

# Stress in child care and pediatrics postgraduate residents during the covid-19 pandemic. University of Carabobo - Venezuela

## Abstract

**Introduction:** Health personnel seem to be the category most exposed to the psychological challenges of a new normality due to the Covid-19 pandemic, facing the risk of contracting the virus or infecting others, generating various psychic responses that can be reflected in stress or anxiety.

**The Objective:** Evaluate the level of stress in relation to anxiety disorders through the application of the DSM-IV diagnostic criteria in the Postgraduate Residents of Childcare and Pediatrics.

**Materials and Methods:** Quantitative study, evaluative type of cross-sectional with a sample represented by 56 residents of postgraduate childcare and pediatrics, whose data were obtained through the application of a multiple choice questionnaire according to DSM-IV criteria.

**Results:** 66.07% presented symptoms of moderate stress or phobic disorders. The largest number of cases for this category is found in first year residents with an affectation of 68.97%.

**Conclusions:** According to DSM-IV, resident physicians present with symptoms of moderate stress.

**Keywords:** stress, anxiety, phobia, obsessive-compulsive disorder, pandemic, covid 19, medical residents

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## Introduction

Stress refers to a set of physiological, psychological and behavioral responses that occur in the presence of a real or perceived threat, generating a primitive alert response, which is present in all members of the animal kingdom, since higher areas of the cerebral cortex, found only in the human brain, are generally not involved.<sup>1,2</sup>

The terms anxiety and stress are sometimes used as equivalent. However, it should be clarified that stress is a primitive reaction to a stressor and anxiety is the reaction that continues even after the stressor has disappeared, meriting a more elaborate response involving thoughts, behaviors and physiological reactions to the conflict situation.<sup>1</sup>

Anxiety is characterized by a set of emotions and physical manifestations, which are presented in a new or demanding situation, which allows adapting to these situations in the best possible way. However, when anxious symptoms become excessive and difficult to control, they can reach the point of seriously interfering with our daily activities, becoming pathological.<sup>1</sup>

Pathological anxiety can be found in various forms, such as panic disorders, social phobia, generalized anxiety disorders, post-traumatic stress disorders, obsessive-compulsive disorder, among others.<sup>2</sup>

Anxiety crises are identified by the sudden appearance of symptoms of fear or terror, accompanied by the sensation of imminent death. During these crises, symptoms such as shortness of breath, palpitations, sensation of choking or suffocation and fear of losing control also appear.<sup>3</sup>

Social phobia, as another anxiety disorder, is determined by the presence of intense fear or anxiety in one or more social situations or

public performances in which the individual is exposed and usually leads to avoidance behaviors.<sup>4</sup>

Before the Covid-19<sup>5</sup> pandemic and in other pandemic disease outbreaks, health care professionals were already categorized as highly stressed personnel<sup>6,7</sup> and various investigations conducted on the psychological impact have shown that they are particularly vulnerable, with a high stress ratio.

Most of the studies related to Covid-19 focus on patients and underestimate the work of healthcare personnel in the face of catastrophic situations of the magnitude of a pandemic.<sup>8</sup> Of great importance are the professionals in training, such as postgraduate medical residents, who are subjected to long working hours, in direct contact with infected patients, forgetting that all this can have enormous repercussions both at the individual level and in the adequate care of patients.

Taking as a legal basis the Code of Medical Ethics and the Law on the Practice of Medicine, where it is described that in situations of catastrophe, epidemic or risk of death, the physician cannot abandon the sick. He is obliged to ensure the greatest efficiency of his work and optimum performance of the means that society places at his disposal.<sup>9,10</sup>

Health care personnel, being in the front line of community care, seem to be the category most exposed to psychological challenges of a new normality,<sup>11</sup> facing the risk of contracting or infecting others with any infectious disease, generating various emotions that put their mental health at risk.

Consequently, the physician must do his or her best; even knowing that exposure to a pandemic carries the risk of contagion and may

be associated with symptoms of anxiety, depression and other post-traumatic disorders.<sup>12</sup>

However, as has already been observed, after a year and a half of hard struggle, health care personnel remain faithful to their training principles, but spare no effort to protect themselves and their loved ones, putting their physical and mental health at risk.

Taking all these considerations into account, the objective of this research was to evaluate the level of stress in relation to anxiety disorders, through the application of the modified DSM-IV diagnostic criteria in the Residents of the Postgraduate of Puericulture and Pediatrics. To describe their socio-demographic characteristics (age, sex, residence), to identify the number of positive cases for Covid 19, to determine the level of stress in relation to anxiety disorders, and to show the level of stress according to the year of residence.

## Methodology

A quantitative, non-experimental, evaluative, cross-sectional study was carried out, located in the line of research, anthropology in health and psychomotor development, pre-established in the curricular design of the specialization, in the residents of the Postgraduate of Puericulture and Pediatrics of the Central Hospital of Maracay, Aragua State, during the period October-December 2021, prior approval of the research and bioethics committee.

The total study population consisted of 190 students of the different clinical postgraduate courses offered by the University of Carabobo at the Central Hospital of Maracay, the sample being represented by the 56 residents who are part of the 3 levels of the postgraduate course in childcare and pediatrics.

The sampling was random and intentional with the only criterion of inclusion: to be part of the group of residents of the postgraduate course of childcare and pediatrics during the period October-December 2021.

A test-type questionnaire was applied to those who expressed their desire to participate in the research, and it was explained to them what the study was about, the anonymity of their answers and the importance of their sincerity. The questionnaires were handed out at the hospital, during their work activities in the different areas of the pediatrics department.

The test was taken from a previous investigation aimed at respiratory symptomatic patients,<sup>13</sup> where they describe that it was designed based on some criteria of the Modified Diagnostic and Statistical Manual of Mental Disorders IV3 adapted to the Covid-19 pandemic. This manual was designed with the intention of classifying mental disorders and providing clear and precise descriptions of the diagnostic categories, so that clinicians and researchers can study, diagnose and exchange information on psychiatric pathologies.

Some questions were modified according to the population under study and later validated by expert judgment.

Structured in 4 parts with a total of 45 items. Distributed as follows:

The first part aimed at collecting socio-demographic data, the second part oriented to identify Mild Stress (Distress), with 09 items, the third part for moderate stress (Social Phobia Disorder) made up of 09 items, and the fourth part for Severe stress (Compulsive obsessions and anxiety crises) made up of 10 items.

After the data collection, a database was generated using the Microsoft Excel 2007 program for its emptying, it was determined

what type of disorder each of the residents presented, taking as diagnostic criteria:

WnCrisis of Distress or mild stress, the presence of at least 4 out of a total of 13 somatic or cognitive symptoms (palpitations, sweating, tremors or shaking, feeling short of breath or choking, feeling of choking, chest tightness or discomfort, nausea or abdominal discomfort, unsteadiness or dizziness, derealization or depersonalization, fear of losing control, fear of dying, paresthesias and chills or suffocation).

In social phobia disorder, the presence of anxiety symptoms (from the above 14 symptoms) and the simultaneous presence of at least 2 anxiety symptoms (from the above list of 13 symptoms) on at least one occasion, while at least one of the following anxiety symptoms must appear: flushing or trembling, fear of vomiting and urgent need or fear of urinating or defecating, during feared situations.

In the diagnosis of obsessive compulsive disorder, the presence of obsessions (recurrent and persistent thoughts, impulses or images that cause significant anxiety or discomfort, attempts to ignore or suppress these thoughts, through other thoughts or acts, recognizes that these obsessive thoughts are the product of his mind) and can also manifest with compulsions: behaviors or repetitive mental acts, in which the individual is forced to perform in response to an obsession, in order to prevent the discomfort of some event or negative situation. And finally, the awareness of irrational behaviors that limit daily life.

Taking into account the specifications requested by the modified DSM-IV to issue a diagnosis, the presence of any of the aforementioned conditions or symptoms was sought in detail in each question and classified according to the diagnosis obtained.

Subsequently, the statistical package Epi Info 7 was used for data analysis, descriptive techniques were used, according to the variables under study, presented in frequency tables, percentage, with a reliability index of 95%, the chi-square test was used for the crossing of qualitative variables, with a statistically significant "p" value <0.05

## Results

Of the study population represented by the 56 residents attending the 3 levels of the postgraduate course in Pediatrics and Pediatrics, 29 residents are first year, 15 are second year, and 12 are third year. Eighty-six percent (48) are female, 95% (53) are aged between 26-31 years, and 86% (48) have no children. Fifty percent (28) live near the hospital, 36% (36) in the homes of their relatives and 75% (42) in the company of their relatives (Table 1).

**Table 1** Socio-demographic characteristics of the residents of the Postgraduate Degree in Puericulture and Pediatrics of the Autonomous Service of the Central Hospital of Maracay

Variable	n= 56 F (%)	IC 95%*
<b>Age (years)</b>		
20-25 years old	1 (1.79)	0.05 - 9.55
26-31 years old	53 (94.64)	85.13 - 98.88
≥32 years	2 (3.57)	0.44 - 12.31
<b>Sex</b>		
Female	48 (85.71)	73.78 - 93.62
Male	8 (14.29)	6.38 - 26.22
Children	8 (14.29)	6.38 - 26.22

Table Continued....

Variable	n= 56 F (%)	IC 95%*
<b>Residence</b>		
Nearby	28 (50)	36.34 - 63.66
Distant	28 (50)	36.34 - 63.66
<b>Housing Status</b>		
Owned	19 (33.93)	21.81 - 47.81
Rented	17 (30.36)	18.78 - 44.10
Relatives	20 (35.71)	23.36 - 49.64
<b>Current Cohabitation</b>		
Family	42 (75)	61.63 - 85.61
Friends	6 (10.71)	4.03 - 21.88
Only	8 (14.29)	6.38 - 26.22

Pediatrics and Pediatrics of the Autonomous Service of the Central Hospital of Maracay.

Regarding the number of cases for Covid-19, 66.07% (37) were tested for this virus, however 51.35% (19) were negative, and of the positive cases 72.22% (13) did not present complications, and currently 100% (56) of the residents are immunized against this microorganism (Table 2).

**Table 2** Number of cases and vaccination schedule for Covid19 in residents of the Post-Grade Pediatrics and Pediatrics of the Autonomous Service of the Central Hospital of Maracay

Variable	F (%)	IC95%
<b>Covid test</b>		
Yes	37 (66,07)	52,19-78,19
No	19 (33,93)	21,81-47,85
<b>Result</b>		
n=37		
Positive	18 (48,65)	31,92-65,60
Negative	19 (51,35)	34,40-68,08
<b>Complications</b>		
n=18		
Yes	5 (27,78)	9,69-53,48
No	13 (72,22)	46,52-90,31
<b>Vaccination schedule</b>		
Yes	56 (100)	93,62-100
No	0(0)	0-0

When totaling the results of the test applied according to the diagnostic criteria for stress according to the DSM-IV anxiety disorders, it was observed that 21.23% (12) presented symptoms of anxiety, 66.07% (37) presented symptoms of moderate stress or phobic disorders and 14.29% (8) reported having presented symptoms of obsessive-compulsive disorder or severe stress (Table 3).

With regard to the level of stress according to postgraduate level, once it was clear that the symptoms of moderate stress or social phobia predominated, they were related to the years of postgraduate studies and it became evident that the highest number of cases in this category was found in the first year residents with an affectation of 68,97% (20) (Table 4).

**Table 3** Stress-related anxiety disorders in residents of the postgraduate childcare and pediatrics program of the Servicio Autónomo Hospital Central de Maracay

Variable	F (%)	IC95%
<b>Covid test</b>		
Yes	37 (66,07)	52,19-78,19
No	19 (33,93)	21,81-47,85
<b>Result</b>		
n=37		
Positive	18 (48,65)	31,92-65,60
Negative	19 (51,35)	34,40-68,08
<b>Complications</b>		
n=18		
Yes	5 (27,78)	9,69-53,48
No	13 (72,22)	46,52-90,31
<b>Vaccination schedule</b>		
Yes	56 (100)	93,62-100
No	0(0)	0-0

**Table 4** Social phobia disorder according to year of residence

Variable	R1	R2	R3
	n=29	n=15	n=12
	F (%)	F (%)	F (%)
<b>Phobia</b>			
Positive	20 (68,97)	9 (60)	8 (66,67)
Negative	9 (31,03)	6 (40)	4 (33,33)
P=0,83			

## Discussion

The postgraduate program in Pediatrics and Pediatrics is currently made up of 85.71% female medical residents, aged between 26-31 years, with no children (48) 85.71%. This is similar to previous research, such as that carried out by Medina Myriam et al, who found that the highest percentage of pediatric residents are female, aged between 25 and 32 years, mostly single, as reported in other similar research.<sup>14-16</sup>

In relation to the number of positive cases for Covid-19, we did not find a high prevalence, since of the 66.07% who underwent some type of test, only 48.65% were positive, data that coincide with other studies carried out in resident physicians in other centers.<sup>17</sup>

It is interesting to compare them with a study carried out by A. Degraeve et al.<sup>18</sup> where they observed that 27.4% of the residents in their study presented symptoms, 14.5% were screened and only 4.8% were diagnosed with positive Covid-19, data that differ from our study where more positive cases were observed.

These data do not coincide with ours, since this research was directed to urology residents, who attended first line Covid-19 patients less frequently, being their main area of development the operating rooms.

According to the results in relation to symptoms for mild stress or anxiety, moderate stress or phobia and severe stress or obsessive-compulsive disorder, there were more residents with symptoms of moderate stress or phobia, which differ from other studies such as Hummel et al.<sup>19</sup> where they reported mild levels of depression, anxiety and stress, with only 14% for moderate stress.

Discrepancy was observed regarding the levels of mild and moderate stress, however, their study population was represented by medical and non-medical personnel from different European countries, without discriminating the frequency of care of COVID-19 patients in the first line.

In this same context, it is important to mention that both studies coincide in that there is no prevalence of severe stress in medical personnel, despite being concerned about the control of the pandemic, the possibility of inflicting the infection on their relatives and nosocomial spread.

Regarding the postgraduate year, the first year residents showed more symptoms of moderate stress than those of the second and third year, a fact that is similar to that found by Navinès et al.<sup>7</sup> where it was shown that both the first year and the last year of residency present more stressful events, due to the different activities carried out by the residents depending on the year of training they are in.

## Conclusion

The conclusions derived from the present investigation allow us to describe the pediatric resident as a young person between 26-31 years of age, female, with a greater number of residents in their first year of postgraduate studies, living together with their families, thus favoring the fear of infecting their loved ones, They feel greater affectation at work and economic level during the Covid-19 pandemic, generating symptoms related to moderate stress, being this more frequent in the first year residents, who have presented symptoms of social phobia, related to possible contagion.

According to the DSM-IV, resident physicians have symptoms of moderate stress, which shows that in spite of all the chaos generated by a new lifestyle, with high workloads, isolation, and work affectation, this group of physicians has managed to keep calm in situations that could take them out of their comfort zone. Not discarding the fact that being vaccinated gives them a greater immunological security to avoid any complication in case of infection.

Therefore, it is necessary to recommend the constant use and delivery of protective material inside and outside health centers, as well as to carry out training workshops on biosecurity norms.

Encourage recreational activities to generate pleasant and relaxing emotions in all personnel who daily face the risk of contracting the virus and transmitting it to their families.

Organize motivational and wellness talks by mental health professionals to stimulate and provide tools to health personnel to reduce symptoms of anxiety and stress.

Implement work plans in which it is stipulated to rotate the residents of the critical areas from time to time. This in order to avoid perpetuating the mental, physical and emotional exhaustion that comes from being subjected to the high demands of the COVID-19 area, the emergency room and other areas that handle a high flow of patients.

Design policies to better prepare and support medical professionals in future crises.

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## Conflicts of interest

The authors deny conflicts of interest.

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