Quality of Life of Resident Physicians at a Public University Hospital

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Research

Keywords: Quality of Life, Stress, Medical Residency

Posted Date: June 30th, 2020

DOI: https://doi.org/10.21203/rs.3.rs-38057/v1

QUALITY OF LIFE OF RESIDENT PHYSICIANS AT A PUBLIC UNIVERSITY HOSPITAL

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Abstract

Objective: compile a quality of life profile of medical residents in clinical and surgical specialties at a public university hospital in the city of Rio de Janeiro. Methodology: This is a cross-sectional study. The sample consisted of 74 doctors who enrolled in the 2015 residency program at the Graffrée Guinle University Hospital, in the city of Rio de Janeiro, Brazil. The data collection questionnaire used was the WHOQOL-100, developed by the World Health Organization Quality of Life group in an expanded format. Conclusion: The quality of life profile of resident physicians is unsatisfactory, since four of the quality of life domains were negative when evaluated by the WHOQOL-100 questionnaire. Religion ($\Delta\% = 16.6\%$) and social relations ($\Delta\% = 11.9\%$) can be considered protective factors related to better quality of life during the medical residency program.

Keywords: Quality of Life. Stress. Medical Residency.

Introduction

Medical residency is an in-service training system created in the United States in 1889 by William Stewart Halsted and implanted in Brazil in 1944-45. Despite its shortcomings, mainly related to the lack of qualified supervision and the potential deleterious effects of workload and sleep deprivation, it is recognized as the best physician training system (1) .

Experience with medical residency has shown that, in addition to increased professional competence, self-confidence and safety, training can have harmful effects on physicians' sensitivity to patients, academic and professional performance, health, well-being and quality of life (2) .

A World Health Organization (3) working team is studying health-related quality of life issues. Known as the WHOQOL Group (World Health Organization Quality of Life Group), it considers that the definition of quality of life should take into account individuals' perception and their relations with the environment. It is a far-reaching concept affected by physical health and relationships with the characteristics of the individual's environment (4)

Thus, the perceived professional environment of Brazilian physicians affects their quality of life during training. Quality of life here is understood as "the individual's perception of their position in life, in the context of the culture and value system in which they live and in relation to their objectives, expectations, standards and concerns" (5) , and involves complex variables determined by individual perception.

The professional performance of resident physicians is directly linked to their quality of life, which, according to (2) , depends on intrinsic and extrinsic factors, generating different connotations of quality of life for each individual. Medical residency is a development process in which residents must take stock of their desire to care and heal, deal with feelings of helplessness in relation to the complex care system and establish the limits of their personal and professional identity.

Given the important relationship between quality of life and medical residency, the present study aimed to identify the quality of life profile of medical residents in clinical and surgical specialties at a public university hospital in the city of Rio de Janeiro in 2015.

Material and Methods:

This is a descriptive cross-sectional study with an epidemiological design.

The sample consisted of doctors who entered the 2015 residency program at the Graffrée Guinle University Hospital, located in the city of Rio de Janeiro, Brazil. All resident doctors enrolled in the hospital's medical residency program were invited to participate in the survey. Data were collected from the 79 residents (out of 134) who volunteered to take part in the survey.

All participants were briefed on the research proposal and provided written informed consent. This study followed the guidelines of National Health Council Resolution 466/12 for experiments on human beings, and was approved by the UNIRIO Human Research Ethics Committee, under protocol number: CAAE 35045314200005285.

Next, the subjects received a code and password to respond electronically to the Spreadsheet (an online questionnaire for data entry, prepared on Google) containing the data collection instrument (WHOQOL-100), which was developed by the World Health Organization Quality of Life group in an expanded format.

Data collection occurred between March and August 2015, using the translated and validated version of the WHOQOL-100 questionnaire, (4) in an expanded format.

Given that the World Health Organization considers subjectivity, multidimensionality and positive and negative dimensions to be fundamental aspects in understanding the quality of life construct (5, 6), it developed the WHOQOL-100.

This questionnaire aims to evaluate six quality of life domains, through twenty-four facets that cover aspects of each of the domains, as follows: body image, appearance, work

ability, negative feelings, sexual capacity, social support and the environment (7) . In addition to the four domains, the questionnaire contains two additional general questions on overall quality of life covering the previous two weeks.

The WHOQOL-100 is based on the assumption that quality of life is a subjective, multidimensional construct, composed of six dimensions: Domain 1 (Physical); Domain 2 (Psychological); Domain 3 (Independence); Domain 4 (Social Relations); Domain 5 (Environment); and Domain 6 (Spirituality) (8).

The 24 facets of the WHOQOL-100 are evaluated by three to eight questions, arranged differently for each domain. The physical domain consists of questions on pain and discomfort, energy and fatigue, sleep and rest, mobility, activities of daily living, dependence on medication or treatments, and work capacity; for the psychological domains, the questions cover positive feelings, memory and concentration, thinking and learning, self-esteem, body image and appearance, negative feelings and spirituality; the social relations domain includes questions related to personal relationships, social support, and sexual activity; and the environment domain to physical security and protection, environment at home, financial resources, health care, opportunities for access to new information and skills, recreation and leisure, physical environment, and transportation.

The WHOQOL-100 instrument is scored on a 5-point Likert scale, where 1 represents "strongly disagree" and 5 "strongly agree". The final result is between 4 and 24, with 14 representing the minimum satisfactory quality of life (7) .

The scores and descriptive statistics obtained from the WHOQOL-100 were calculated using Microsoft Excel, as performed by (9) , and incomplete questionnaires excluded from analysis.

Subsequent analyses were conducted by applying the Excel results in the equation suggested by the WHO to obtain the score for each domain and the final score, which varies

from 4 to 20 (mean of the facets of each domain multiplied by 4), then transformed on a scale of 0 to 100 (subtracting 4 from each domain obtained on a scale of 0 to 20, multiplying by 100 and dividing by 16) (9).

In initial statistical treatment, the data were processed using the Google Drive program, and presented as means and standard deviations in order to compare the results obtained between groups of resident physicians. The domains and facets of quality of life, clinical and surgical specialties, sex and age group were analyzed descriptively, and presented in the form of tables, charts and graphs.

Results

The sample was composed of resident physicians belonging to clinical and surgical specialties in the medical residency program of the university hospital in 2015. A total of 18 specialties were represented, as follows: anesthesiology, medical clinic, dermatology, gynecology and obstetrics, homeopathy, immunology, family and community medicine, neurology, ophthalmology, orthopedics, otorhinolaryngology, pathology, clinical pathology, pediatrics, psychiatry, radiology, rheumatology and urology.

Seventy-nine medical residents enrolled in 2015 in the medical residency program of the Gaffrée Guinle university hospital in the city of Rio de Janeiro were evaluated (80% women). Of the 18 participating medical specialties, 86 and 14% were clinical and surgical specialties, respectively (Table 1).

Table 1. Clinical and surgical specialties of medical residents - public university teaching hospital, RJ, 2015.

Specialties	Men		Women	
	N	**%**	**N**	**%**
Clinical	10	12.7	58	73.4
Surgical	6	7.6	5	6.3

The age of the participants ranged from 21 to 70 years, 71% of whom were between 21 and 30, 16% between 31 and 40, 6% between 41 and 50 and 6% were older than 51.

The overall quality of life index of the residents was below the average obtained by the quality of life instrument, with a standard deviation of 13.09 (3, 9) (Table 2).

Table 2: Quality of Life score of medical residents at a public university teaching hospital, RJ, 2015.

Domains	Minimum	Maximum	Average Score (SD*)
Physical	**7.33**	**15.66**	**11.69 (1.95)**
Pain and discomfort	5.0	19.0	11.6 (3.16)
Energy and fatigue	4.0	17.0	10.2 (3.26)
Sleep and rest	4.0	20.0	12.9 (4.54)
Psychological	**9**	**16.2**	**13.02 (1.46)**
Positive feelings	9	18	14.1 (2.44)
Memory and concentration, Thinking and learning	5	18	12.3 (3.11)
Self-esteem	8	19	13.3 (2.68)
Body image and appearance	5	20	13.4 (3.68)
Negative feelings	5	20	12.2 (3.99)
Level of Independence	**9.25**	**16**	**12.63 (1.58)**
Mobility	9	20	14.0 (2.66)
Activities of daily living	7	19	13.1 (2.71)
Dependence on medication or treatments	4	20	8.3 (5.07)
Work capacity	7	20	15.3 (2.85)
Social Relations	**8.33**	**19.33**	**14.64 (2.77)**
Personal relationships	7	20	14.9 (3.05)
Social support	9	20	15.4 (2.86)
Sexual activity	4	20	13.4 (4.10)
Environment	**9.62**	**17.75**	**13.51 (1.85)**
Physical security and protection	4	18	11.0 (2.61)
Environment at home	7	20	15.8 (3.31)
Financial resources	9	19	13.9 (2.79)
Health and social care: availability and quality	4	19	14.0 (2.88)
Opportunities for acquiring new information and skills	6	20	14.7 (2.95)
Participation in/opportunities for recreation and leisure	4	18	11.5 (3.43)
Physical environment (pollution, noise, traffic, climate)	4	19	13.1 (3.28)
Transportation	7	20	14.6 (3.81)
Spirituality	**7**	**15.26**	**15.26 (3.03)**
Spiritual Aspects/Religions/Beliefs	8	20	15.2 (2.82)
Quality of Life	**6**	**13.09**	**13.09 (3.09)**

* WHOQOL-100 data collected on a Gdrive spreadsheet

The physical domain, represented by pain and discomfort, energy and fatigue, sleep and rest, was the worst index of the four domains analyzed in the group, obtaining an average score of 11.7 and a standard deviation of 1.95. This was followed by the level of independence domain, represented by mobility, dependence on medication or treatment for activities of daily living, and work capacity, with a mean score of 12.63 and standard deviation of 1.52.

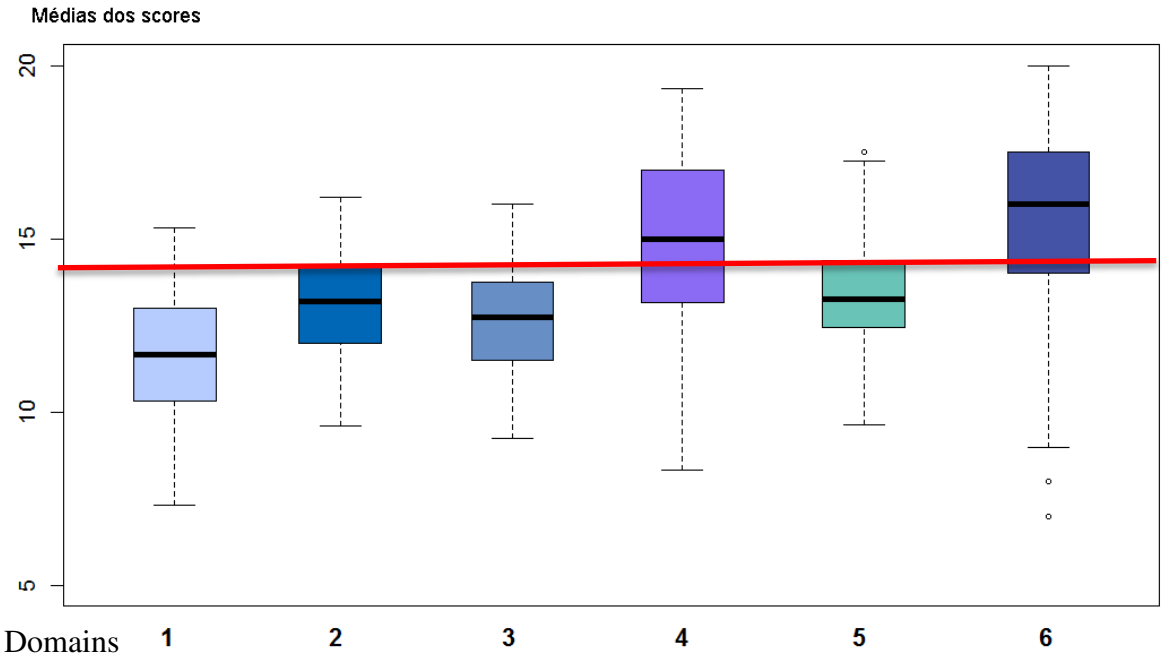
The psychological domain, represented by questions about positive feelings, thinking, learning, memory and concentration, body image and appearance, and negative feelings, was the third worst index, with a mean score of 13.0 and standard deviation of 1.5. The environment domain, represented by physical safety and protection, home environment, health and social care, participation in/and opportunity for recreation and leisure, and physical environment was the fourth worst index, with an average score of 13.51 and standard deviation of 1.85 (Table 3).

The Quality of Life index can be classified into three categories: Low, for scores below 11; Average for scores between 11 and 14 and High for scores above 14 (10).

The two domains with satisfactory quality of life indices above the overall average were social and spiritual relationships (Graph 1).

Graph1: Averages of the Quality of Life domains of medical residents, Rio de Janeiro, 2015.

Average scores



Legend: 1- Physical Domain; 2 - Psychological Domain; 3- Independence Domain; 4- Social Relations Domain; 5- Environment Domain; 6- Spirituality Domain; *Box-plot of WHOQOL-100 data collected on a Gdrive spreadsheet

Discussion

The results obtained in this study, in relation to the age of resident physicians, show the highest prevalence between 21 and 30 years of age, which is similar to the overall average age of 22 years in several countries; according to (11), the average age in the first and fourth year of medical school is 21 and 24 years, respectively. The characteristics of the resident physicians in relation to sex also corroborate those of other findings, in that most were women, which seems to be linked to the essence of the profession itself.

The proportion of female medical students has been growing worldwide, and how this has influenced the recently observed changes in the choice of medical specialties remains controversial, particularly whether or not this increased female population is responsible for valuing lifestyle as a determinant factor in selecting a medical career (Cross et al., (9).

An important emerging factor is "controllable lifestyle", which, in addition to being defined as “the specialties that allow the doctor to control the number of hours dedicated to the

practice of the specialty", also classified nine specialties in this group (Emergency Medicine, Radiology, Ophthalmology, Anesthesiology, Neurology, Otorhinolaryngology, Pathology, Psychiatry and Dermatology). It can be concluded that aspects related to this factor are more influential in the choice of medical specialty than those related to "traditional motivators" (remuneration, prestige and duration of training). Schwartz's criteria were validated and the importance of the concept was corroborated by studies that found lifestyle as the strongest determinant of recent changes in the choice of medical specialty. In the present study, medical lifestyle was classified as the second most important factor in the choice of specialty (12, 13) .

The profile of medical specialties observed in the sample of the present study, as well as sex and age, were compatible with other findings. However, an important objective beyond evaluating and discussing the sociodemographic profile of physicians, was achieved in the present study, because it aimed to determine the quality of life of the residents of the university hospital in the city of Rio de Janeiro, using the WHO questionnaire translated and validated for Brazil (14) (4).

By choosing a method to assess quality of life and investigate the resident physicians in four dimensions: physical; psychological; social relations; and, environment, the present study determined that the overall quality of life index of the resident physicians was below the average considered satisfactory by the WHO instrument.

In fact, the average quality of life index was less than satisfactory in four of the domains analyzed in the questionnaire: physical, psychological, level of independence and environment. According to the literature, resident physicians are at risk for emotional and behavioral disorders. Somsila (3) found that 42.2% of residents experiencing stress have mental health problems. A high degree of emotional distress, suicide and alcohol and drug abuse has also been observed in this population (15), and

(16) reports that one of the factors that influences the work environment in Chinese hospitals is violence against the doctors, a problem that cannot be ignored, and suggests social support to these health professionals in order to foster the emotional stability of the teams.

Thus, assessing risk groups with the worst indices may identify subjects prone to developing common mental disorders, which corroborates the importance of our evaluation in the present study.

The most significant problems described in studies on occupational exhaustion in medical residency are depression and sleep deprivation. The main causal factors of the so-called "Resident Stress Syndrome" are work overload, excessive professional responsibility and a work environment marked by competition and frequent changes in conditions (17).

These factors can interfere in the professional-patient relationship, where there should be synergy. This is corroborated by (18), who compared the answers on the European Quality of Life-5 dimensions-5 levels questionnaire (EQ-5D-5L) in a group of diabetic patients with those of physicians, soon after the former had completed treatment, finding a positive correlation of 0.79 ($p>0.01$). This correlation demonstrates that the perception of the medical professional must be accurate in order to provide quality care. This low perception may be related to unsatisfactory levels of quality of life, as found in the present study (13.04). Another variable is insufficient sleep and poor sleep quality, which can promote a decline in productivity, demotivation, poor performance in studies and reasoning, conflicted social relationships, chronic pain and a higher risk of workplace and traffic accidents (15). This corroborates our findings, which showed that the physical domain (pain and discomfort, energy and fatigue, sleep and rest) exhibited the lowest average quality of life index among the four analyzed in the group of residents.

Studies also highlight the influence of sleep neutralization and difficulties in quality of life among medical residents. Physical health and psychological well-being are altered by sleep deprivation. Thus, in order to improve quality of life, strategies need to be created to manage

stress in the learning environment, to inform doctors about the importance of adequate sleep, and to enhance academic effectiveness (19) .

According to the American Foundation for Suicide Prevention (AFSP), 300 to 400 physicians commit suicide every year, an average of one per day (20-22).

In the student-doctor transition period, professional responsibility, social isolation, fatigue, sleep deprivation, work overload, the dread of making mistakes and other factors inherent to training are associated with several psychological, psychopathological and behavioral expressions, including depressive states with suicidal tendencies, excessive alcohol consumption, addiction to drugs, chronic anger, bitter skepticism and a dark sarcastic mood (17) .

The above is also corroborated by our findings, which show that the level of independence domain (dependence on medication for performing activities of daily living and work capacity) obtained the second worst average score (12.63) among the 4 quality of life domains considered unsatisfactory in the WHO test.

The medical course is known worldwide for its complexity and difficulty due to the high standards required to enter medical school, socioeconomic issues, prolonged study time, sacrifices, distance from family and friends, as well as the need for significant physical and emotional strength (23).

The adoption of mechanisms to cope with problems further increases the risk of illness; however, spirituality can help reduce burnout. Studies comparing spirituality found that students who were not exhausted were "more spiritual". Thus, spirituality as a way of dealing with stress can act as a buffer and prevent burnout (24) . The findings of the present study demonstrate that the average QoL index scores in the social relations (14.64) and spiritual domains (15.26) were satisfactory.

Medical students who practice a religion showed better quality of life. However, literature results are controversial and indicate the need for further investigations to clarify the issue of religion as a protective factor (25) .

New diseases are emerging and old ones reappearing, generating illness in medical residents, which could lead to a greater collapse in the health system. This includes the emergence of the SARS-CoV-2 pandemic, whereby the virus may require high complexity care. Its primary signs and symptoms are cough, fever, and difficulty breathing (26) , among other gastrointestinal symptoms (vomiting, diarrhea and abdominal pain) as reported in (27) . High rates of illness in health professionals during the pandemic have been observed worldwide, significantly related to the stress and quality of life of the professionals during the collapse of the health services caused by the SARS-CoV-2 pandemic.

Thus, the characterization of quality of life performed in the present study is relevant because a simple evaluation of risk groups with poor indices can identify subjects prone to developing common mental disorders that can be duly treated.

Conclusion

The quality of life profile of resident physicians is unsatisfactory, since four domains with QoL indices were considered negative when evaluated by the WHOQOL-100 questionnaire. Only religion and social relations were protective factors related to better quality of life during the medical residency program.

The indicators found in this study can be used to identify groups of resident physicians more prone to worse QoL and common mental disorders. Those who take care of the health of others need to be in good health themselves and understand that medical practice is a service in which patients require quality, trust, empathy and well-trained professionals to solve their health problems.

Measures and strategies are needed to enable residents to deal with stress, such as the implementation of programs that improve the quality of professional training. In terms of dealing with training stress and enhancing the learning process and its practical usefulness, measures should aim at improving the quality of life of medical residents. These include the need to reduce the workload, thereby increasing well-being and empathy in the health care of the population.

This and other studies indicate that the laws governing medical residency programs in Brazil need to be revised with a view to overhauling the training system of resident physicians through multidisciplinary actions that promote well-being and reduce psychological violence, depression, fatigue, stress and anxiety.

Conflicts of interest: None

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Figures

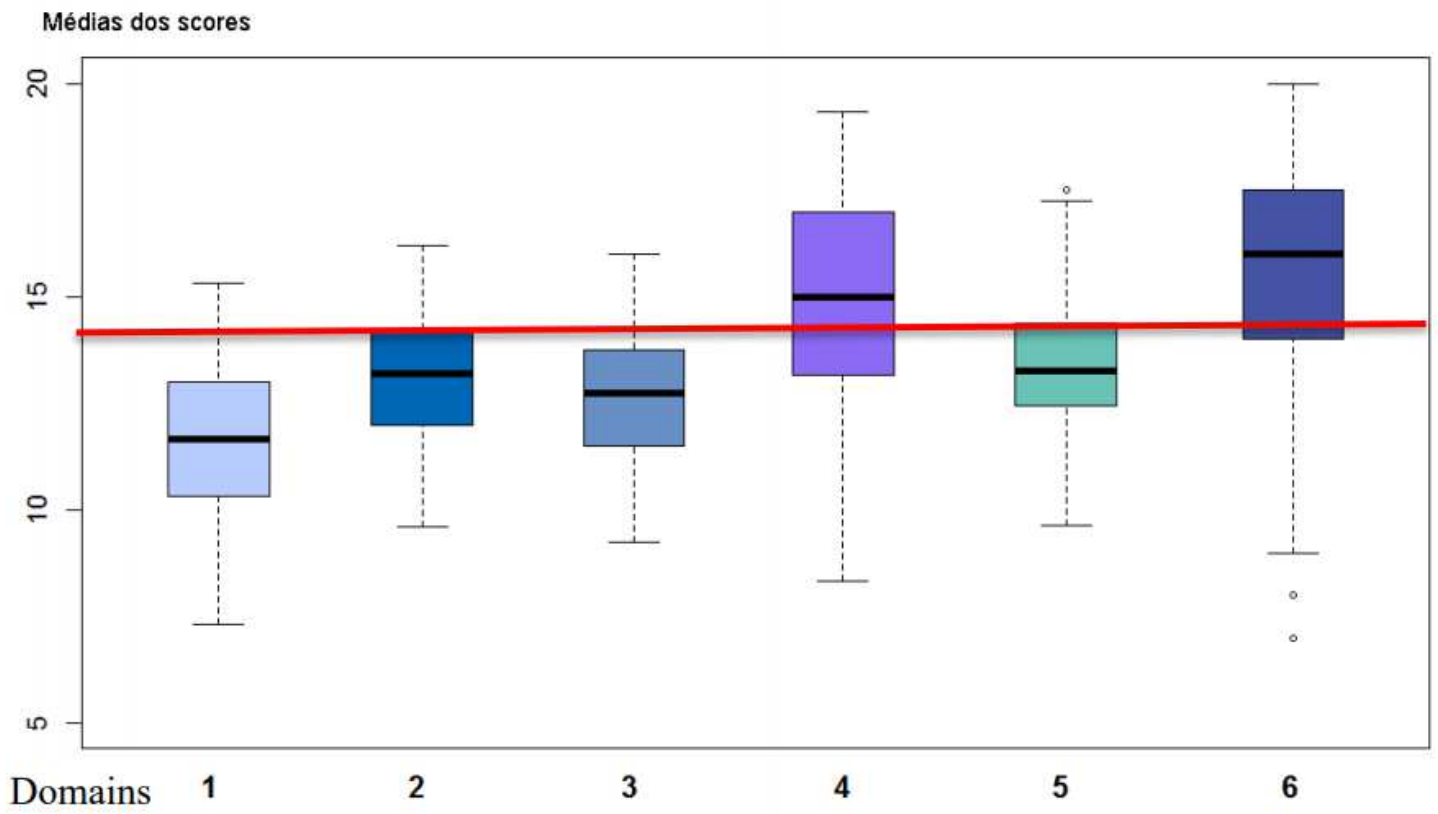

Figure 1

Graph 1. Averages of the Quality of Life domains of medical residents, Rio de Janeiro, 2015. Physical Domain; 2 - Psychological Domain; 3- Independence Domain; 4- Social Relations Domain; 5- Environment Domain; 6- Spirituality Domain; *Box-plot of WHOQOL-100 data collected on a Gdrive spreadsheet