Quality of life of students in the first and sixth year of medical school

Qualidade de vida dos estudantes do primeiro e sexto ano do curso de medicina

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ABSTRACT: *Introduction and Objective*: Quality of life and its domains - physical, psychological, social and environmental - defined by the World Health Organization Quality of Life (Whoqol) is an important attribute in the medical course and can be affected, harming students throughout graduation. In this sense, the aim of this study is to compare students' perception of quality of life at the beginning and end of the medical course (first and sixth years, respectively), to discuss the factors that may influence it and propose measures to improve it. *Method*: A cross-sectional study carried out with students from the first and sixth year of medicine from EPM-UNIFESP in the 2017 and 2018 classes, using a Whoqol-bref online questionnaire on the REDCAP platform. Statistical analysis of the data was done through software "OpenEpi" and Microsoft Excel. *Results*: The results showed regular low scores for all domains evaluated in both years, with the psychological domain presenting lower scores in both 2017 and 2018 for the first and sixth years. No statistically significant differences were found between the domains evaluated in the first and sixth year (p>0.05) in 2017, but in the groups of 2018 significant differences (p<0.05) were found due to the lower values presented by sixth year in comparison to the first. *Discussion and Conclusion*: In this study, median and low results were found for all domains evaluated, especially the psychological ones, both at the beginning and at the end of the medical course, with an important impact on students' mental health. Factors that include enrollment in the institution, the teaching model of the course and the characteristics of the sixth year can affect the quality of life of these students. Individual and institutional measures are necessary to achieve improvements in the perception of quality of life.

Keywords: Quality of life; Medical students; Mental health; Curriculum.

RESUMO: *Introdução e Objetivo*: A qualidade de vida de vida e seus domínios - físico, psicológico, relações sociais e ambiente - definidos pela *World Health Organization Quality of Life* (Whoqol) é importante atributo no curso de medicina e pode ser afetada, prejudicando os estudantes ao longo da graduação. Nesse sentido, o objetivo deste estudo é comparar a percepção de qualidade de vida dos estudantes no início e término do curso de medicina (primeiro e sexto anos, respectivamente), discutir os fatores que podem influenciá-la e propor medidas para melhorá-la. *Método*: Estudo transversal realizado com alunos do primeiro e sexto ano de medicina da EPM-UNIFESP nas turmas de 2017 e 2018, por meio de questionário Whoqol-bref online em plataforma REDCAP. A análise estatística dos dados se deu por meio de software "OpenEpi" e Microsoft Excel. *Resultados*: Os resultados apontaram escores regulares a baixos para todos os domínios avaliados em ambos os anos, com o domínio psicológico apresentando menor pontuação tanto em 2017 quanto em 2018 para o primeiro e sexto anos. Não foram encontradas diferenças estatísticas significantes entre os domínios avaliados do primeiro e do sexto ano (p>0,05) em 2017, porém nas turmas do ano de 2018 foram encontradas diferenças significativas (p<0,05) dadas por menores valores apresentados pelo sexto ano em comparação ao primeiro. *Discussão e Conclusão*: evidenciou-se neste estudo resultados medianos e baixos para todos os domínios avaliados, principalmente o psicológico, tanto no início quanto no término do curso de medicina, com importante impacto na saúde mental dos estudantes. Fatores que englobam o ingresso na instituição, o modelo de ensino do curso e as características do sexto ano podem afetar a qualidade de vida desses estudantes. Medidas individuais e institucionais são necessárias para que se obtenham melhoras na percepção de qualidade de vida.

Descritores: Qualidade de vida; Estudantes de medicina; Saúde mental; Currículo.

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INTRODUCTION

Quality of Life (QoL) is a term of complex conceptualization[1-2] encompassing several areas of knowledge, and even with the contributions of philosophy, politics, sociology, anthropology and biological sciences, it still remains an open field for different approaches and meanings. Fiedler[3] brings different conceptions of QoL to the view of different authors, from ancient philosophers (namely Epictetus) to contemporary researchers who emphasize the comprehension of such meaning primarily in the subjectivity and planning of individual actions.

Thus, in the beginning of the 1990s and following the line of the individual plan, QoL acquires aspects related to the subjectivity of the individual and, mainly, to multidimensionality[4], which culminated in the evolution of the term and in more direct definitions, without losing, however, the idea that its meaning is multidisciplinary.

Taking these elements into account, the World Health Organization (WHO) defines QoL as "the individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns"[5]. In this sense, QoL encompasses biopsychosocial factors, from which altogether allows the achievement of a balance in different aspects of life.

Based on these assumptions of autonomy, individual perceptions and their ability to determine themselves, it is understood that QoL is linked to the concept of health promotion, since promoting health is, as brought by the Ottawa Charter, "the process of community capacity to act in the improvement of their quality of life and health, including a greater participation in the control of this process"[25]. In such a way that health promotion presupposes to bring benefits to the quality of life and, an individual endowed with the elements that compose a good quality of life partly holds a set of skills and knowledge that contribute to the acquisition of competences to promote health, since being autonomous, he has responsibilities and rights over his life[26].

In the course of medicine, QoL is an attribute of great importance for the good progress of undergraduate and its multidimensions (physical, social, psychological and environmental) brought by the World Health Organization Quality of Life (WHOQOL) instrument are some of the pillars that compose it.

The high and full time load with extensive theoretical content, tests, seminars, competitiveness, internal collection, pressure to maintain good performance, need to perform extracurricular activities and other aspects of the academic routine interfere in the medical students' QoL[4], with noticeable change in freshman students in the first year and also in those about to complete the course in the sixth and final year.

When investigating the quality of life of medical students and influencing factors, Fiedler[3] shows altered students' perceptions regarding their QoL in the course when compared to general QoL, as well as low scores in the psychological domain of students, aspects evaluated by the Whoqol-bref instrument. From this perspective, medical students with low QoL have depleted their full capacity to promote health, both for themselves and for the community, and therefore, if they do not adopt strategies to promote health, may not improve their quality of life.

Several studies have compared the perceptions of QoL between the years of medical graduation from the Whoqol-bref questionnaire and showed that the psychological domain of the students showed a significant decrease for the students of the last year when compared to those of the first year, besides there are differences in the perception of QoL in the social and psychological domains among the students of the respective years analyzed. Studies recognize that changes in medical students' QoL based on sociodemographic, health, graduation year and other factors are needed to understand to what extent the quality of life dimensions of these individuals are changed. With the premise of obtaining as much information as possible about students' QoL, the authors also stress the need to carry out further studies on the subject and, therefore, to discuss strategies for improving students' QoL perception[6-8].

In this context, the aim of this study is to map and identify if there are significant differences in the perception of quality of life (QoL) of first and sixth-year students in different spheres, their evolution in the perception of QoL, discuss factors that can influence it and propose measures to improve it.

METHODS

This is a cross-sectional, analytical and quantitative study carried out with students from the first- to the sixth-year of the medical course of the Escola Paulista de Medicina of the Universidade Federal de São Paulo (EPM-UNIFESP). The study was divided in two steps from the data collection with the application of the Whoqol-bref online questionnaire in REDCAP platform. The first stage occurred in the period from August to October 2017, with the classes enrolled that year. The second stage occurred in the period from August to December 2018 with the new entrants of the first year of the course and with the new class of the sixth year subsequent to 2017.

The project was submitted to the Ethics Committee of UNIFESP and approved, numbered 2,548,414. The questionnaires were made available through an online link, accompanied by an Informed Consent Form (ICF) and disseminated in social networks and message groups.

Whoqol-bref is a cross-cultural instrument initiated in 1991 by WHO. This questionnaire assesses the

individual's perceptions in the context of his or her culture, value systems and personal goals, standards and concerns. It has been developed collaboratively around the world and has been extensively field tested. It comprises 26 questions, in which the first two deal with the person's self-assessment of their quality of life (QoL), and the other 24 are divided into four domains: physical (seven questions about pain and discomfort, energy and fatigue, sleep and rest, mobility, activities of daily living, use of medications and ability to work) psychological (six questions about positive and negative feelings, thinking and learning, memory and concentration, body image and spirituality), social relations (three questions about social and sexual activity) and environment (eight questions about physical security and protection, home environment, financial resources, availability and quality of health and social care, opportunities to acquire new information and skills, leisure, physical environment and transport)[5-9].

A descriptive analysis of all the variables of the present study was performed. Qualitative were distributed in their absolute values and the quantitative ones were presented in terms of measures of central tendency and dispersion, calculated through the Microsoft Excel software. Following statistical analysis of the data, the software OpenEpi version 3.0122 was used. An ANOVA test was performed for independent samples and parametric distributions. The level of statistical significance was 95%, with p-value <0.05.

RESULTS

In 2017, 55 first year students responded, of which 53 were complete and were counted for statistical calculations. From sixth year students, 51 responses were obtained, of which 46 were taken into account for data analysis.

The analysis of the Whoqol-bref domains - physical, psychological, social relations and environment - for both first- and sixth-year students showed that the highest scores were in the environment domain, followed by social and physical relations while the psychological one got the lowest score.

For the first year, the value obtained in the environment domain was 65.04, followed by social relations with 64.15, while the psychological value was 55.74. The total obtained from the domains for the participants of the first year was 60.00 (Graph 1).

Graph 1 - Scores by domains and Whoqol-bref total of first-year medical students from UNIFESP. São Paulo, 2017
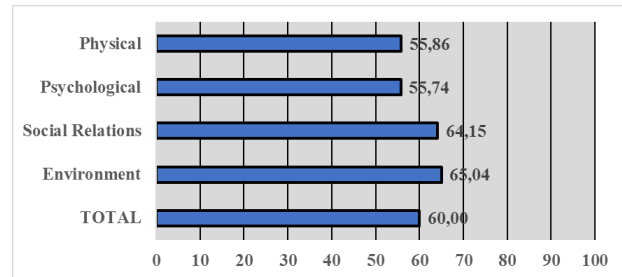
For the students of the sixth year, similarly, the domains that scored the most were the environment with 63.59 and social relations with 60.69, respectively. The psychological domain, in turn, showed, as in the first year, the lowest value with 56.88. The total number of participants in this group was 61.04 (Graph 2).

Graph 2 - Scores by domains and Whoqol-bref total of sixth year medical students from UNIFESP. São Paulo, 2017
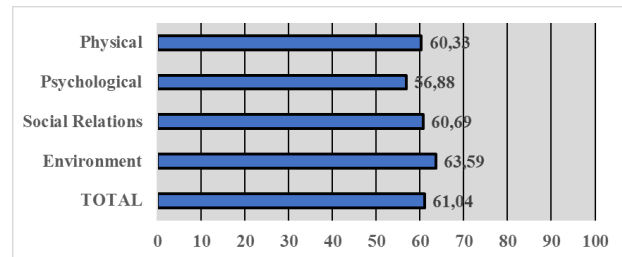
Regarding students' self-assessment of their quality of life (questions 1 and 2) there was no statistically significant difference between the averages obtained: 13.74 vs 14.61 (p = 0,2005). As for domains - physical, psychological, social relations and environment - no statistical differences were also found between the means of the two groups (first and sixth years) (Table 1).
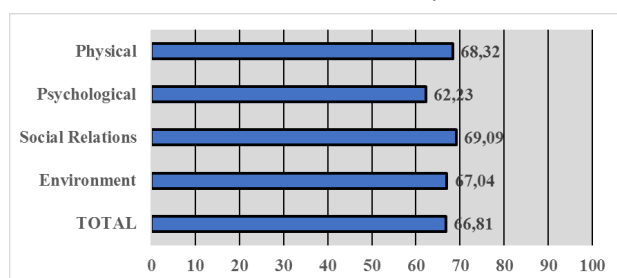
Table 1 - Comparison of the averages of the Whoqol-bref domains among students of the first and sixth year of the medical course of UNIFESP. São Paulo, 2017

Domain First year 2017 N = 53	Average First year 2017 N = 53	Standard deviation First year 2017 N = 53	Domain Sixth year 2017 N=46	Average Sixth year 2017 N=46	Standard deviation Sixth year 2017 N=46	p-value
Physical	12,94	2,84	Physical	13,65	2,58	0,1986
Psychological	12,92	2,94	Psychological	13,1	2,54	0,747
Social Relations	14,26	3,28	Social Relations	13,71	2,75	0,3723
Environment	14,41	2,68	Environment	14,17	2,35	0,6391
Self-assessment of QoL	13,74	3,49	Self-assessment of QoL	14,61	3,21	0,2022
TOTAL	13,6	2,32	**TOTAL**	13,77	2,07	0,7031

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In 2018, we followed up with the evaluation and subsequent analysis of the Whoqol-bref domains - physical, psychological, social relations and environment. This year 31 answers were obtained for the first year and 22 responses for the sixth year. For both groups the psychological domain had the lowest score again.

In the evaluation for the first year, the value obtained in the domain of social relationships was 69.09, followed by the physical with 68.32 and the environment with 67.04, while the psychological value was 62.23. The total number of domains for participants in the first year was 66.81 (Graph 3).

Graph 3 - Scores by domains and Whoqol-bref total of first-year medical students from UNIFESP. São Paulo, 2018

For students in the sixth year, the domains that scored the most were the environment with 53.41 and

social relations with 52.65; respectively. The psychological domain, in turn, showed, as in the first year, the lowest value with 47,16. The total number of participants in this group was 51.35 (Graph 4).

Graph 4 - Scores by domains and Whoqol-bref total of first-year medical students from UNIFESP. São Paulo, 2018
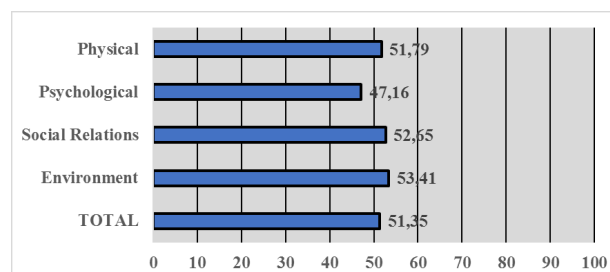
Regarding the comparative results of the sixth-year students in 2017 and the sixth-year students in 2018, statistically significant differences were found in almost all domains (p <0.05), except for social relations. Also, lower values in all domains for the students enrolled in the year 2018 and for the second consecutive year the psychological domain had the lowest value.

Table 2 - Comparison of the averages of the Whoqol-bref domains among students of the first and sixth year of the medical course of UNIFESP. São Paulo, 2018

Domain First year 2018 N=31	Average First year 2018 N=31	Standard deviation First year 2018 N=31	Domain Sixth year 2018 N=22	Average Sixth year 2018 N=22	Standard deviation Sixth year 2018 N=22	p-value
Physical	14,93	2,42	Physical	12,29	3,62	0,0025
Psychological	13,96	2,34	Psycjological	11,55	4,12	0,0092
Social Relations	15,05	2,71	Social Relations	12,42	3,87	0,0053
Environment	14,73	2,61	Environment	12,55	3,39	0,0108
Self-assessment of QoL	15,35	2,89	Self-assessment of QoL	12,36	5,11	0,0091
TOTAL	14,69	1,98	**TOTAL**	12,22	3,33	0,0014

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Table 3 - Comparison of the averages of the Whoqol-bref domains among students of the sixth year in 2017 and of the sixth year in 2018 of the medical course of UNIFESP. São Paulo, 2018

Domain Sixth year 2017 (N=46)	Average Sixth year 2017 (N=46)	Standard deviation Sixth year 2017 (N=46)	Domain Sixth year 2018 (N=22)	Average Sixth year 2018 (N=22)	Standard deviation Sixth year 2018 (N=22)	p-value
Physical	13,65	2,58	Physical	12,29	3,62	0,08
Psychological	13,10	2,54	Psychological	11,55	4,12	0,06
Social Relations	13,71	2,75	Social Relations	12,42	3,87	0,1189
Environment	14,17	2,35	Environment	12,55	3,39	0,025
Self assessment of QoL	14,61	3,21	Self assessment of QoL	12,36	5,11	0,0301
TOTAL	13,77	2,07	**TOTAL**	12,22	3,33	0,0215

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As for the comparative results of first year students in 2017 with those of the first year in 2018, significant statistical differences were found in the physical, psychological, self-assessed QoL and total mean domains

(p <0.05). It was noted, however, that students in the first year of 2018 presented values slightly higher than the students for the year 2017, however, and for the second consecutive year, the psychological domain had the lowest value.

Table 4 - Comparison of the averages of the Whoqol-bref domains between students from the first year of 2017 and the first year of 2018 of the medical course of UNIFESP. São Paulo, 2018

Domain First year 2017 N=53	Average First year 2017 N=53	Standard deviation First year 2017 N=53	Domain First year 2018 N=31	Average First year 2018 N=31	Standard Deviation First year 2018 N=31	p-value
Physical	12,94	2,84	Physical	14,93	2,42	0,0002
Psychological	12,92	2,94	Psychological	13,96	2,34	0,03
Social Relations	14,26	3,28	Social Relations	15,05	2,71	0,2329
Environment	14,41	2,68	Environment	14,73	2,61	0,3514
Self assessment of QoL	13,74	3,49	Self assessment of QoL	15,35	2,89	0,0147
TOTAL	13,60	2,32	**TOTAL**	14,69	1,98	0,006

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DISCUSSION

The QoL results obtained were smaller in all domains when compared with other studies, which in turn found only significant differences in the psychological domain of the groups evaluated[16-18], implying even more the idea of multidimensionality for QoL. The high domain of social relations found here was also identified in a review[4] on medical students' QoL. When comparing the first- and sixth-year domains in the first stage, there were no significant differences, a phenomenon that was also pointed out in similar work in a private philanthropic university[14].

However, for the second consecutive year, there were statistically significant differences between the first and sixth year, as shown by the national studies of the last years, with a decrease in all QoL scores for the sixth year when compared to the first. Even lower scores for the sixth-year class compared to the previous year's class were also highlighted. This contradiction in the literature points to reflections on how the perception of university medical students' QoL may or may not be affected by graduation and what is the academic environment effect on the students' lives. Fiedler[3] broadly identified the student's dissatisfaction with the course as well as the increasing

anguish that harbored it. In this perspective, it is important to emphasize that both first- and sixth-year students had regular low scores in the QoL domains in the two evaluated years (2017 and 2018), especially the psychological ones. These aspects are also elucidated when taking into account the high prevalence of distress symptoms among medical students and also that they present the lowest values of quality of mental life when compared to the young American population and the general population, as shown in recent studies in the USA[15-16], in addition to identifying also a significant percentage of students with suicidal ideation, reflecting the impact of the psychological traumas that can occur along the course. Pacheco et al[10], in a systematic review with meta-analysis on mental health problems among Brazilian medical students, also pointed to a tendency of high proportion of suffering with varied mental health problems, with anxiety in higher prevalence and greater experiences as depression, stress and worry in these students.

Among the several factors that may influence the perception of QoL among the evaluated students that justify the low scores found between the respective years, it is worth noting the peculiarities experienced by newly arrived scholars in the first year of those of the sixth and last.

First-year students bring with them a previous history that contributes greatly to stress and change in their QoL when they enter the educational institution, since this process begins already during the choice of the career to be trodden by the individual and, from there - in a succession of aspects that involve the competitiveness and extreme competition of the medical course, allied to the abdication of moments of leisure and socialization and the idealization of a career of glamor and benesses that are challenged when lived the reality of the profession - occurs a sequence of events that are detrimental to QoL[13]. Once enrolled in the institution, the student is then faced with a new reality that runs away from the usual one of the basic education schools and preparatory courses for the entrance exam.

Logic explained by observing the challenges that the new university has to face and that involve from the common immaturity to face the academic environment, the competitiveness that is maintained and accentuated, such as the experience of leaving home to live near college and live alone with people of different creations and behaviors until the difficulties to organize the time of study, the new rhythm of classes, the daily household chores and the frustration when coming into contact with the basic chairs that in the traditional curriculum have little relation to practical medicine[13-14].

In terms of curriculum and the institutional contribution to this teaching model, the impact of these on students' QoL can be both positive and negative, as brought by Wilson et al.[19]. Although, students submitted to a new curriculum did not have the same drop in QoL when compared to those who experienced the traditional one[19]. Brazilian medical students (inserted in this traditional configuration of curriculum), when compared to students from the United States who experienced flexible curricula, presented a lower positive development of quality of life, and presented greater more depression and stress than the US students[23]. The traditional curriculum is divided into three major cycles: basic (1st and 2nd years), clinical-theoretical (3rd and 4th years) and medical school (5th and 6th years)[17]. Thus, the first-year student demands both the study of anatomical structures and the knowledge of physiological behaviors in health and illness, allied to problems in teaching and in the predominantly banking education. Followed by admission to the hospital and the development of communication skills and physical examination, situations that influence QoL until the end of the course, evolving with the worsening of the values until the sixth and final year.

With regard to students of the sixth year, there are a number of elements of high emotional content, pressure and stress, such as high hours, shifts, choice of specialty, passing the medical residency test, dealing with serious patients and death of many of them[6-8-14]. All of these factors altered the QoL of these students who, in the group analyzed in 2018, had even lower the averages that already had regular values in 2017 and, in particular, in the psychological domain.

In this context, we highlight the implementation of practical and immediate measures, individually and institution, that lead to the improvement of the QoL of students in all the years of graduation. Measures encompassing the individual plan include valuing relationships with others and sharing stressful experiences with others, dedication to study, but also leisure, scheduling and routine, physical and religious activity practices for those interested and care with food and sleep[18].

The institution has an important role in the consequences related to QoL. Therefore, it is important the institutional view of the medical school on measures that are beneficial to students and that are incorporated in both curricular and extracurricular structure, that is, measures that incorporate teaching and also extension activities. From the perspective of the curricular structure, Wilson et al.[19] and Stuart[24] bring the changes from a traditional curriculum to more flexible teaching methodologies as an important resource in the positive correlation with QoL and well-being. These changes involve self-directed learning, small discussion groups, problem-based learning, clinical case study, teaching of stress management skills, opportunities to find meaning in curriculum work and reordering of workload in order to reduce the number of hours inside the classrooms and more free time for individual studies, in addition to the interrelationship of basic sciences with clinics arranged blocks rather than separate courses. Regarding extracurricular activities, stress management programs offered by universities that include direct and indirect support groups, meditation and hypnosis, time management, mindfulness, mentoring programs, and practice of coping skills have beneficial effects as improved immune response, decreased levels of anxiety and depression, improved ability to resolve conflicts, and increased levels of empathy and spirituality[20]. At UNIFESP, these measures are reflected in the Student Support Nucleus (NAE) - which performs functions related to student stay and academic development of the student in biopsychosocial aspects[11]. In addition to the extension projects offered, the talk wheels on the theme and the mindfulness workshops that take place weekly and which, among many characteristics, aim at improving students' QoL, but which still need assessments about their real

effects on the students of the institution.

These actions would be, therefore, elements that besides objectifying the improvement of the QoL, directly or indirectly, promote the health of the student in multidimensions, given the presence of some of the essential competences for the health promoters, defended by the project "Developing Competencies and Professional Standards for Capacity Building for Health Promotion in Europe (CompHp)" and which are present in the measures presented, namely: capacity for change and openness to it; defense of medical student health, collaboration among students, faculty, disciplines, departments and partners to adopt QoL improvement strategies; use of communication resources to disseminate the strategies adopted, implementation of measures based on the institution's endorsement, and the use of research, such as this study, to assess needs and present current diagnoses about the conditions of students[27]. It should be noted, however, that within what is proposed for the qualification of professionals who are health promoters, it is necessary to incorporate the skills required for such promotion within the curricular structure in an effective and specific way, which still lacks in the curriculum of the main health courses in Brazil[26].

Empathy, in turn, is another attribute that must go alongside long-term work in the dynamics of the medical course in order to benefit the students and the patients they will handle in their professional future. Nascimento et al[12] explain that there are no significant differences in overall empathy scores among incoming and outgoing medical students, although they have noticed that sixth graders tend to be more empathic, surprisingly. The authors also point out that these aspects have the presence of factors related to the relationship of students with patients at earlier levels in the undergraduate level, such as the importance of humanities disciplines and discussions supported by other areas of knowledge, in order to allow graduation to

be positive in this aspect.

In this sense, promoting a humanist, generalist formation that stimulates critical thinking and reflection should guide the pedagogical approach of the course in order to encourage students to think more about QoL and to promote health and self-care, endowing them with the recommended skills.

This study presented both methodological and conceptual limitations during its execution. Because it is an online questionnaire as an evaluation tool, the dependence of the participants' willingness to respond with attention and completely was limiting to the accounting of data, besides the race's own exhaustive routine of graduation, which may have led to the minor enrollment. The description of the sociodemographic variables only as identification and profile of the students of the respective years, without control through multivariate analysis, did not allow other factors to be evaluated as influencers of students' QoL. Conceptually, it is important to highlight the inaccuracies in the meaning of QoL, which may have influenced the responses of the students who completed the questionnaires. Such imprecisions are reflected in the diverse and often divergent presentation in the literature and that make difficult the investigation, the dialogue and the practical application of knowledge on the subject[21].

CONCLUSION

There were medium and low results for the evaluated domains, mainly the psychological ones, both at the beginning and at the end of the course, evolving negatively from the first to the sixth year. In sum, a confluence of factors leads to altered perception of medical students' QoL. Therefore, a combination of measures is required under the auspices of the University, which brings together medical school in order to obtain promising results and improve students QoL.

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