Force Fellow - Mental health and burnout syndrome among postgraduate students in medical and multidisciplinary residencies during the COVID-19 pandemic in Brazil: Protocol for a prospective cohort study

Rebeca Da Nóbrega Lucena Pinho, Thais Costa, Nayane Silva, Adriana Areal, André Salles, Andrea Oliveira, Carlos Rassi, Caroline Elizabeth Valero, Ciro Gomes, Dayde Silva, Fernando Oliveira, Isadora Jochims, Ivan Henrique Vaz Filho, Juliana Neves, Lucas Oliveira, Maria Luisa Dantas, Marta Rosal, Mayra Soares, Patrícia Kurisky, Viviane Pertele, Yasmin Faro, Ana Paula Gomides, Licia Mota, Cleandro Albuquerque, Cezar Simaan, Veronica Amado

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Abstract

Background: The COVID-19 pandemic imposes a high degree of physical, psychological and social stress on health professionals, including postgraduate students in medical and multidisciplinary residencies. This stress is associated with the intense fear of occupational exposure to the virus. These professionals are at risk of becoming physically and mentally ill not only due to the infection but also due to prolonged exposure to multidimensional stress and continued work overload.

Objective: This study aims to evaluatethe prevalence of symptoms that indicate mental disorders and burnout syndrome, as well as to determine risk factors for burnout among postgraduate students in medical and multidisciplinary residencies in Brazil

during the COVID-19 pandemic.

Methods: This will be a prospective cohort study with parallel groups. Recruitment will take place from July to August/2020. The research instruments that will be used are theDepression, Anxiety and Stress Scale (DASS-21), the Patient Health Questionnaire (PHQ-9), the Brief Resilient Coping Scale and the Oldenburg Burnout Inventory (OLBI).Two wavesof data collection will occur: the first wavewill includeddata related to sample characterization and psychosocial evaluation; the final wave will occur 12 weeks later and will include an evaluation of the incidence of burnout as well as correlations with the potential predictive factors collected in the first wave. Additionally, dataregarding work withdrawal will be collected.

Results: The project has data collection in progress. Recruitment started on July 29, 2020. Analysis of the results will begin after the initial inclusion of all participants

Conclusions: The Force Fellow Study is run by the University of Brasília to evaluate the prevalence of symptoms that are suggestive of mental disorders and exhaustion syndrome (burnout) among postgraduate students of medical and multidisciplinary residencies in Brazil, as well as to determine the predictors of burnout during the COVID-19 pandemic. Clinical Trial: The study is registered in the Research Ethics Committee from the Medical School (CEP/FM) of the University of Brasília (CAAE: 33493920.0.0000.5558).

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PROTOCOL STUDY – DESIGN AND DEVELOPMENT

Force Fellow - Mental health and burnout syndrome among postgraduate students in medical and multidisciplinary residencies during the COVID-19 pandemic in Brazil: Protocol for a prospective cohort study

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ABSTRACT

Background

The COVID-19 pandemic imposes a high degree of physical, psychological and social stress on health professionals, including postgraduate students in medical and multidisciplinary residencies. This stress is associated with the intense fear of occupational exposure to the virus. These professionals are at risk of becoming physically and mentally ill not only due to the infection but also due to prolonged exposure to multidimensional stress and continued work overload.

Objective

This study aims to evaluate the prevalence of symptoms that indicate mental disorders and burnout syndrome, as well as to determine risk factors for burnout among postgraduate students in medical and multidisciplinary residencies in Brazil during the COVID-19 pandemic.

Methods

This will be a prospective cohort study with parallel groups. Recruitment will take place from July to August/2020. The sample size will be of, at least, 1.144 participants. The research instruments that will be used are the Depression, Anxiety and Stress Scale (DASS-21), the Patient Health Questionnaire (PHQ-9), the Brief Resilient Coping Scale and the Oldenburg Burnout Inventory (OLBI).Two waves of data collection will occur: the first wave will included data related to sample characterization and psychosocial evaluation; the final wave will occur 12 weeks later and will include an evaluation of the incidence of burnout as well as correlations with the potential predictive factors collected in the first wave. Additionally, data regarding work withdrawal will be collected.

Results

The project has data collection in progress. Recruitment started on July 29, 2020. Analysis of the results will begin after the initial inclusion of all participants

Conclusion

By evaluating the prevalence of symptoms suggestive of mental disorders and burnout among postgraduate students of medical and multidisciplinary residencies in Brazil, we aim to understand the impact of dealing with this pandemic and contribute to planning measures that can alleviate this problem. Trial registration: The study is registered in the Research Ethics Committee from the Medical School (CEP/FM) of the University of Brasília (CAAE: 33493920.0.0000.5558).

KEY WORDS**:** burnout syndrome, medical residency, multidisciplinary residency, COVID-19, mental health.

INTRODUCTION

The epidemic of the new coronavirus disease SARS-CoV2 (coronavirus disease, COVID-19) was first identified in Wuhan, China, at the end of 2019, and it quickly spread across the world. The World Health Organization (WHO) declared on January 30, 2020 that the outbreak constituted a public health emergency of international importance. On March 11, 2020, the spread of COVID-19 was characterized as a pandemic by the WHO. [1]

During this pandemic, health professionals, including postgraduate students in medical residency and multidisciplinary programs, are directly involved in dealing with the disease, and consequently, they are exposed to an increased risk of contamination due to direct contact with infected patients.[2] Additionally, most of these professionals are likely to develop psychological distress and other mental health-related symptoms. This happens due to a lack of security in the face of the unprecedented scenario, an increase in the number of cases confirmed, work overload, shortage of diagnostic tests and individual protection equipment, lack of specific drugs for treatment, among other factors.[3]

Mental disorders in health professionals have gained attention in scientific studies in recent years. A high prevalence of these conditions has been observed, with a wide spectrum of manifestations, which is correlated to the intense emotional demands and adverse working conditions that these professionals face. Physicians and nursing professionals, especially nurses[4], are particularly more susceptible to the development of these problems, in addition to high levels of stress in work.[5]

In this context, burnout syndrome stands out. It is characterized as a

psychological syndrome resulting from a continuous response to chronic stressors and interpersonal factors during work. It is defined as a state of physical and mental exhaustion resulting from work activities or care provision, reflected through emotional change and irritability. As a consequence, psychiatric problems may develop, which in the burnout spectrum features emotional exhaustion, depersonalization and reduced personal achievement.[6]

Medical and multidisciplinary residency programs have a high workload and high demand. This requires many hours of dedication from postgraduate students to fulfill the established requirements. In addition, there can be a significant degree of burnout, which can interfere with decision making. Overall, burnout syndrome is associated with a variety of unfavorable consequences, including depression, risk of medical errors and negative effects on patient safety.[5] The effect of an increased workload during this critical period of a pandemic is related to a decline in the mental health of health professionals.[6]

In recent years, several studies related to burnout syndrome in health professionals have been developed; however, data published in the scientific literature referring to residents are limited.[7]

Studies that address mental health and burnout syndrome in health professionals in Brazil and worldwide are quite restricted in regard to the population of residents (medical residents and multidisciplinary residents). Additionally, there are no publications about these disorders during the pandemic of COVID-19. Understanding the impact of dealing with this pandemic on the mental health of medical residents and multidisciplinary residents is extremely relevant not only to scale the losses but also to contribute to the planning of measures that can alleviate this problem.

METHODS

Study Design

The Force Fellow study is a prospective cohort study with parallel groups. The baseline evaluation will take place at the time of recruitment in the study and will serve as cross-sectional data analysis to estimate the prevalence of symptoms that indicate mental disorders and professional burnout. A longitudinal follow-up will enable the estimation of the incidence and the identification of predictive factors of burnout.

Individuals will be recruited in the period from July to August 2020 by electronic invitations sent via the Microsoft Forms platform, in which two waves of data collection are programmed: initial contact and a12-week follow-up. At wave 1, all data related to the characterization of the sample, the psychosocial assessment and potential predictive factors related to the research outcomes will be collected. At the 12-week follow-up, the incidence of burnout will be evaluated, which will be correlated with the potential predictive factors collected at wave 1. Additionally, data on work withdrawal will be collected.

The exposed groups (parallel to each other), for longitudinal tracking purposes, will comprise individuals who are farther away from normality, in an unfavorable sense, based on the cutoff points defined for each of the instruments selected (i.e., scales to assess burnout, depression, anxiety, stress and resilience).

- Depression, anxiety and stress scale DASS – 21 (21 items)
  - Depression>**9**
  - Anxiety>**7**
  - Stress>**14**

- Patient Health Questionnaire PHQ-9 (9 items); scores ≥ **9** indicate depression
- Brief Resilient Coping Scale BRCS score (4 items); scores ≤ **13** indicate low resilience

In the “exposed” groups, we will also include individuals with lower scores on the evaluation instruments for measuring autonomy at work, the availability of PPE and subjective perceptions of pedagogical adequacy of the residency program, according to the cutoff points listed below. Individuals who have a work contract outside the residency program and who are directly involved in the care provided to patients with COVID-19 will also be part of the “exposed” group. All these elements will be taken as predictors of burnout:

- Autonomy degree scale to decide conduct at work (VAS) <= **4**
- Availability and adequacy of personal protective equipment (PPE) for assistance activities (5-point Likert scale) <= **3**
- Proper pedagogical organization of the medical residency program or multidisciplinary (VAS) <= **5**
- External working contract: **yes**
- Providing care to patients with COVID-19: **yes**

The corresponding control groups will include individuals who present levels considered to be minimally satisfactory or close to normal based on the cutoff points defined for each of the following instruments. Individuals who do not have a working contract external to the residency program and who are not directly involved in the care provided to patients with COVID-19 are also going to be part of this group. Therefore:

- Depression, anxiety and stress scale DASS – 21 (21 items)

- Depression < =**9**
- Anxiety < =**7**
- Stress < =**14**

- Patient Health Questionnaire PHQ-9 (9 items) <**9**
- Brief Resilient Coping Scale BRCS score (4 items) >**13**
- Autonomy degree scale to decide conduct at work (VAS) >**4**
- Availability and adequacy of personal protective equipment (PPE) for assistance activities (5-point Likert scale) >**3**
- Proper pedagogical organization of the medical residency program or multidisciplinary (VAS) >**5**
- External working contract: **no**
- Providing care to patients with COVID-19: **no**

Research instruments:

1- Depression, Anxiety and Stress Scale (DASS-21). This scale has been translated and validated into Portuguese[8] and consists of three subscales with seven items each. Answers are given on a 4-point scale, ranging from 0 (strongly disagree) to 3 (totally agree). The DASS-21 covers 3 symptom domains: depression, anxiety and stress. The cutoff points for each of its three domains are as follows: depression > 9; anxiety > 7 and stress > 14[9]. [TABLE 1]

TABLE 1 – DASS 21

DASS21	
0-Did not apply to me at all 1-Applied to me to some degree, or some of the time	2-Applied to me to a considerable degree or a good part of time 3-Applied to me very much or most of the time
1.I found it hard to wind down	
2.I was aware of dryness of my mouth	
3.I couldn't seem to experience any positive feeling at all	
4.I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	
5.I found it difficult to work up the initiative to do things	
6.I tended to over-react to situations	
7.I experienced trembling (e.g. in the hands)	
8.I felt that I was using a lot of nervous energy	
9.I was worried about situations in which I might panic and make a fool of myself	
8.I felt that I was using a lot of nervous energy	
9.I was worried about situations in which I might panic and make a fool of myself	
10.I felt that I had nothing to look forward to	
11.I found myself getting agitated	
12.I found it difficult to relax	
13.I felt down-hearted and blue	
14.I was intolerant of anything that kept me from getting on with what I was doing	
15.I felt I was close to panic	
16.I was unable to become enthusiastic about anything	
17.I felt I wasn't worth much as a person	
18.I felt that I was rather touchy	
19.I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	
20.I felt scared without any good reason	
21.I felt that life was meaningless	
Anxiety, Depression, and Tension/Stress in Children Marianna Szabó & Peter F. Lovibond Journal of Psychopathology and Behavioral Assessment volume 28, pages192–202(2006).	

2- Patient Health Questionnaire (PHQ-9). The PHQ-9 is a rapid assessment that has been translated and validated in Portuguese, and it has advantages over other instruments currently validated for our country[10]. It contains nine questions for screening depression, with answers given in relation to the frequency of experienced symptoms by individuals in the last two weeks: 0 (no day), 1 (less than 1 week), 2 (one week or more) and 3 (almost every day)[11]. [TABLE 2]

TABLE 2 – PHQ 9

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)			
0-Not at all	1-Several days	2-More than half the days	3-Nearly every day
1.Little interest or pleasure in doing things			
2.Feeling down, depressed, or hopeless			
3.Trouble falling or staying asleep, or sleeping too much			
4.Feeling tired or having little energy			
5.Poor appetite or overeating			
6.Feeling bad about yourself — or that you are a failure or have let yourself or your family down			
7.Trouble concentrating on things, such as reading the newspaper or watching television			
8.Moving or speaking so slowly that other people could have noticed? Or so fidgety or restless that you have been moving a lot more than usual?			
9.Thoughts that you would be better off dead, or thoughts of hurting yourself in some way			
J Gen Intern Med. 2001 Sep;16(9):606-13. doi: 10.1046/j.1525-1497.2001.016009606.x.The PHQ-9: validity of a brief depression severity measure			

3- Brief Resilient Coping Scale (BRCS). The BRCS is a one-dimensional instrument with four items to assess the respondent's ability to deal with stress in an adaptive way[12]. The answers to the items are given on a five-point scale: 5-Almost always, 4-Very often, 3-Often, 2-Occasionally and 1-Almost never. Total scores on the scale range from 4 and 20, and according to its authors, subjects with a score less than 13 are considered to have a low level of resilience [13]. [TABLE 3]

TABLE 3 – BRCS

BRIEF RESILIENT COPING SCALE				
Does not describe me at all				Describe me very well
①	②	③	④	⑤
14. I look for creative ways to alter difficult situations				
16. Regardless of what happens to me, I believe I can control my reaction to it.				
14.I believe I can grow in positive ways by dealing with difficult situations.				
16. I actively look for ways to replace the losses I encounter in life.				

Sinclair VG, Wallston KA. The development and psychometric evaluation of the brief resilient coping scale. Assessment. 2004;11:94–101.

4- Autonomy degree scale to decide conduct at work (EVA). The EVA is an analogic visual scale that assesses the perception of autonomy at one's job. Response options range from 0 to 10, with 0 indicating "I have no autonomy" and 10 indicating "I have total autonomy". Total scores < = 4 indicated a low level of perceived autonomy at work[14].

5- Perception of availability of personal protective equipment (PPE) instrument. One item was used to assess the availability of PPE for health professionals on a scale from 1 to 5: "In your professional practice, in patient care, in which period of time you have sufficient and adequate personal protective equipment (PPE) available?". The response options include 1 (In no time), 2 (In less than half the time), 3 (In half the time), 4 (More than half the time), and 5 (All the time).

6- Oldenburg Burnout Inventory (OLBI) – The OLBI is used to assess burnout through the development of a cross-culturally adapted version for both Brazil and Portugal [15]. The OLBI is a five-point self-reported scale: 5-strongly agree, 4-agree, 3-neither agree, nor disagree, 2-disagree and 1-strongly disagree. There are two dimensions, i.e., disengagement and exhaustion, and each dimension has eight items. The disengagement dimension refers to the distancing from work in terms of object and content and the development of cynical and negative attitudes and behaviors towards work. Exhaustion refers to feelings of physical fatigue, need for rest, feeling of overload and emptiness in relation to work[16]. [TABLE 4]

TABLE 4 – OLBI

OLDENBURG BURNOUT INVENTORY		
1-Strongly disagree	3-Neutral	5-Strongly agree
2-Disagree	4-Agree	
DISENGAGEMENT		
1.I always find new and interesting aspects in my work		
3.It happens more and more often that I talk about my work in a negative way		
6.Lately, I tend to think less at work and do my job almost mechanically		
9.I find my work to be a positive challenge		
11.Sometimes I feel sickened by my work tasks		
13.This is only type of work that I can imagine myself doing		
15.I feel more and more engaged in my work		
EXHAUSTION		
2.There are days when I feel tired before I arrive at work		
4.After work, I tend to need more time than in the past in order to relax and feel better		
5.I can tolerate the pressure of my work very well		
8.During my work, I often feel emotionally drained		
10.After working, I have enough energy for my leisure activities		
12.After my work, I usually feel worn out and weary		
14.Usually, I can manage the amount of my work well		
16.When I work, I usually feel energized		
Halbesleben JRB, Buckley MR. Burnout in organizational life. Journal of Management 2004; 30(6):859-879		

7- External work contract: One yes or no item is used to assess the existence of an employment relationship rather than the one of the residency.

8- Providing care for patients with COVID-19: One yes or no item is used to assess whether the respondent provides direct assistance to COVID-19 patients.

9- Stanford Presenteeism Scale (SPS-6): The SPS-6 exclusively assesses presenteeism. This instrument seeks to understand the relationship between presenteeism, health problems and productivity among workers. It consists of six items, and response options for each item range from one (strongly disagree) to five (totally agree)[17]. [TABLE 5]

TABLE 5 – SPS 6

SPS-6
Directions: Please describe your work experiences in the past month.These experiences may be affected by many environmental as well as personal factors, and may change from time to time. For each of the following statements, please check one of the following responses to show your agreement or disagreement with this statement in describing your work experiences in the past month. Please use the following scale: … I strongly disagree with the statement … I somewhat disagree with the statement …I am uncertain about my agreement with the statement …I somewhat agree with the statement …I strongly agree with the statement
1.Because of my (health problem)the stresses of my job were much harder to handle.
2.Despite having my (health, problem), I was able to finish hard tasks in my work.
3. My (health problem) distracted me from taking pleasure in my work.
4. I felt hopeless about finishing certain work tasks, due to my (health problem).
5. At work, I was able to focus on achieving my goals despite my (health problem).
6.Despite having my (health problem), I felt energetic enough to complete all My work.
Note: the words 'back pain', 'cardiovascular problem', illness, 'stomach problem', or other similar descriptors can be substituted for the words 'health problem', in any of these itens.
Paschoalin HC, Griep RH, Lisboa MTL, Mello DCB. Transcultural adaptation and validation of the Stanford presenteism scale for the evaluation of presenteeism for Brazilian Portuguese. Rev Latinoam Enferm. 2013 Jan/Feb;21 (1)

Participants and Eligibility Criteria

The eligibility criteria used for the inclusion of participants will be age greater than or equal to 18 years old and postgraduate students in medical residency or multidisciplinary residency programs that are designated for activities that involve direct patient care during the COVID-19 pandemic.

The exclusion criteria will be the explicit or assumed refusal to participate in the research as indicated by no response to telephone or electronic form interview attempts.

Sampling Size

Considering that burnout syndrome has a 28% prevalence among health professionals in general[18] and having as an objective a detection of a difference of 10 percentual points in the final proportion of affected individuals, in comparison between the exposed and control groups, after 12 weeks of follow-up, the sample size was calculated at N = 686 participants (n = 343 per group). Considering a 20% loss in the follow-up and that only approximately 72% of the individuals included in the baseline assessment (those without burnout in that initial assessment) should be analyzed after 12 weeks of follow-up, the minimum size sample was calculated to be N = 1144 participants (n = 572 per group).

Electronic forms will be sent to all participants to collect relevant data to the research, which may be completed or clarified by telephone contact, if necessary.

Clinical Data and Outcomes

The primary endpoint will assess differences in the incidence of burnout after 12 weeks of follow-up, using the Oldenburg Burnout Inventory (OLBI), between the

exposure and control groups. Burnout will be classified as occurring if the “Exhaustion” score is ≥ 2.25 and the “disengagement” score is ≥ 2.10, considering the achieved outcome (clinically relevant difference) in case of a ≥ 10% (RR ≥ 1.10) difference in the occurrence of burnout between groups.

Secondary outcomes will assess differences in exhaustion and disengagement scores from the OLBI instrument to assess burnout between the exposure and control groups, with 12 weeks of follow-up. The outcome will be considered if the RR ≥ 1.15, resulting in scores of ≥ 2.25 and 2.10, respectively. The prevalence depression, anxiety and stress symptoms at the initial visit will also be secondary outcomes, measured by the DASS-21 (21 items) and PHQ-9 (9 items) and based on previously defined cutoff scores. The 6-item SPS-6 will be administered at baseline, and the cutoff score for clinical relevance is < 18, in case of a difference of ≥ 15% (OR ≥ 1.15) when comparing the exposure and control groups. Absence from work in the previous 12 weeks will be evaluated descriptively through a survey (Microsoft Forms) in the final evaluation. Risk factors for the occurrence of burnout will be evaluated at the 12-week follow-up and compared between the exposure groups and control groups, evaluated by RRs and 95% CIs.

An interim analysis with data from the initial assessment (cross section) will be performed to estimate prevalence as soon as the recruitment of participants is over.

Statistical Analysis

Outcomes based on proportions will be compared between groups (exposed and controls) through the chi-square test (or Fisher's exact test); outcomes based on continuous variables will be compared by Student's t-test (or Mann-Whitney’s U test). The risk factors for burnout among the predictor candidates will be evaluated by a generalized linear model log-binomial.

For longitudinal follow-up, individuals indicative of burnout scores in the baseline assessment will be excluded from incidence analyses after 12 weeks, which will be conducted only in individuals without burnout at baseline assessment.

Professional categories (medical residents and those in multidisciplinary residency programs) will be compared with each other with respect to primary and secondary outcomes.

Possible imbalances observed in the comparison between groups (exposed and controls) will be adjusted by multiple linear regression, logistically or log-binomial, as appropriate.

Ethics and dissemination

This project was approved by the Research Ethics Committee from the Medical School (CEP/FM) of the University of Brasília (CAAE: 33493920.0.0000.5558), through the CEP/CONEP system - Plataforma Brasil in 05/07/2020. An informed consent form will be obtained from all participants included in the study. As this is an observational study, the main risks that are perceived by participants is the eventual discomfort in face of the personal questions that will be part of the initial clinical interview, for the application of the research instruments. The protocol will be registered in the REBEC as an observational study. Undergraduate students in medicine and other undergraduate health courses will participate in the study as collaborating researchers.

RESULTS

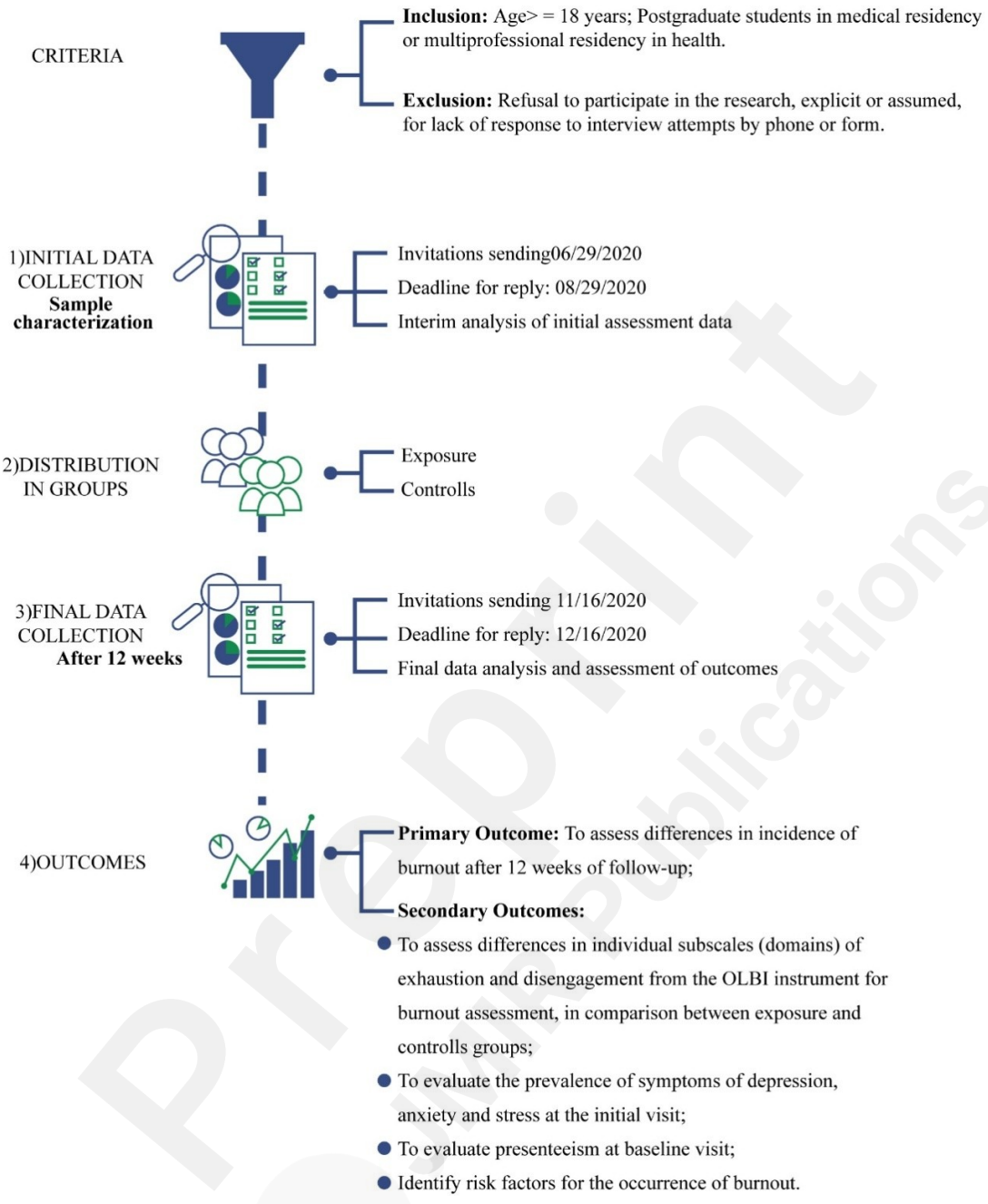
The project has data collection in progress. Recruitment started on July 29, 2020. Analysis of the results will begin after the initial inclusion of all participants.

DISCUSSION

The Force Fellow Study is run by the University of Brasília to evaluate the prevalence of symptoms that are suggestive of mental disorders and exhaustion

syndrome (burnout) among postgraduate students of medical and multidisciplinary residencies in Brazil, as well as to determine the predictors of burnout during the COVID-19 pandemic. It is known that heath care workers, in general, have encountered worsened mental health and well-being as a result of the SARS-CoV-2 pandemic [19], and since studies of this kind are quite restricted in regard to this population, our database will help to understand the impact of dealing with this pandemic and contribute to planning measures that can alleviate this problem.

STUDY FLUXOGRAM



DECLARATIONS

Conflicts of Interest

The authors declare that there are no conflicts of interest.

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Supplementary Files

Figures

Force Fellow Logo.

Study Fluxogram.

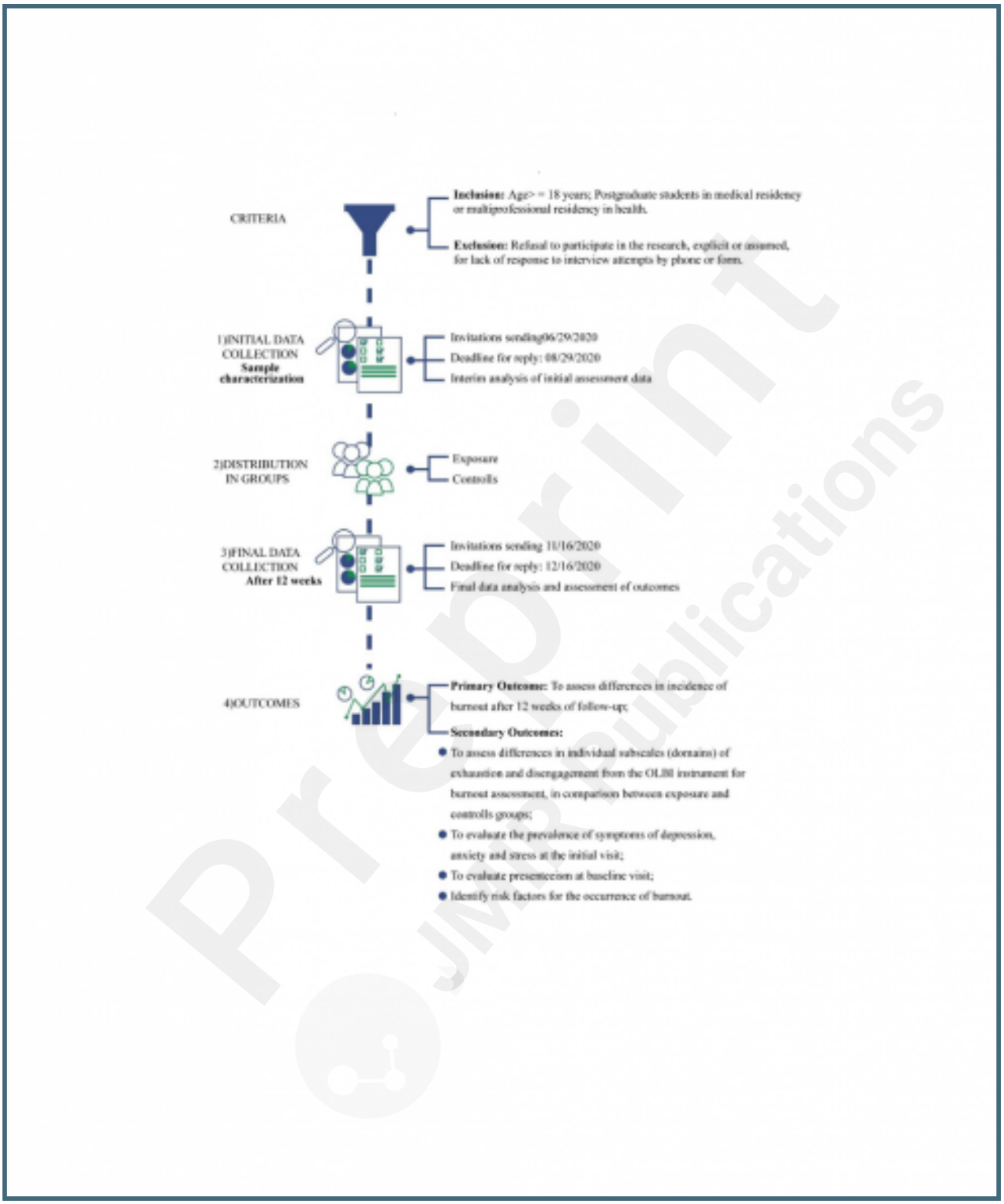

Table 1 - DASS 21.

DASS21	
0-Did not apply to me at all 1-Applied to me to some degree, or some of the time	2-Applied to me to a considerable degree or a good part of time 3-Applied to me very much or most of the time
1.I found it hard to wind down	
2.I was aware of dryness of my mouth	
3.I couldn't seem to experience any positive feeling at all	
4.I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	
5.I found it difficult to work up the initiative to do things	
6.I tended to over-react to situations	
7.I experienced trembling (e.g. in the hands)	
8.I felt that I was using a lot of nervous energy	
9.I was worried about situations in which I might panic and make a fool of myself	
8.I felt that I was using a lot of nervous energy	
9.I was worried about situations in which I might panic and make a fool of myself	
10.I felt that I had nothing to look forward to	
11.I found myself getting agitated	
12.I found it difficult to relax	
13.I felt down-hearted and blue	
14.I was intolerant of anything that kept me from getting on with what I was doing	
15.I felt I was close to panic	
16.I was unable to become enthusiastic about anything	
17.I felt I wasn't worth much as a person	
18.I felt that I was rather touchy	
19.I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	
20.I felt scared without any good reason	
21.I felt that life was meaningless	
Anxiety, Depression, and Tension/Stress in Children Marianna Szabó & Peter F. Lovibond Journal of Psychopathology and Behavioral Assessment volume 28, pages192–202(2006).	

Table 2 - PHQ 9.

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)			
0-Not at all	1-Several days	2-More than half the days	3-Nearly every day
1.Little interest or pleasure in doing things			
2.Feeling down, depressed, or hopeless			
3.Trouble falling or staying asleep, or sleeping too much			
4.Feeling tired or having little energy			
5.Poor appetite or overeating			
6.Feeling bad about yourself — or that you are a failure or have let yourself or your family down			
7.Trouble concentrating on things, such as reading the newspaper or watching television			
8.Moving or speaking so slowly that other people could have noticed? Or so fidgety or restless that you have been moving a lot more than usual?			
9.Thoughts that you would be better off dead, or thoughts of hurting yourself in some way			

J Gen Intern Med. 2001 Sep;16(9):606-13. doi: 10.1046/j.1525-1497.2001.016009606.x.The PHQ-9: validity of a brief depression severity measure

Table 3 - BRCS.

BRIEF RESILIENT COPING SCALE					
	Does not describe me at all ①	②	③	④	Describe me very well ⑤
14. I look for creative ways to alter difficult situations					
16. Regardless of what happens to me, I believe I can control my reaction to it.					
14.I believe I can grow in positive ways by dealing with difficult situations.					
16. I actively look for ways to replace the losses I encounter in life.					

Sinclair VG, Wallston KA. The development and psychometric evaluation of the brief resilient coping scale. Assessment. 2004;11:94–101.

Table 4 - OLBI.

OLDENBURG BURNOUT INVENTORY		
1-Strongly disagree	3-Neutral	5-Strongly agree
2-Disagree	4-Agree	
DISENGAGEMENT		
1.I always find new and interesting aspects in my work		
3.It happens more and more often that I talk about my work in a negative way		
6.Lately, I tend to think less at work and do my job almost mechanically		
9.I find my work to be a positive challenge		
11.Sometimes I feel sickened by my work tasks		
13.This is only type of work that I can imagine myself doing		
15.I feel more and more engaged in my work		
EXHAUSTION		
2.There are days when I feel tired before I arrive at work		
4.After work, I tend to need more time than in the past in order to relax and feel better		
5.I can tolerate the pressure of my work very well		
8.During my work, I often feel emotionally drained		
10.After working, I have enough energy for my leisure activities		
12.After my work, I usually feel worn out and weary		
14.Usually, I can manage the amount of my work well		
16.When I work, I usually feel energized		
Halbesleben JRB, Buckley MR. Burnout in organizational life. Journal of Management 2004; 30(6):859-879		

Table 5 - SPS 6.

SPS-6
Directions: Please describe your work experiences in the past month.These experiences may be affected by many environmental as well as personal factors, and may change from time to time. For each of the following statements, please check one of the following responses to show your agreement or disagreement with this statement in describing your work experiences in the past month. Please use the following scale: … I strongly disagree with the statement … I somewhat disagree with the statement …I am uncertain about my agreement with the statement …I somewhat agree with the statement …I strongly agree with the statement
1.Because of my (health problem)the stresses of my job were much harder to handle.
2.Despite having my (health, problem), I was able to finish hard tasks in my work.
3. My (health problem) distracted me from taking pleasure in my work.
4. I felt hopeless about finishing certain work tasks, due to my (health problem).
5. At work, I was able to focus on achieving my goals despite my (health problem).
6.Despite having my (health problem), I felt energetic enough to complete all My work.
Note: the words 'back pain', 'cardiovascular problem', illness, 'stomach problem', or other similar descriptors can be substituted for the words 'health problem', in any of these items.
Paschoalin HC, Griep RH, Lisboa MTL, Mello DCB. Transcultural adaptation and validation of the Stanford presenteism scale for the evaluation of presenteism for Brazilian Portuguese. Rev Latinoam Enferm. 2013 Jan/Feb;21 (1)