

Research Article

Factors Associated with Psychological Distress Among General Medicine Students in Congo

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Abstract

Introduction: Psychological distress (PD) is a negative emotional state resulting from prolonged exposure to a stressor or an accumulation of environmental stressors. **Objective:** To identify factors associated with PD among general medicine students in Brazzaville. **Patients and methods:** This was a cross-sectional analytical study. It was carried out over a period of 4 months at the FSSA. It focused on general medicine student (GMSs) from the first to the seventh year of medicine who consented to participate in the study. The variables studied were sociodemographic, academic, related to lifestyle and the medical educational environment, related to psychological distress and related to the need for psychological help and stress management. **Results:** The prevalence of psychological distress among medical students was 63.4%. The mean age of medical students was 21.5 ± 2.8 years and the sex ratio was 0.6. Both parents were alive in 88.7%. The main source of funding was the parents in 47.5% and 70.3% of the GMSs who completed the internship had PD. In multivariate analysis, female gender (OR = 1.60; $p = 0.015$) and having at least one deceased parent (OR = 0.25; $p = 0.036$) were predictors of PD. **Conclusion:** PD is a concern for general medicine students in Brazzaville. Among the factors studied, female gender and poor perception of the educational environment are predictors of PD.

Keywords

Psychological Distress, Students, General Medicine, Congo

1. Introduction

Psychological distress (PD) is defined as a range of symptoms and experiences in a person's internal life that are commonly considered disturbing, confusing, or out of the ordinary [1]. It is a negative emotional state, resulting from prolonged exposure to a stressor or an accumulation of envi-

ronmental stressors [2, 3].

PD is characterized by the presence of symptoms, most often anxious or depressive, generally appearing in the context of life accidents or stressful events. These symptoms are multiple and can be transient. These symptoms are classified

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into four (04) orders: physical, cognitive, emotional and behavioral [4].

The prevalence of PD is higher among medical students. Medical training is associated with significant pressures, resulting from long study hours, high workload, exposure to patient death and suffering, lack of leisure and social support making medical students a population at risk of PD [5].

In Europe, a prevalence of 66.5% was found among medical students [6]. In Africa, Nigeria and Morocco, it concerned 29.9% and 66.76% of medical students respectively [13, 14]. In Congo, no studies addressing PD among students in general and specifically general medicine students (GMS) were found. The objective of this study is to identify factors associated with PD among GMS.

2. Patients and Methods

This was a cross-sectional and analytical study, with prospective data collection, conducted from March 1 to July 1, 2021, a period of 4 months, at the Faculty of Health Sciences (FSSA) of Marien NGOUABI University (UMNG) in Brazzaville.

Teaching at the FSSA is based on the LMD system, with a special focus on medical training. Medical training is divided into three cycles; the first cycle of medical studies provides basic teaching in fundamental sciences such as anatomy, physiology, genetics, embryology, biochemistry, biophysics, as well as semiology and nursing. The second cycle is primarily based on the study of pathologies, and the third cycle focuses on therapeutics and thesis writing.

The daily duration of activities is 8 hours, including four hours for practical training and four for theoretical courses. A break (2 hours and 30 minutes) is granted to students between these two activities. On Saturdays, the daily duration of activities is 4 hours, excluding the hospital internship.

The study included GMSs from the first to seventh year of medicine who consented to participate in the study and excluded those with a history of psychiatric disorders, and those awaiting thesis defense.

Data were collected using a pre-established questionnaire including:

- 1) Sociodemographic variables: age, gender, marital status of the student (single, married, in a relationship), number of children.
- 2) Academic variables: level of study, completion of a hospital internship at the time of the survey.
- 3) Variables related to lifestyle: duration of sleep, regular physical activity.
- 4) Variables related to the educational environment: The educational environment was assessed using the Dundee Ready Education Environment Measure (DREEM).

This was done in two stages:

The first phase assessed the educational environment in general:

- i. DREEM score ≤ 100 : poor perception;

- ii. DREEM score >100 : good perception.

The second time evaluated each subgroup:

- i. Perception of teaching: 0-24 (poor perception), 25-38 (more positive perception).
 - ii. Teacher perception: 0-22 (poor perception), 23-44 (good perception).
 - iii. Perception of academic performance: 9-16 (many negative aspects), 17-32 (more positive view).
 - iv. Perception of the educational atmosphere: 0-24 (terrible environment), 25-48 (more positive outlook).
 - v. Social perception of the educational environment: 0-21 (miserable), 22-28 (very good).
- 5) Variables related to psychological distress: assess using the K6, when K6 score ≤ 7 : no psychological distress; and K6 score > 7 : psychological distress.

Microsoft Excel 2016 software was used to build the database. Statistical analysis was performed using R (core team) version 4.0.3 software. Categorical variables were expressed as numbers and percentages, then compared with Pearson's chi-square test or Fisher's exact test for small numbers. Quantitative variables were expressed as mean $\pm$ standard deviation or median with interquartile range depending on the normality or non-normality of the distribution assessed by the Shapiro Wilk test. Comparison between quantitative variables was performed according to the nature of the distribution by the Student's t-test or Mann Whitney. In the final model, variables significant at 20% were incorporated into the multivariate analysis to identify factors associated with PD. The significance threshold was 5%.

3. Result

Among the 653 EMGs included, 409 had PD, representing a prevalence of 63.4%. The study population consisted of 244 (37.4%) men and 409 (62.6%) women, representing a sex ratio of 0.6. The mean age was 21.5 ± 2.8 years, with extremes of 16 and 32 years.

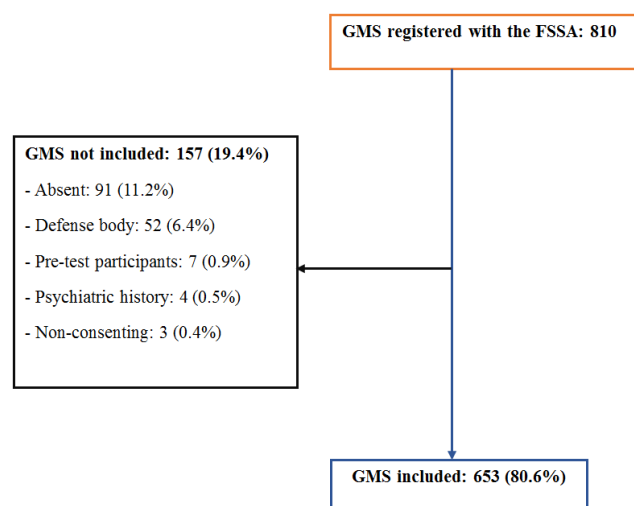


Figure 1. Population flow diagram.

The academic level of GMSs is shown in [Table 1](#).

Table 1. Distribution of GMSs according to level of study.

	Effective	Percentage (%)
Level of study (year of medicine)		
1	153	23.4
2	108	16.5
3	96	14.7
4	109	16.7
5	95	14.6
6	52	8.0
7	40	6.1

Table 2. Civil status of parents of general medicine students.

	Effective	Percentage (%)
Vital status		
The two living	579	88.7
One of the two died	57	8.7
The two deceased	17	2.6
Marital status		
Married	455	69.7
Divorced	141	21.6
Widowers	57	8.7

The distribution of GMSs according to the main source of funding is illustrated in [Figure 2](#).

[Table 2](#) presents the vital status and marital status of the parents of the GMSs.

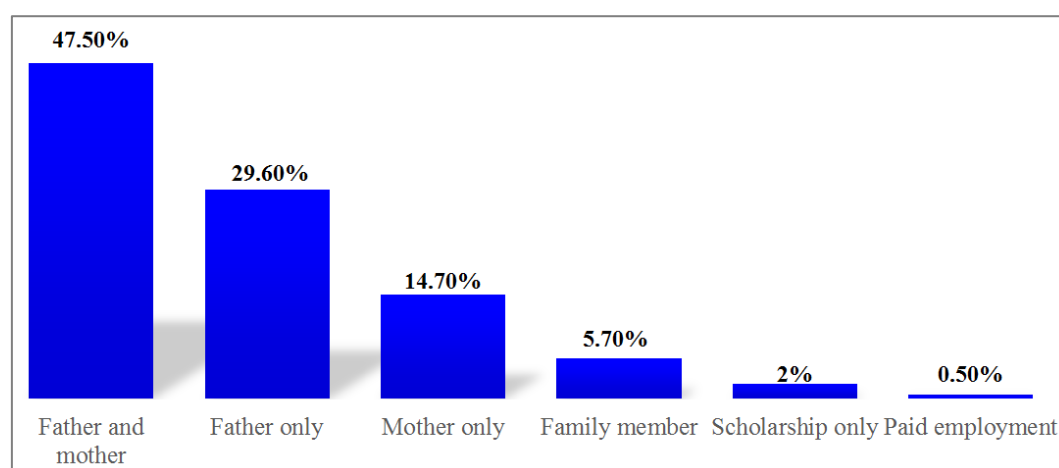


Figure 2. Distribution of the main source of funding for GMS studies.

[Table 3](#) represent the correlation between DP and GMS profile.

Table 3. Correlation between DP and GMS profile.

	Absence of DP n (%)	DP n (%)	OR [95% CI]	p-value
Age groups (year)				
[15, 20[	55 (23.0)	107 (25.9)	Reference	
[20, 25[	144 (60.3)	251 (60.8)	0.90 [0.61-1.32]	0.579
[25, 30[	39 (16.3)	54 (13.1)	0.71 [0.42-1.20]	0.208
[30, 35]	1 (0.4)	1 (0.2)	0.51 [0.03-8.38]	0.683
Gender				

	Absence of DP n (%)	DP n (%)	OR [95% CI]	p-value
Male	110 (46.0)	134 (32.4)	Reference	
Female	129 (54.0)	280 (67.6)	1.78 [1.28-2.47]	0.001
Marital status				
Bachelor	198 (82.8)	326 (78.7)	Reference	
As a couple	39 (16.3)	87 (21.0)	1.35 [0.90-2.07]	0.153
Married	2 (0.8)	1 (0.2)	0.30 [0.01-3.19]	0.332

DP: psychological distress; K6: Kessler psychological distress scale-6; OR: odds ratio; CI: confidence interval; n: effective; %: percentage

The correlation between DP and academic variables is shown in [Table 4](#).

Table 4. Correlation between DP and academic variables.

	Absence of DP n (%)	DP n (%)	OR [95% CI]	p-value
Level of study (year of study)				
1	47 (19.7)	106 (25.6)	Reference	
2	40 (16.7)	68 (16.4)	0.75 [0.45-1.27]	0.287
3	34 (14.2)	62 (15.0)	0.81 [0.47-1.39]	0.442
4	44 (18.4)	65 (15.7)	0.66 [0.39-1.10]	0.107
5	34 (14.2)	61 (14.7)	0.80 [0.46-1.37]	0.408
6	18 (7.5)	34 (8.2)	0.84 [0.43-1.63]	0.602
7	22 (9.21)	18 (4.4)	0.36 [0.18-0.74]	0.005
Internship				
Yes	196 (82.0)	291 (70.3)	Reference	
No	43 (18.0)	123 (29.7)	1.93 [1.31-2.87]	0.001

DP: psychological distress; K6: Kessler psychological distress scale-6; OR: odds ratio; CI: confidence interval; n: effective; %: percentage

[Table 5](#) shows the correlation between DP and GMS living conditions.

Table 5. Correlation between DP and the marital status of the parents of the EMGs.

	absence of DP n (%)	DP n (%)	OR [95% CI]	p-value
Vital status of parents				
The two living	199 (83.3)	380 (91.8)	Reference	
One of the two died	11 (4.6)	6 (1.4)	0.29 [0.10-0.78]	0.015
The two deceased	29 (12.1)	28 (6.8)	0.51 [0.29-0.87]	0.015
Marital status of parents				
Married	149 (62.3)	306 (73.9)	Reference	
Divorce	63 (26.4)	78 (18.8)	0.60 [0.41-0.89]	0.010

	absence of DP n (%)	DP n (%)	OR [95% CI]	p-value
Widower	27 (11.3)	30 (7.3)	0.54 [0.31-0.94]	0.030

DP: psychological distress; K6: Kessler psychological distress scale-6; OR: odds ratio; CI: confidence interval; n: effective; %: percentage

Table 6 shows the correlation between DP and funding source.

Table 6. Correlation between DP and source of funding.

	Absence of DP n (%)	DP n (%)	OR [95% CI]	p-value
Source of funding				
Father and mother	110 (46.0)	200 (48.3)	Reference	
Father only	74 (31.0)	119 (28.7)	0.88 [0.61-1.28]	0.519
Mother only	30 (12.6)	66 (15.9)	1.21 [0.74-1.98]	0.451
Paid activity	2 (0.8)	1 (0.2)	0.28 [0.02-3.07]	0.337
Scholarship only	4 (1.7)	9 (2.2)	1.24 [0.37-4.11]	0.756
Family member	19 (8.0)	19 (4.6)	0.55 [0.28-1.08]	0.088

DP: psychological distress; K6: Kessler psychological distress scale-6; OR: odds ratio; CI: confidence interval; n: effective; %: percentage

The correlation between DP and educational environment is shown in Table 7.

Table 7. Correlation between DP and the overall educational environment.

	absence of DP n (%)	DP n (%)	OR [95% CI]	p-value
DREEM global				
Good perception	185 (39.8)	280 (60.2)	Reference	
Bad perception	54 (28.7)	134 (71.3)	1.64 [1.14-2.38]	<0.008

DP: psychological distress; K6: Kessler psychological distress scale-6; DREEM: Dundee ready education environment measure; OR: odd ratio; CI: confidence interval; n: effective; %: percentage

The results of the multivariate analysis were shown in Table 8.

Table 8. Multivariate analysis.

	absence of DP n (%)	DP n (%)	OR [95% CI]	p-value
Sex				
Male	110 (46.0)	134 (32.4)	Reference	
Female	129 (54.0)	280 (67.6)	1.60 [1.09-2.35]	0.015
Vital status of parents				

	absence of DP n (%)	DP n (%)	OR [95% CI]	p-value
Living	199 (83.3)	380 (91.8)	Reference	
One of the two died	11 (4.6)	6 (1.4)	0.25 [0.06-0.86]	0.036
The two deceased	29 (12.1)	28 (6.8)	-	-

DP: psychological distress; K6: Kessler psychological distress scale-6; OR: odds ratio; CI: confidence interval; n: effective; %: percentage

4. Discussion

PD is an aspect of mental health that is increasingly being studied by researchers. It is an important indicator of mental health which, when detected early, can prevent the onset of serious mental disorders. Several sectors are concerned by this theme, particularly the university sector. Indeed, medical training is one of the training courses with a long curriculum, without an intermediate diploma. It requires intellectual but especially mental effort. This population is subjected daily to the action of stressors which make it a particularly vulnerable population [7].

The study environment is an important factor that can influence students' mental health. This work allowed us to assess, for the first time, the perception of the medical educational environment by GMSs using the DREEM questionnaire [8].

PD was more prevalent among GMSs with living parents and those with married parents. Indeed, parental supervision of their children's school performance and academic achievement can be a source of stress for GMSs with living parents; with the death and/or divorce of parents, this control tends to disappear. Also, facing a difficult situation (divorce or death of parents) can give rise to strategies to minimize other problems; the individual believes he or she has already experienced worse.

The source of funding for medical education expenses was variable; for nearly half of the GMSs, the funding of studies was the responsibility of the parents and less than 2% depended solely on the scholarship; the latter were more exposed to DP. The irregularity of scholarship payment, indebtedness, difficulty or even impossibility of participating in academic activities that could be responsible for academic failure would justify the susceptibility of GMSs dependent solely on the scholarship to be in DP.

A significant association was found between PD and eight factors: Gender, parenthood, year of internship, hospital internship, regular physical activity, marital status of parents, educational environment and stress management.

Among these factors, female gender ($p = 0.001$ OR = 1.78) and poor perception of the educational environment ($p = 0.008$ OR = 1.64) were identified as predictive factors of PD in GMS.

In this study, women were nearly twice as likely to experience

PD; most authors report the same results [9-11]. The assessment of a stressful situation varies by gender; this underlines the importance of considering the latter in stress reactivity. Women react more to stressors and generally report lower self-esteem and perception of control than men. Also, the social status of women differs considerably from that of men in several spheres. These differences may contribute to an increased stress response in women [12-15].

Poor perception of the educational environment exposed GMSs almost twice as much to PD. Although data in the literature on the correlation between the educational environment and PD are almost non-existent; perception of the environment is recognized as a determining factor of mental health [14, 16].

The protective factors identified were: parenthood, hospital internship practice and the internship year, i.e. the seventh year of medicine.

Parenthood and the practice of hospital internship have in common the social support that they could provide [10, 17].

During the internship year, satisfaction with the end of medical studies, accommodation with the teaching and assessment system, acquisition of knowledge necessary for medical practice and a sense of usefulness could have a positive impact on mental health and protect against PD.

5. Conclusion

PD is a concern for general medicine students in Brazzaville. Among the factors studied, female gender and poor perception of the educational environment are predictive factors for PD, while parenthood and hospital internship practice are protective factors. This study highlights the need to establish a psychological support system for GMSs to improve their mental health.

Abbreviations

PD	Psychological Distress
GMS	General Medicine Students
FSSA	Health Sciences
UMNG	Marien NGOUABI University
DREEM	Dundee Ready Education Environment Measure
K6	Kessler Psychological Distress Scale-6

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Ogunsemi OO, Afe T, Odusan O, Oguntona SA, Adefuye BO, Oyelekan AAA. Psychological well-being of medical students in a state university, Nigeria. *Res J Health Sci* 2013; 1(1): 90-8.
- [2] Horwitz AV. Distinguishing distress from disorder as psychological outcomes of stressful social arrangements. *Health (N Y)* 2007; 11(3): 273-89.
- [3] Marchand A, Durand P, Demers A. Work and mental health: The experience of the Quebec workforce between 1987 and 1998. *Work J Prev Assess Rehabil* 2005; 25(2): 135-42.
- [4] Ridner SH. Psychological distress: concept analysis. *J Adv Nurs* 2004; 45(5): 536-45.
- [5] Kuznetsova LM, Kuznetsov VD, Timoshenko KT. Mental health indices in senior schoolchildren and students. *Gig Sanit* 2008; (3): 59-63.
- [6] Dyrbye LN, Thomas MR, Shanafelt TD. Medical student distress: causes, consequences, and proposed solutions. In: *Mayo Clinic Proceedings*. Elsevier; 2005; 80(12): 1613-22.
- [7] Farajpour A, Raisolsadat SMA, Moghadam SS, Mostafavian Z. Perception of educational environment among undergraduate students of health disciplines in an Iranian university. *Int J Med Educ* 2017; 8: 300.
- [8] Hammond SM, O'Rourke M, Kelly M, Bennett D, O'Flynn S. A psychometric appraisal of the DREEM. *BMC Med Educ* 2012; 12(2): 2-4.
- [9] Cacouault-Bitaud M. La féminisation d'une profession est-elle le signe d'une baisse de prestige? *Trav Genre Sociétés* 2001; (1): 91-115.
- [10] Backović DV, Ilić Živojinović J, Maksimović J, Maksimović M. Gender differences in academic stress and burnout among medical students in final years of education. *Psychiatr Danub* 2012; 24(2): 175-81.
- [11] Ossou-Nguet PM, Mpandzou GA, Aloba KO, Latou DHM, Diatewa J, Bandzouzi EPS, et al. Facteurs prédictifs de l'oubli lacunaire «Effet gommage» chez l'étudiant en médecine à Brazzaville. *Ann Sci Sant* 2019; 18(2): 2-4.
- [12] Guèye M, Moreira PM, Dia DA, Ndiaye-Guèye MD, Kane-Guèye SM, Mbaye M, et al. Le syndrome d'épuisement professionnel chez les étudiants en spécialisation au Centre hospitalier universitaire de Dakar (Sénégal). *Ann Méd-Psychol Rev Psychiatr* 2016; 174(7): 551-6.
- [13] Favez N. Le couple comme vecteur de soutien social. *PSY-Emot Interv Sante* 2013; 205-31.
- [14] Boujut E, Koleck M, Bruchon-Schweitzer M, Bourgeois M-L. La santé mentale chez les étudiants: suivi d'une cohorte en première année d'université. In: *Annales Médico-psychologiques, revue psychiatrique*. Elsevier; 2009. p. 662-8.
- [15] Wouango J. L'accès des filles à l'enseignement supérieur au Burkina Faso: choix parentaux, parcours d'étudiantes et défis. *Int Rev Educ* 2017; 63(2): 213-33.
- [16] Verger P, Combes J-B, Kovess-Masfety V, Choquet M, Guagliardo V, Rouillon F, et al. Psychological distress in first year university students: socioeconomic and academic stressors, mastery and social support in young men and women. *Soc Psychiatry Psychiatr Epidemiol* 2009; 44(8): 643-50.
- [17] Yusoff MSB. Impact of summative assessment on first year medical students' mental health. *Int Med J* 2011; 18(3): 172-5.