

# Prevalence of Burnout syndrome in medical students at a university institution in Cartagena-Colombia

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## Abstract

**Introduction:** University students are involved in stressful and anxious situations that affect their academic process and quality of life. Without the proper accompaniment, stress can trigger major psychological problems, such as Burnout Syndrome.

**Objective:** To identify the prevalence of Burnout Syndrome in medical students at a university institution in Cartagena during the first term of 2019.

**Materials and Methods:** Descriptive quantitative study, the population were students of the medicine program of a university institution in Cartagena, enrolled in the first term of 2019, the Maslach Burnout Inventory Student Survey (MBI-SS-1981) test was applied, which measures three indicator parameters of Burnout Syndrome.

**Results:** 383 surveys were conducted, 63% were female, 91.7% were single, 53% were between 20 and 25 years old, the prevalence of Burnout Syndrome was 30.8%.

**Conclusion:** Burnout Syndrome in the students of the medicine program of the University institution of the city of Cartagena presents an important prevalence, therefore, it is necessary to design strategies that allow its prevention.

**Keywords:** Burnout syndrome, emotional fatigue, depersonalization, personal fulfillment, prevalence.

## Resumen

**Introducción:** Los estudiantes universitarios se ven envueltos en situaciones de estrés y ansiedad que afectan su proceso académico y calidad de vida. Sin el acompañamiento adecuado, el estrés puede desencadenar en problemas psicológicos mayores, tales como el Síndrome de Burnout.

**Objetivo:** Identificar la prevalencia del Síndrome de Burnout en estudiantes de medicina de una institución universitaria en Cartagena durante el primer período del año 2019.

**Materiales y Métodos:** Estudio descriptivo de tipo cuantitativo, la población fueron estudiantes del programa de medicina de una institución universitaria de Cartagena, matriculados en el primer período del año 2019, se aplicó el test de Maslach Burnout Inventory Student Survey (MBI-SS-1981), el cual mide tres parámetros indicadores de Síndrome de Burnout.

**Resultados:** Se realizaron 383 encuestas, el 63% fueron de género femenino, el 91,7% son solteros, el 53% está entre los 20 y los 25 años, la prevalencia del Síndrome de Burnout fue de 30.8%.

**Conclusión:** El Síndrome de Burnout en los estudiantes del programa de medicina de la institución Universitaria de la ciudad de Cartagena presenta una prevalencia importante, por tanto, es necesario diseñar estrategias que permitan su prevención.

**Palabras clave:** Síndrome de Burnout, cansancio emocional, despersonalización, realización personal, prevalencia.

## Introduction

Burnout Syndrome (BS) is the result of the constant stress of people towards their work or student activities and is characterized by fatigue, mental tiredness, low self-esteem, and changes in behavior that can progressively cause states of disinterest in what is being done, even leading to the development of deep depression (1).

This important impact on the population, awakened the research interest in studying the prevalence of Burnout Syndrome in medical students at a university institution in Cartagena - Colombia. Medicine is a highly demanding discipline, students are exposed to constant demands, which as they advance, become stronger, without proper stress management, psychological imbalances can be triggered, including Burnout Syndrome, and pathophysiological alterations (2).

Among the academic effects, BS can be one of the main causal agents of the low academic performance of some students due to lack of interest,

and even of the repetition and multi-repetition that usually occurs in this area. In this regard, several studies have been conducted, the main considerations of which are presented below.

Serrano et al. (3), whose objective was to determine the prevalence of BS in medical students from six medical schools in Colombia, conducted a descriptive observational study, cross-sectional, metacentric, and surveyed 180 students from six Colombian medical schools using convenience sampling. Positive or negative BS was defined according to the Maslach Burnout Inventory-Student Survey [MBI-SS], in addition to measuring other academic and socioeconomic factors; the median age was 20 years [interquartile range: 19-22 years], 52% [94] were male. 10% [18] had positive BS, with ranges of 0-23% depending on the place of the participant, with the frequency increasing as the year of study increased, except for the first and sixth years. In their three criteria, 36.8% [66] had emotional exhaustion; 37.2% [67], cynicism and 25.6% [46] low academic self-efficacy, finding low prevalence of BS among medical students in relation to other studies, recommending initiating programs aimed at preventing and improving the mental health of future health professionals (3).

In turn, Nakandakari et al. (10) studied BS in medical students of Peruvian scientific societies. The study was multicenter and the objective was to identify the frequency of BS in medical students. The population corresponds to human medical students, belonging to 9 scientific societies from different departments of Peru and affiliated to the Peruvian Student Medical Scientific Society [SOCIMEP by its acronym in Spanish]. They applied a survey with biographical data and the Maslach Burnout Inventory. They surveyed 158, 24.1% had a severe level of emotional exhaustion, 45.6% a severe level of depersonalization, 25.3% a low level of personal fulfillment and 57.6% had SB, 60.8% of the students were doing some research work and 49.4% held some position in their scientific society. It is concluded that there was a significant frequency of BS in the medical students belonging to the scientific societies studied (4).

*«Positive or negative BS was defined according to the Maslach Burnout Inventory-Student Survey [MBI-SS], in addition to measuring other academic and socioeconomic factors ...*



Martos et al. (5) conducted a study of BS and engagement in health sciences students. The sample consisted of 63 students pursuing higher degrees in the health sciences, who were administered the student version of the Maslach Burnout Inventory and the Well-Being in the Academic Context Scale. The researchers found that there were no statistically significant differences in Burnout and Engagement between the university nursing students and the young people who were undergoing professional training as Auxiliary Nursing Care Technicians. At the same time, dedication to studies was shown to be related to perceived health. Finally, significant differences were found between nursing and ANCT students in the Intrapersonal factor, so that it was the ANCT students who showed higher intrapersonal emotional intelligence (5).

Núñez-Joseli et al. (6) conducted a study on the prevalence of BS in Human Medicine students at a public university in Peru. For this purpose, they conducted a cross-sectional study and used two anonymous self-administered surveys, one related to sociodemographic characteristics and the other, the Maslach Burnout Inventory scale in its student version [MBI-SS]. A total of 368 [59.5%] students were surveyed, where the average age was 22.11, with a female predominance of 53% [n=195]. The prevalence of BS was 12% [n=45], 34.5% [n=127] showed high levels of emotional exhaustion, 25% [n=92] high levels of depersonalization, and 28.8% [n=106] low levels of personal accomplishment, concluding that there was a low prevalence of BS, although it is within the trend revealed by other similar studies. The dimension of emotional exhaustion was the most prevalent, which fits within the cascade of symptoms that ultimately triggers BS (6).

Given the findings of the aforementioned background, the objective of this study was to identify the prevalence of Burnout Syndrome in medical students at a university institution in Cartagena, for which the study population was characterized in the demographic variables, age, sex, marital status, semester, factors related to the development of BS were determined, according to the values of emotional exhaustion, depersonalization, lack of personal fulfillment in the study, applying the Maslach Burnout Inventory Student Survey questionnaire (MBI-SS-1981) (7).

## **Materials and Methods:**

A descriptive, cross-sectional study was conducted. The population were students enrolled in the first term of the year 2019 in the Medicine program of a university institution in Cartagena. The Maslach Burnout Inventory Student Survey {MBI-SS-1981} test was used, validated in the Colombian academic context by Hedrech, Caballero and Domínguez, who identified three factors: emotional exhaustion, depersonalization, and lack of personal fulfillment in 22 items (7).

A stratified probability sampling of proportional allocation was performed, applying the formula for finite population, working with a confidence level of 95% and a margin of error of 5%, giving a sample of 270, were placed on the platform via email, for this purpose 2 calendar months of the first academic period of 2019 were used.

This study was conducted by sensitizing the population through mass mailings where they were informed of the purpose of the study and the dates of application of the instrument, which was done in a self-administered manner. The tabulation, systematization and analysis of the information was carried out by means of the statistical package EPI INFO 7.2.2, for the categorical variables, measures of frequency distribution and prevalence, and the Shapiro-Wilk test was also applied. Age was represented by measures of central tendency.

Ethical considerations were in accordance with the Helsinki declaration and resolution 8430 of 1993 of the Colombian Ministry of Health.

## **Results**

The present study was conducted with students enrolled in the medicine program during the first term of 2019, with a sample of 902 students, 383 surveys were applied prior acceptance of informed consent, of these, 10 were discarded for poor completion and/or non-acceptance of informed consent, leaving 373, with the third semester having the highest participation with 11% and the eleventh semester the lowest with 6%. The prevalence of BS in the total number of students was 30.8%. In the age variable, a mean of 18 years, a median of 20 and a mode of 19 with a standard deviation of 22 was found for the same variable. The Shapiro-Wilk test was applied and the alternative hypothesis was accepted since the p found was less than 95%, which means that there is a high probability of BS in the population studied. Table 1 shows the number of surveys applied per semester:

**Table 1.** Population by semester

| SEMESTER          | I  | II | III | IV | V  | VI | VII | VIII | IX | X  | XI | XII | NULL |
|-------------------|----|----|-----|----|----|----|-----|------|----|----|----|-----|------|
| <b>FREQUENCY</b>  | 39 | 34 | 43  | 38 | 44 | 36 | 24  | 28   | 21 | 21 | 22 | 23  | 10   |
| <b>PERCENTAGE</b> | 10 | 9  | 11  | 10 | 11 | 9  | 6   | 7    | 5  | 5  | 6  | 6   | 3    |

The highest percentage of respondents were female with 63% [235], the most frequent age range was 20 to 25 years with 53% [199]. Regarding academic status, the following variables were discriminated: 1) none, i.e., the student is taking the subject for the first time, 2) repeaters, those taking the subject for the second time and, 3) multi-repeaters, those repeating for the third time and more, with the highest number of students being none with 90, 3% [337], and those with the lowest frequency were the multi-repeaters with 0.5% [2], likewise, we inquired about the marital status of the participants, with the highest frequency being single with 91.7% [342], and the lowest frequency being married with 2.4% [9].

**Table 2.** Population by demographic variables

| Gender      | Freq. | %  | Academic Status | Freq. | %    |
|-------------|-------|----|-----------------|-------|------|
| Male        | 138   | 37 | Repeater        | 337   | 90,3 |
| Female      | 235   | 63 | Repeater        | 34    | 9,1  |
| Age         | Freq. | %  | Multi-repeaters | 2     | 0,5  |
| 15 to 19    | 150   | 40 | Marital Status  | Freq. | %    |
| 20 to 25    | 199   | 53 | Single          | 342   | 91,7 |
| 26 and over | 24    | 6  | Married         | 9     | 2,4  |
|             |       |    | Unmarried       | 22    | 5,8  |

When the Maslach Burnout Inventory student instrument was applied, it was found that the students evidenced high levels in the three aspects considered related to Burnout Syndrome, these values were 41 [VR 27 to

54 high]. Likewise, for the aspect of depersonalization, the values obtained were 29 [VR 10 to 30 high], for personal fulfillment values of 45 [VR 40 to 56 high] were obtained. In relation to gender, for the three aspects, emotional exhaustion, depersonalization, and personal fulfillment, in the male gender, values of 20 were found for medium emotional exhaustion, [VR 19 to 26 medium], for depersonalization high [VR 10 to 30 high] and for personal fulfillment low [VR 0 to 33 low]. For the female gender, the value obtained for emotional fatigue was 34 [RR 27 to 54 high], the value obtained for depersonalization was 30 [RR 10 to 30 high], and for personal fulfillment 34 [RR 34 to 39 medium].

**Table 3.** Results of the Maslach Burnout Inventory Student Survey (MBI-SS-1981) General and by gender

| Aspect of Burnout Syndrome | Obtained Value |                | Reference Value |                |
|----------------------------|----------------|----------------|-----------------|----------------|
| Emotional Fatigue          | 41             |                | 27 a 54         | Alto           |
| Depersonalization          | 29             |                | 10 a 30         | Alto           |
| Personal Fulfillment       | 45             |                | 40 a 56         | Alto           |
| Aspect of Burnout Syndrome | Obt. Value     | Vr. Ref.       | Obt. Value      | Vr. Ref.       |
| Gender                     | Male           |                | Female          |                |
| Emotional Fatigue          | 20             | 19 a 26 Medium | 34              | 27 to 54 High  |
| Depersonalization          | 20             | 10 - 30 High   | 30              | 10 - 30 High   |
| Personal Fulfillment       | 20             | 0 to 33 Low    | 34              | 34 a 39 Medium |

Reviewing the results by semester, it was found that in the third, fourth and sixth semesters all three aspects were high, which is evidence of the syndrome, and the other semesters showed two of the three high aspects, which is considered to be a strong indication of having BS.

*«The highest percentage of respondents were female with 63% [235], the most frequent age range was 20 to 25 years with 53% [199].»*



**Table 4.** Results of the Maslach Burnout Inventory Student Survey (MBI-SS-SS- 1981) - by semesters.

| Aspect of Burnout Syndrome | Ref. Value | Ref. Value    | Obt. Value | Ref. Value    | Obt. Value | Ref. Value    | Obt. Value | Ref. Value    | Obt. Value | Ref. Value    | Obt. Value | Ref. Value.   |
|----------------------------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|
| Semester                   | I          |               | II         |               | III        |               | IV         |               | V          |               | VI         |               |
| Emotional Fatigue          | 50         | 27 to 54 High | 44         | 27 to 54 High | 54         | 27 to 54 High | 49         | 27 to 54 High | 45         | 27 to 54 High | 37         | 27 a 54 Alto  |
| Depersonalization          | 28         | 10-30 High    | 24         | 10-30 High    | 30         | 10-30 High    | 27         | 10-30 High    | 30         | 10-30 High    | 26         | 10-30 High    |
| Personal Accomplishment    | 31         | 0 - 33 Low    | 32         | 0 - 33 Low    | 40         | 40 - 48 High  | 33         | 40 -48 High   | 39         | 34-39 Medium  | 33         | 40 -48 High   |
| Aspect of Burnout Syndrome | Ref. Value | Ref. Value    | Obt. Value | Ref. Value    | Obt. Value | Ref. Value.   | Obt. Value | Ref. Value    | Obt. Value | Ref. Value    | Obt. Value | Ref. Value    |
| Semester                   | VII        |               | VIII       |               | IX         |               | X          |               | XI         |               | XII        |               |
| Emotional Fatigue          | 31         | 19 -26 Medium | 36         | 27 to 54 High | 27         | 27 to 54 High | 27         | 27 to 54 High | 28         | 27 to 54 High | 30         | 27 to 54 High |
| Depersonalization          | 17         | 10 - 30 High  | 20         | 10 - 30 High  | 15         | 10 - 30 High  | 15         | 10 - 30 High  | 16         | 10 - 30 High  | 16         | 10 - 30 High  |
| Personal Accomplishment    | 22         | 0 -33 Low     | 28         | 0 - 33 Low    | 19         | 0 to 33 Low   | 20         | 0 to 33 Low   | 19         | 0 to 33 Low   | 22         | 0 to 33 Low   |

The aspects of Burnout Syndrome related to the age ranges and academic condition were looked at, finding that the group of students between 20 and 25 years of age showed high values for emotional exhaustion and depersonalization and low values for personal fulfillment, which refers to strong signs of the Syndrome, with those older than 26 years of age being at lower risk; for the academic condition, high values were obtained in the three aspects for the group of students whose condition is none, and for the group of repeaters the aspects of emotional fatigue and depersonalization were found to be high, with high values, while for personal fulfillment the values obtained were in the medium term, taking into account the reference values, which shows high indications of the syndrome.



**Table 5.** Results of the Maslach Burnout Inventory Student Survey (MBI-SS-SS- 1981)- By age and academic status.

| Aspect of Burnout Syndrome | Obt. Value | Ref. Value         | Obt. Value | Ref. Value         | Obt. Value | Ref. Value.    |
|----------------------------|------------|--------------------|------------|--------------------|------------|----------------|
|                            | 15 to 19   |                    | 20 to 25   |                    | 26 & more  |                |
| Emotional Fatigue          | 21         | 19 to 26<br>Medium | 28         | 27 to 54<br>High   | 3          | 0 to 18<br>Low |
| Depersonalization          | 21         | 10-30<br>High      | 28         | 10-30<br>High      | 3          | 0 to 5<br>Low  |
| Personal Accomplishment    | 21         | 0 to 33<br>Low     | 28         | 0 to 33<br>Low     | 3          | 0 to 33<br>Low |
| Aspect of Burnout Syndrome | Obt. Value | Ref. Value         | Obt. Value | Ref. Value         | Obt. Value | Ref. Value     |
| Academic Status            | None       |                    | Repeaters  |                    | Multirep.  |                |
| Emotional Fatigue          | 48         | 27 to 54<br>High   | 44         | 27 to 54<br>High   | 2          | 0 to 18<br>Low |
| Depersonalization          | 26         | 10-30<br>High      | 24         | 10-30<br>High      | 3          | 0 to 5<br>Low  |
| Personal Accomplishment    | 54         | 40 to 54<br>High   | 39         | 34 to 39<br>Medium | 3          | 0 to 33<br>Low |

## Discussion

Academic Burnout stems from the assumption that students, specifically university students, as well as any professional, are subjected to pressures and overloads inherent to academic work. Burnout syndrome is common in medical practice, with an incidence ranging from 25 to 60%. (8) Thomas, in a representative sample of almost 6,000 primary care physicians in a randomized study, showed that female physicians were 60% more likely than male physicians to show signs or symptoms of burnout, compared to the study that was conducted, since the prevalence obtained was 30.8%, and the frequency in the female gender was 64% higher. Vilchez et al. (9), conducted a study in which it was found that 50.6% were male, 16.5%, 47.7%

and 35.3% of the students indicated having emotional exhaustion, severe depersonalization, and low personal fulfillment, respectively, (9) differing from the one presented today in that the three aspects are at a severe level.

Nakandakari (4), in his study on BS surveyed 158 human medical students belonging to 9 Peruvian scientific societies. 24.1% had a severe level of emotional exhaustion, 45.6% a severe level of depersonalization, 25.3% a low level of personal fulfillment and 57.6% had BS. A total of 60.8% of the students were doing some research work and 49.4% held some position in their scientific society, (4), similar to the study conducted, in which the aspects of emotional exhaustion is at a high level of 41%, depersonalization at a high level of 29% and personal fulfillment at the same high level with 45%.

In this order, Monserrat, and collaborators in their study (10) also found that twenty-one (12.3%) students presented symptoms of severity at the beginning of the trimester, and 34 (19.8%) after the first month ( $p = 0.059$ ). After eliminating personal accomplishment, 54 (31.6%) and 76 (44.2%) students presented severity in the rest of the dimensions ( $p = 0.016$ ), respectively, which contrasts with the study conducted in which the group of interns corresponding to semesters XI and XII presented 58% severe levels for emotional exhaustion, 32% high levels for depersonalization and 41% low levels for personal fulfillment, which allows us to conclude that medical students are at risk of suffering Burnout Syndrome due to the demands and pressure to which they are exposed in the development of their career.

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« *Academic Burnout stems from the assumption that students, specifically university students, as well as any professional, are subjected to pressures and overloads inherent to academic work. Burnout syndrome is common in medical practice, with an incidence ranging from 25 to 60%.»*

## Bibliography

1. Luna L, Mayorga A, Taype A. Síndrome de burnout en estudiantes de pregrado de Medicina Humana: un problema escasamente estudiado en el Perú. *An Fac Med.* 2015; 76 (1): 83-84.
2. Rosales RY. One-dimensional study of burnout syndrome in medicine students in Holguín. One-dimensional study of burnout syndrome in medicine students in Holguín. *Rev. Asoc. Esp. Neuropsiq.* 2012; 32 (116), 795-803.
3. Serrano Felipe T. y Colaboradores. Síndrome de Burnout en Estudiantes de Seis facultades de medicina de Colombia. 2016 -1. Estudio Multicentrico. *Cimel* 2016, 21(2) 29-34.
4. Nakandakari Mayron D y colaboradores. Síndrome de burnout en estudiantes de medicina pertenecientes a sociedades científicas peruanas, un estudio Multicentrico. *Revista Neuropsiquiatra* 78(4) 2015, 203-210.0
5. Martos Africa, Perwz F. Maria del C., Molero Maria del M., Gazquez Jose J., Simon Maria del M, Barragan Ana B. Burnout y Engagement en estudiantes de ciencias de la salud. *European Journal of Investigation in Health, Psychology and Education* 2018, Vol. 8, N° 1 (Págs. 23-36)
6. Núñez-Joseli L., Bedriñana I., Mendoza-Llamoca C., Zelada L. Prevalencia del síndrome de Burnout en estudiantes de medicina humana de una universidad pública de Ica, Perú-2016. *Rev méd panacea.* 2017;6 (2): 60 -63
7. Hederich-Martínez, C., & Caballero-Domínguez, C.. Validación del cuestionario Maslach Burnout Inventory-Student Survey (MBI-SS) en contexto académico colombiano. *Revista CES Psicología*, 2016. 9(1), 1-15.
8. Carrillo ER, Gómez HK, Espinoza de los Monteros EI. Síndrome de Burnout en la práctica médica. Artículo de revisión. *Med Int Mex.* 2012; 28(6); 579-584.
9. Vilchez-Cornejo J, Huamán-Gutiérrez R, Arce- Villalobos L, Morán-Mariños C, Mihashiro-Maguiña K, Melo-Mallma N, et al. Síndrome de Burnout en estudiantes de medicina: frecuencia, características y factores asociados. *Acta Med Peru.* 2016;33(4):282-8.
10. Guillén-Graf A.M, et al. Incremento de síndrome de burnout en estudiantes de Medicina tras su primer mes de rotación clínica. *Educ Med.* 2018. <https://doi.org/10.1016/j.edumed.2018.09.003>