Students' self-perception about their Quality of Life is overestimated: is this the base of their mental troubles? [Version 2]

Mariana Neves Ceratti[1], Patricia da Silva Fucuta[1], Fernanda N.P. Quessada[1], Felipe Colombelli Pacca[1], Patricia Maluf Cury[1]

Corresponding author: Prof Patricia Maluf Cury pmcury@hotmail.com
Institution: 1. FACERES Medical School
Categories: Educational Strategies, Students/Trainees, Behavioural and Social Sciences

Abstract

Purpose: The aim of this study is to investigate the medical student perception about their QoL, in order to become aware of their own problems.

Methods: We applied three instruments: a SF36 health questionnaire, a QoL self-perception questionnaire and a questionnaire regarding self-awareness and coping strategies. The questionnaires were sent to all medical students from first to fourth year.

Results: 203 students answered the questionnaires (64.5% were women and average age was 20 years old). Students self-perception about QoL was overestimated in most of the domains except in physical role functioning (p <0.001). There was a significant difference between genders, and men showed a greater deviation from SF36 to QoL self-perception for mental health domain than women (p=0.04). Regarding the questionnaire about self-awareness, most of them felt that the way they think is consistent with how they act and they are aware of their own needs. They evaluated their QoL as good or great. In relation to coping strategies, "seeking out help of others" was one of the most common strategies used. When analyzing the results between genders, women increased their food intake more than men (P = 0.002).
Conclusion: Student self-perception about QoL is mistaken and overestimated.

Keywords: medical student; quality of life; mental health

Introduction

Quality of life (QoL) is a concept that encompasses physical health, psychological state, level of independence, social relationships, personal beliefs, and relationships with factors in the environment, aspects of which may change completely over time (The WHOQOL Group, 1995; Lins and Carvalho, 2016).

A good QoL is known to be fundamental for personal achievement and for an integrated and productive society; it is also crucial to overall health, which is why knowledge on the quality of life of certain populations is very important (Chigerwe, Boudreaux and Ilkiw, 2018). Many methods can be used to evaluate QoL, including a variety of questionnaires available in the literature (Jang et al., 2018). The Medical Outcomes Study 36-Item Short Form Health Survey (SF-36), for example, divides QoL into eight domains: physical functioning, general health, pain, social functioning, mental health, role functioning (physical) and role functioning (emotional) - (Makiyama et al., 2004; Lins and Carvalho, 2016; Jang et al., 2018).

In Ireland, more than one third (35%) of physicians experience psychological distress and symptoms of severe depression, anxiety, and stress were found in 7.2%, 6.1%, and 9.5% of respondents, respectively (Hayes, 2017). QoL may be even harder for medical students to achieve. While medical school is often a significant achievement, it is also a place where students experience new difficulties and frustrations, as well as a transition period (Cvejic et al., 2017). A study of medical students in Germany found high rates of depression, as well as of cognitive and emotional burnout; these factors result in significantly lower mental QoL, particularly among women (Burger and Scholz, 2018).

Various studies have also reported differences in stress levels between genders with a greater prevalence of stress among women in a previous study by our team and in studies by other researchers (Botelho et al., 2017; Tempski et al., 2012).

This situation is concerning given the increased rate of mental disorders and suicide among medical students as observed in an extensive systematic review and meta-analysis (Rotenstein et al., 2016).

A rarely discussed but important factor in this situation is medical students' perception of their own QoL. This is based on the perception that students make decisions based on the specific situation and its requirements. A study in New Zealand found that, in their self-perception, medical students classified their QoL as better than or the same as that of students from other fields of study using the WHOQOL- BREF scores (Henning et al., 2012). However, this outcome is inconsistent with those of other studies using other questionnaires, which have shown that medical students' QoL is negatively affected by their environment (Tempski et al., 2012; Cvejic et al., 2017).

In a prior pilot study by our team, we found that students’ self-perception of QoL was overestimated in most of the domains using SF-36 questionnaire. In the emotional role functioning and mental health domain scores should be considered when evaluating the need for mental health or suicide prevention programs for medical students. We decided to increase sample and sought to understand the reasons for the discrepancy between medical students’ self-perceived QoL and the data from their QoL questionnaire.
Methods

This was a cross-sectional, quali-quantitative, descriptive study performed after receiving approval from the institution’s ethics committee. Statistical power estimates were performed after the results from the pilot study and the final sample size was 190 students. Those who were married or who had children were excluded, as were students who had transferred into the program less than six months prior to the study, students who were repeating a year after failing, or on academic probation.

Students from the first to fourth year of our medical school were invited to participate in our study and complete three questionnaires: the SF-36, a second in which students gave their subjective opinions on their QoL in the eight domains described in the SF-36 (Table 1), scoring these domains from 1 to 100, and a third questionnaire on self-awareness and coping strategies, with the first part evaluated on a Likert scale addressing self-awareness and the second part on coping methods, with 8 answer options: being alone; seeking help from other people; using drinks or drugs; increased food intake; playing sports; seeking professional help; seeking religious and other help.

Table 1: Questionnaire 2: self-perceived quality of life: for the evaluation of medical students' subjective opinions.

| Domains                  | Definitions                                                                 | 0-100 Grade                  |
|--------------------------|-----------------------------------------------------------------------------|------------------------------|
| Physical functioning     | The normality and difficulty in which daily activities are being done.       | Students gave their opinions |
| Role functioning (physical) | Pain or other physical difficulty when performing daily activities.       | Students gave their opinions |
| Pain                     | Amount of pain or discomfort anywhere in the body during the week.         | Students gave their opinions |
| General health           | Health as a whole, diseases or infections recently, chronic or relapsing disease. | Students gave their opinions |
| Energy/fatigue           | The willingness and animation to perform daily activities and leisure.      | Students gave their opinions |
| Social functioning       | Integration with the environment, family and society in which you live.     | Students gave their opinions |
| Role functioning (emotional) | Limitation of daily activities for such reason, such as depression and anxiety. | Students gave their opinions |
| Mental health            | Mood state, manifestations of anxiety, mental tiredness.                   | Students gave their opinions |

The statistical analysis relied on non-parametric evaluation methods for the quantitative questions, with paired t-tests, Spearman's correlation test, the Mann-Whitney U test, and chi-square tests.

Results/Analysis

Two hundred and three first- to fourth-year medical students from FACERES medical School of Medicine (FACERES) in Brazil completed the questionnaires, 131 (64.5%) of whom were women. The mean age of the
sample was 20 years old (within a range of 17 to 41 years old). Students’ self-perceived QoL was found to be overestimated in the general health, physical role functioning, pain, anergy/fatigue, emotional role functioning, social functioning, and mental health domains (p<0.001) and underestimated in the physical functioning domain (p<0.001). Details are shown in Table 2.

Table 2: Comparison between SF-36* results and students’ self-perceived quality of life.

| Domains                  | SF-36 Health Survey | Self-Perceived QoL | P-value |
|--------------------------|---------------------|--------------------|---------|
| Physical functioning     | 87.3 ± 14.0         | 76.7 ± 18.6        | < 0.001 |
| Role functioning (physical) | 50.6 ± 36.8     | 82.5 ± 24.3        | < 0.001 |
| Pain                     | 68.0 ± 21.0         | 78.8 ± 24.8        | <0.001  |
| General health           | 57.2 ± 17.3         | 81.9 ± 21.1        | < 0.001 |
| Energy/fatigue           | 44.1 ± 20.2         | 69.4 ± 24.7        | < 0.001 |
| Social functioning       | 60.0 ± 25.0         | 76.2 ± 26.8        | <0.001  |
| Role functioning (emotional) | 32.8 ± 39.4   | 70.8 ± 27.5        | <0.001  |
| Mental health            | 55.7 ± 19.8         | 65.7 ± 26.3        | <0.001  |

Subtitle: SF-36*: Medical Outcomes Study 36-Item Short-Form Health Survey. QoL: quality of life.

A significant difference was found between the genders only in the mental health domain, in which men exhibited a greater discrepancy, with self-perceived QoL higher than their SF-36 (p=0.041) (Table 3).

Table 3: Comparison of men's and women's deviations between self-perceived quality of life and SF-36 scores.

| Domains                  | Women     | Men       | P-value |
|--------------------------|-----------|-----------|---------|
| Physical functioning     | -11.1 ± 20.9 | -9.5 ± 20.8 | 0.586   |
| Role functioning (physical) | 33.9 ± 40.9 | 28.1 ± 36.5 | 0.322   |
| Pain                     | 9.61 ± 24.3 | 13.0 ± 23.1 | 0.321   |
| General health           | 25.1 ± 24.2 | 23.7 ± 22.0 | 0.671   |
| Energy/fatigue           | 23.9 ± 20.6 | 27.6 ± 22.8 | 0.244   |
| Social functioning       | 17.0 ± 21.8 | 14.4 ± 21.3 | 0.414   |
| Role functioning (emotional) | 38.4 ± 39.7 | 37.4 ± 40.6 | 0.865   |
| Mental health            | 7.67 ± 22.4 | 14.3 ± 21.8 | 0.041   |

There were no differences in terms of age or year in the program.

In their responses on the third questionnaire 137 (67.5%) of respondents reported that the way they think is frequently or always consistent with the way they act; 148 (72.9%) reported that they know all or most of what their own needs are, and 150 (73.9%) rated their QoL as good or great. When asked about their coping strategies, 79 (38.9%) of the medical students included herein reported a preference for spending time alone, 85 (41.9%) reported seeking out other people, 26 (12.8%) using drugs or alcohol, 68 (33.5%) increasing their food intake, 22 (10.8%) playing sports, 27 (13.3%) seeking professional help, 23 (11.3%) seeking religious guidance, and 23 (11.3%) reported other methods. When the results from each gender were compared, women increased their food intake more frequently than men (p=0.002). Details are shown in Figure 1. Students’ responses to the other coping strategies did not differ by gender.
Figure 1: Coping methods-Comparison between gender and total. Chi-square tests.

Discussion

This study demonstrated that medical students’ self-perceived QoL was overestimated in almost all domains: physical, social and emotional functioning, general and mental health, Pain, energy/ fatigue. Regarding to role functional capacity, it was underestimated. As aforementioned in the New Zealand study, medical students’ self-perceived QoL scores to be high when the students classified their QoL as better than or the same as that of students from other fields of study (Henning et al., 2012). Though their results were focused in different domains and not very clear, it seems to be the only study in the literature to consider self-perception in a similar context. While an optimal level of stress may improve learning ability (Rafidah, 2009), elevated stress levels may cause physical and mental health problems (Niemi and Vainiomäki, 1999), thus affecting students’ academic performance.

In our study we observed a great difference between the SF-36 questionnaire and the student’s self-perception in role emotional domain, even when the majority of them reported that the way they think is frequently or always consistent with the way they act, and that they know all or most of what their own needs are, rating their QoL as good or great. This is worrying, as if they are not aware of their difficulties, they won’t be able to motivate themselves to change and look for help.

Another point is coping strategies, that are essential for students handling stress and experiencing better mental health. These strategies included a high value on interpersonal relationships, a good balance between leisure and studies, time set aside for physical activity, a healthy diet, and prioritizing sleep and physical health (Zonta, Robles
and Grossman, 2006). In our study, medical students used these strategies rarely: in their responses to questions on their coping strategies, few reported playing sports and seeking religious guidance or professional help. Seeking out other people was one of the most common functional strategies used, but some of the students use dysfunctional methods that are ineffective or which have been proven to have no effect, such as spending time alone using drugs or alcohol and increasing food intake. Erchens et al., found a similar findings when studying burnout and coping strategies in medical students (Erchens et al., 2018). However, our finding that women increase food intake more than men was not described in their work or in other studies (Fares et al., 2016; Thompson et al., 2016).

When genders were compared, male students exhibited a significantly greater discrepancy between self-perceived QoL and their SF-36 results in the mental health domain. Previous studies have shown that women may exhibit greater anxiety and distress in stressful situations than men, and that female students have worse perceptions of their academic performance (Paro et al., 2019). If students are more aware of their QoL, they can engage in more productive coping methods.

### Strengths

In this study, a clear relationship was found between students’ overestimated self-perceived QoL and worse mental health. This was a novel study that found that additional efforts are necessary to make medical education environment more informative and encouraging in order to motivate students to examine their QoL and focus on their mental health, since QoL and mental health have a major influence on students’ academic performance, skills, and interactions with patients.

### Limitations

One limitation in our study was the inability to collect data from all medical students in the program at roughly the same time (for example, just before final exams). Future studies could investigate associations between QoL scores and factors outside of academic life, such as family relationships and living conditions (whether students live alone or with others) Studies like these could help to eliminate confounding factors like these that could be influencing the overestimated self-perceived QoL scores found in this study.

### Conclusion

This study found that medical students’ self-perceived quality of life scores are overestimated, given the fact that most of them reported that the way they think is consistent with the way they act and that they know their own needs. These perspectives may prevent them from seeking help or making changes when necessary. Given these findings, more studies on this topic are necessary, as are institutional interventions such as talks, campaigns, and even changes to the medical school curriculum in attempts to motivate students to know themselves better and prioritize their mental health.

### Take Home Messages

- Medical students’ self-perceived quality of life is overestimated, and this is reflected in their worse mental health.
- Coping methods, though essential for handling stress and improving mental health, were rarely used.
- Students must understand their quality of life and concern themselves with their mental health because of the influence these two factors have on their academic careers.
Notes On Contributors

1. M. N. Ceratti: 5th year Medical student, Faceres Medical School. Bibliographic review, data collection, results analysis and drafted the manuscript.

2. F. N. P. Quessada: Psychologist, works at Faceres Medical School. Discussed and helped to elaborate the questionnaire and analysis of the results.

3. P. S. Fucuta: Physician, MD, PhD, and Bioestaticician, is a medical teacher at Faceres Medical School. Statistical analysis and discussed results and final text.

4. F. C. Pacca: Pedagogue, Master, teaches research methodology at Faceres Medical School. Helped with data collection and results analysis.

5. P. M. Cury: Professor, MD, PhD, is the medical coordinator and teaches at Faceres Medical School. Advisor, literature review, data collection, results analysis and final correction.

ORCID: https://orcid.org/0000-0002-4409-6740

Acknowledgements

We thank Danielle Jacqueline Deremo Cosimo for english review.

This study was presented by the same authors in AMEE 2019 Conference with the number 5KK11 (1672) (https://amee.org/getattachment/Conferences/AMEE-2019/Abstracts/AMEE-2019-Abstract-Book-Post-Conference-v2.pdf).

Figure 1 is made by the authors, and was not copied from another source.

Bibliography/References

Botelho, F. F. R., Bergamo I., Oliveira M. C., Trevizan F. B., et al. (2017) ‘Stress Level Assessment of Medical School Program and correlations between Learning Styles and Teaching Methodologies’, MedEdPublish, 6(1), pp. 22. https://doi.org/10.15694/mep.2017.000022

Burger, P. H. M. and Scholz, M. (2018) ‘Gender as an underestimated factor in mental health of medical students’, Ann Anat, 218, pp. 1-6. https://doi.org/10.1016/j.aanat.2018.02.005

Chigerwe, M., Boudreaux, K. A. and Ilkiw, J. E. (2018) ‘Assessment of Depression and Health-Related Quality of Life in Veterinary Medical Students: Use of the 2-Item Primary Care Evaluation of Mental Disorders Questionnaire (PRIME-MD PHQ) and the 8-Item Short Form-8 Survey (SF-8)’, J Vet Med Educ, 45, pp. 358-366. https://doi.org/10.3138/jvme.0217-022r

Cvejic, E., Parker, G., Harvey, S. B., Steel, Z., et al. (2017) ‘The health and well-being of Australia's future medical doctors: protocol for a 5-year observational cohort study of medical trainees’, BMJ Open, 7, pp. e016837. https://doi.org/10.1136/bmjopen-2017-016837

Erschens, R., Loda, T., Herrmann-Werner, A., Keifenheim, K.E., et al. (2018) ‘Behaviour-based functional and
dysfunctional strategies of medical students to cope with burnout’, *Med Educ Online*, 23(1), pp. 1535738. 
https://doi.org/10.1080/10872981.2018.1535738

Fares, J., Tabosh, H., Saadeddin, Z., El Mouhayyar, C., *et al.* (2016) ‘Stress, Burnout and Coping Strategies in Preclinical Medical Students’, *N Am J Med Sci*, 8(2), pp. 75-81. https://doi.org/10.4103/1947-2714.177299

Hayes, B., Prihodova, L., Walsh, G., Doyle, F., *et al.* (2017) ‘What's up doc? A national cross-sectional study of psychological wellbeing of hospital doctors in Ireland’, *BMJ Open*, 7, pp. e018023. http://doi.org/10.1136/bmjopen-2017-018023

Henning, M. A., Krägeloh, C. U., Hawken, S. J., Zhao, Y., *et al.* (2012) ‘The Quality of Life of Medical Students Studying in New Zealand: A Comparison With Nonmedical Students and a General Population Reference Group’, *Teaching and Learning in Medicine*, 24, pp. 334-40. http://doi.org/10.1080/10401334.2012.715261

Jang, E. S., Kim, Y. S., Kim, K. A., Lee, Y. J., *et al.* (2018) ‘Factors Associated with Health-Related Quality of Life in Korean Patients with Chronic Hepatitis C Infection Using the SF-36 and EQ-5D’, *Gut Liver*, 12, pp. 440-448. http://doi.org/10.5009/gnl17322

Lins, L. and Carvalho, F. M. (2016) ‘SF-36 total score as a single measure of health-related quality of life: Scoping review’, *SAGE Open Med*, 4. http://doi.org/10.1177/2050312116671725

Makiyama, T. Y., Battistella, L. R., Litvoc, J. and Martins, L. C. (2004) ‘Study on the quality of life of hemiplegic stroke patients and their caregivers’, *Acta Fisiatrica*, 11, pp. 106-109. http://doi.org/10.5935/0104-7795.20040004

Niemi, P. M., Vainiomäki, P. T. (1999) ‘Medical Students' Academic Distress, Coping, and Achievement Strategies During the Preclinical Years’, *Teaching and Learning in Medicine*, 11, pp. 125-134. https://doi.org/10.1207/S15328015TL110302

Paro, H. B. M. S., Perotta, B., Enns, S. C., Gannam, S., *et al.* (2019) ‘Medical student quality of life: does the educational environment matter?’, *Rev Med*, 98, pp. 140-7. http://doi.org/10.11606/issn.1679-9836.v98i2p140-147

Rafidah, K., Azizah, A., Norzaid, M. D., Chong, S. C., *et al.* (2009) ‘The Impact of Perceived Stress and Stress Factors on Academic Performance of Pre-Diploma Science Students: A Malaysian Study’, *International Journal of Scientific Research in Education*, 2(1), pp. 13-26.

Rottenstein, L. S., Ramos, M. A., Torre, M., Segal, J. B., *et al.* (2016) ‘Prevalence of Depression, Depressive Symptoms, and Suicidal Ideation Among Medical Students: A Systematic Review and Meta-Analysis’, *JAMA*, 316, pp. 2214-2236. http://doi.org/10.1001/jama.2016.17324

Tempski, P., Bellodi, P. L., Paro, H. B. S., Enns, S. C., *et al.* (2012) ‘What do medical students think about their quality of life? A qualitative study’, *BMC Medical Education*, 5, pp. 12-106. https://doi.org/10.1186/1472-6920-12-106

The WHOQOL Group. (1995) ‘The World Health Organization quality of life assessment (WHOQOL): position paper from the World Health Organization’, *Soc Sci Med*, 41, pp. 1403-9. https://doi.org/10.1016/0277-9536(95)00112-K
Thompson, G., McBride, R. B., Hosford, C. C. and Halaas, G. (2016) ‘Resilience Among Medical Students: The Role of Coping Style and Social Support’, Teaching and Learning in Medicine, 28, pp. 174-182. https://doi.org/10.1080/10401334.2016.1146611

Zonta, R., Robles, A. C. C. and Grossemann, S. (2006) ‘Stress Coping Strategies Developed by Medical Students at the Federal University of Santa Catarina’, Brazilian Medical Education Magazine, 30, pp. 147 – 153. http://doi.org/10.1590/S0100-55022006000300005

Appendices
None.

Declarations

The author has declared that there are no conflicts of interest.

This has been published under Creative Commons "CC BY 4.0" (https://creativecommons.org/licenses/by-sa/4.0/)

Ethics Statement

This study was approved by Faceres Medical School Research Ethics Committee, Ethics Approval number 89742218.5.0000.8083.

External Funding

Financial support: Research grant from Fundação de Amparo à Pesquisa - FAPESP (process 2018/16988-9).

MedEdPublish: rapid, post-publication, peer-reviewed articles on healthcare professions’ education. For more information please visit www.mededpublish.org or contact mededpublish@dundee.ac.uk.