)
4. Tempiski P, Santos IS, Mayer FB, Enns SC, Perotta B, Paro HBMS, et al. Relationship among medical student resilience, educational environment and quality of life. *PLoS One*. 2015;10(6):1–13. [\[Full Text\]](#)
5. Schwenk TL, Davis L, Wimsatt LA. Depression, stigma, and suicidal ideation in medical students. *JAMA*. 2010 Sep 15;304(11):1181-90. [\[Full Text\]](#)
6. Bhandari A, Bhatta N. Psychological effects of COVID-19 and its measures in Nepalese Medical students. *JNMA*. 2020;58(230):820-2. [\[Full Text\]](#)
7. World Health Organization. Development of the World Health Organization WHOQOL-BREF quality of life assessment. *Psychological medicine*. 1998;28(3):551-8. [\[Full Text\]](#)
8. Krägeloh CU, Henning MA, Hawken SJ, Zhao Y, Shepherd D, Billington R. Validation of the WHOQOL-BREF quality of life questionnaire for use with medical students. *Educ Heal Chang Learn Pract*. 2011;24(2). [\[Full Text\]](#)
9. Connor KM, Davidson JRT. Development of a new resilience scale: the Connor-Davidson Resilience Scale (CD-RISC). *Depress Anxiety*. 2003;18(2):76–82. [\[Full Text\]](#)
10. Aziz Y, Khan AY, Shahid I, Khan MA, Aisha. Quality of life of students of a private medical college. *Pak J Med Sci*. 2020 Jan-Feb;36(2):255-259. [\[Full Text\]](#)
11. Tyagi, Kashish; Chaudhari, Bhushan; Ali, Tahoor; Chaudhury, Suprakash. Impact of COVID-19 on medical students well-being and psychological distress. *Industrial Psychiatry Journal*. 2024;10.4103/ipj.ipj. [\[Full Text\]](#)
12. Biswas S, Bipeta R, Molangur U, Reshaboyina LR. A study to assess the quality of life of undergraduate medical students. *Open J Psychiatry AlliedSci*. 2019;10:19-25. [\[Full Text\]](#)
13. Zhang Y, Qu B, Lun S, Wang D, Guo Y, Liu J. Quality of Life of Medical Students in China: A Study Using the WHOQOL-BREF. *PLoS ONE*. 2012; 7(11): e49714. [\[Full Text\]](#)

14. Malibary, H., Zagzoog, M.M., Banjari, M.A. *et al.* Quality of Life (QoL) among medical students in Saudi Arabia: a study using the WHOQOL-BREF instrument. *BMC Med Educ.* 2019;19:344. [\[Full Text\]](#).
15. Nayak MSDP, Naidu SA, Krishnaveni A *et. al.* Quality of life in medical students of Andhra medical college, Visakhapatnam. *Int J Health Sci Res.* 2014;4(12):39-43. [\[Full Text\]](#)
16. Kjeldstadli, K., Tyssen, R., Finset, A. *et al.* Life satisfaction and resilience in medical school – a six-year longitudinal, nationwide and comparative study. *BMC Med Educ.* 2006;6:48. [\[Full Text\]](#)
17. Orines, Richardson & Alomia, Kize & Canoy, Jan & Pascual, Kyra & Pol-ot, Ma. Angelica & Servas, Andrea & Tan, Shannen. Stress and Resilience as Predictors of Quality of Life among Healthcare Students. *Asian Journal of Research in Education and Social Sciences.* 2023;5:81-89. [\[Full Text\]](#)
18. Golui P, Roy S, Dey I, Burman J, Sembiah S. Resilience and its correlates among medical students in the Eastern part of India during the coronavirus disease 2019 (COVID-19) pandemic. *J Family Community Med.* 2022 Sep-Dec;29(3):212-216. [\[Full Text\]](#)
19. Tempiski P, Santos IS, Mayer FB, Enns SC, Perotta B, Paro HBMS, *et al.* Relationship among Medical Student Resilience, Educational Environment and Quality of Life. *PLoS ONE.* 2015;10(6): e0131535. [\[Full Text\]](#)
20. Bastaminia A, Rezaei MR, Rezaei MR, Tazesh Y. Resilience and quality of life among students of Yasouj State University. *IJRHS.* 2016;3(8):6-11. [\[Full Text\]](#)