

Temporal Evolution of the Psychophysical Impact of COVID-19 Pandemic on Health Workers

Impacto psicofísico de la COVID-19 en trabajadores de la salud: subanálisis temporal

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ABSTRACT

Background: The Coronavirus-2 pandemic has generated clear negative psychological effects on health workers. Our objective was to describe the temporal evolution of these effects.

Methods: The results of the ImPaCTS-SAC.20 survey which evaluated anxiety, depression, burnout, lifestyle alterations and personal relationships, in the Autonomous City of Buenos Aires and Buenos Aires Province were compared in the periods of June-July and August-September, 2020. The responses of 862 health workers from the Metropolitan Area of Buenos Aires (AMBA) were analyzed.

Results: There were proportionally more cases of mild and moderate depression in August/September than in June/July, however, this difference was not statistically significant ($p=0.151$). The rate of respondents who presented anxiety remained stable: 41% vs. 41% ($p=0.941$). As the pandemic progressed, the rate of non-smokers decreased (85.1% vs. 77.4%, $p=0.036$) and a significant increase was observed in professionals who resorted to psychotherapy (15% vs. 24.6%, $p=0.001$), with no significant differences in other methods to manage stress.

Conclusions: The psychophysical consequences caused by the pandemic did not differ between the months of June and September, so they could be long-lasting and require professional psychological assistance.

Keywords: Coronavirus - Argentina - Health workers - Psychiatric disorders

RESUMEN

Introducción: La pandemia por el Coronavirus-2 ha generado efectos psicológicos negativos claros en el personal de salud. Nuestro objetivo fue describir la tendencia temporal de estos efectos.

Material y métodos: se compararon los resultados de la encuesta ImPaCTS-SAC.20, que evaluó ansiedad, depresión, *burn-out*, alteraciones de los estilos de vida y las relaciones personales, en los períodos de junio-julio y agosto-septiembre de 2020 en la Ciudad Autónoma de Buenos Aires y la Provincia de Buenos Aires. Se analizaron las respuestas de 862 trabajadores de la salud del Área Metropolitana de Buenos Aires (AMBA).

Resultados: hubo proporcionalmente más casos de depresión leve y moderada en Agosto/Septiembre que en Junio/Julio, sin embargo, esta diferencia no fue estadísticamente significativa ($p=0,151$). La proporción de encuestados que presentaron ansiedad se mantuvo estable: 41% vs 41% ($p=0,941$). Al progresar la pandemia disminuyó la proporción de no fumadores (85,1% vs 77,4%, $p=0,036$) y se observó un incremento significativo de los profesionales que recurrieron a la psicoterapia (15% vs 24,6%, $p=0,001$), sin diferencias significativas en otros métodos para manejar el estrés.

Conclusiones: Las consecuencias psicofísicas provocadas por la pandemia no presentaron diferencias entre los meses de junio y septiembre, por lo que podrían ser duraderos y requerir asistencia psicológica profesional.

Palabras clave: Coronavirus – Argentina - Trabajadores de la salud - Desórdenes psiquiátricos

INTRODUCTION

Given the expansion of the coronavirus pandemic (1) and its arrival to the Argentine Republic, the health authorities established measures for its containment and mitigation, Preventive and Mandatory Social Isolation (ASPO) being one of the most important.

(2) ASPO began on March 20, 2020 throughout the national territory, and implied social distancing and changes in the labor and educational spheres, among others. According to international data and our own ImPPaCTS-SAC.20 survey, this led to negative psychological effects such as perceived stress, anxiety, de-

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pression and a feeling of burnout, both in the general population and in health workers. (3-5) Personal relationships were also affected and there was a propensity towards sedentary lifestyle or the consumption of substances such as tobacco or alcohol. (3, 6, 7)

ASPO extended in the Metropolitan Area of Buenos Aires until November 9, 2020. However, it was less strict with the passing of months, as it allowed resuming some recreational practices and the return to certain work activities. At the same time, a tendency to decrease the number of contagions began to be appreciated, as well as a greater knowledge on the part of society and health workers on the management of the disease and the use of personal protection elements. (8-12) In this new context with fewer prohibitions, a decrease in the psychological effects mentioned previously would have been expected.

The aim of this study was to carry out a temporal analysis at two different moments of ASPO, in order to evaluate the existence of changes in the negative psychological impact on health workers.

METHODS

A subanalysis of the ImPPaCTS-SAC.20 survey, whose methodology and results have been previously published, was carried out. (3) This survey was based on an anonymous self-administered questionnaire answered by health workers in Argentina from June 2020 to September of the same year, evaluating with screening tools, the presence of anxiety, depression and burnout, as well as information on lifestyle and interpersonal relationships. Major and minor depression was defined according to the PHQ-9 questionnaire. The aim of this sub-study was to analyze the temporal trend of these variables in professionals who declared residing in the Autonomous City of Buenos Aires (CABA) or the Buenos Aires Province (PBA)..

Statistical analysis

Two time periods were analyzed: June/July vs. August/September, which were selected because they represented different epidemiological moments within the geographical area of interest, since in the first one the number of cases was higher, and labor demands, uncertainty and restrictive traffic measures, were more rigorous. (7-10)

A descriptive analysis was performed of quantitative variables, expressed as mean and standard deviation or median and interquartile range, according to their distribution. Their normality was evaluated using graphic tools (histograms, normal distribution diagrams, etc.) and the Shapiro-Wilk test. Categorical variables were expressed as frequencies and percentages. Cronbach's α was applied to determine the reliability of the diagnostic tools used (GAD 7, PHQ 9, Mini Z). Student's t test or the Mann-Whitney U test were used to compare quantitative variables, according to their distribution, and the chi-square test or Fisher's exact test for categorical variables, as appropriate. SPSS 24 (IBM) software package was used for the statistical analysis.

RESULTS

A total of 1221 health workers were surveyed, 862 of which live in CABA and PBA (69.1% and 30.9%, respectively). In the period between June/July, 610 responses were collected (70.8%), and in August/

September 252 (29.2%). In 66.5% of cases, surveyed health workers were female, 24.2% were cardiology specialists, followed by nurses (8.6%) and medical clinic specialists (6.4%), while intensive care specialists represented 2.1% of the population sample. Median age in June/July was 41 years (IQR 34-51) vs. 46.5 years (IQR 35-53) in August/September ($p=0.003$) (Table 1).

Regarding depression, anxiety and burnout, the Mini Z, GAD7 and PHQ9 scales presented Cronbach's values of 0.69, 0.91 and 0.88, respectively. There was a proportionally higher number of cases of mild and moderate depression in August/September than in June/July; however, this difference was not statistically significant ($p=0.151$). When depression was dichotomized into major and minor, no significant differences were observed in the periods analyzed: major depression in June/July was 24.8% vs. August/September 19%, $p=0.071$ and minor depression 10% vs. 13, 5%, $p=0.136$ (Figure 1). The prevalence of suicidal ideation increased non-significantly, 3.8% for the first period vs. 5.2% for the second ($p=0.354$), same as that of burnout (39.2% and 46%, respectively, $p=0.063$). The proportion of respondents who presented anxiety remained stable: 41% vs. 41% ($p=0.941$).

Discrimination perceived by health workers remained at similar levels in the two periods (36.9% vs. 43.7%, $p=0.064$). The rate of workers who presented a deterioration in their partner relationship was similar in both periods (16.7% vs. 21%, $p=0.434$). As the pandemic progressed, the rate of non-smokers decreased (85.1% vs. 77.4%, $p=0.036$) and a significant increase was observed in professionals who started psychotherapy (15% vs. 24.6%, $p=0.001$). There were no significant differences in the use of other methods to manage stress (Figure 2).

Concerning occupational safety, compliance with all the WHO recommendations about means of personal protection had an upward tendency, although they were non-significant (42% vs. 49%, $p=0.079$). Nevertheless, professionals experienced a greater sense of complete safety in their working environments (26.6% vs. 37.7%, $p=0.009$).

DISCUSSION

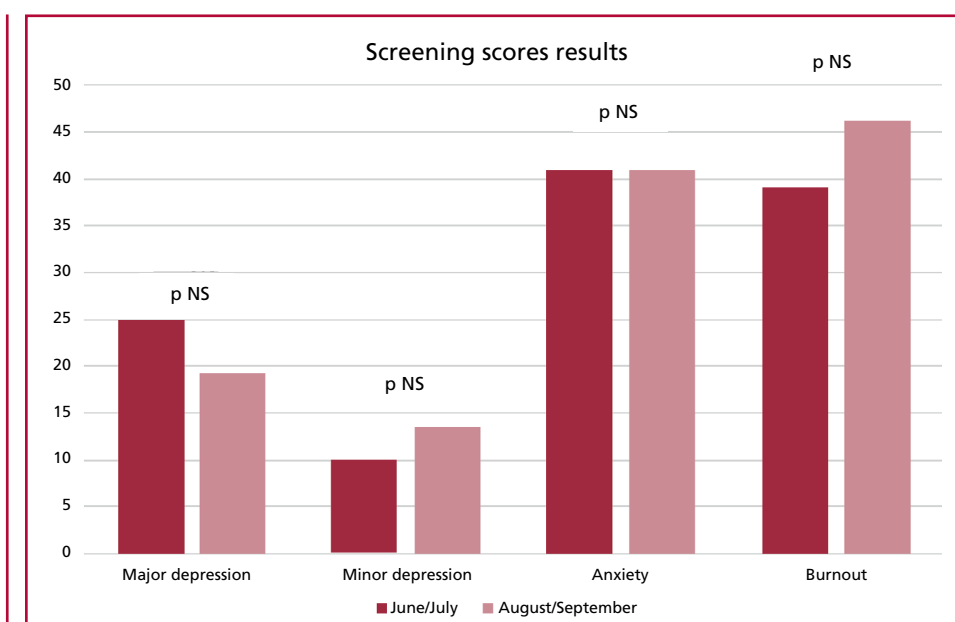
As observed in the ImPPaCTS-SAC.20 survey and in other international publications, the pandemic and the isolation measures adopted for its mitigation have unfailingly caused psychophysical health deterioration in the society, including health workers. (3, 13-16) For this reason, some measures have been adopted such as avoiding prolonged periods of isolation and providing psychosocial support to the population. (17) In this sense, a study in the city of Wuhan, where the current coronavirus pandemic began, showed improvement in symptoms of depression, anxiety and post-traumatic stress after the strictest phases of confinement were overcome. (18) Similarly, a greater sense of security or ability to handle emerging pathologies could also con-

Table 1. Specialties of the health workers surveyed in CABA and PBA

Location	June/July (n=610)	August/September (n=252)
CABA	437 (71.6%)	159 (63.1%)
PBA	173 (28.4%)	93 (36.9%)
Specialties		
Cardiology	194 (31.8%)	15 (6%)
Nursing	46 (7.5%)	28 (11.1%)
Internal Medicine	42 (6.9%)	13 (5.2%)
Psychology	27 (4.4%)	18 (7.1%)
Gynecology and Obstetrics	25 (4.1%)	14 (5.6%)
Kinesiology	21 (3.4%)	1 (0.4%)
Imaging	17 (2.8%)	24 (9.5%)
Pediatrics	6 (1%)	25 (9.9%)
General Surgery	3 (0.5%)	19 (7.5%)

CABA: Autonomous City of Buenos Aires. PBA: Buenos Aires Province

Fig. 1. Percentage of positive depression, anxiety and burnout screening scores in the periods of time analyzed.



tribute to lessening negative psychological symptoms, as shown by a study from another Chinese location in which a group of nurses who perceived in themselves higher levels of efficacy to face the coronavirus, presented lower rates of anxiety. (19)

Although between the first and second period analyzed there were progressively less restrictions on circulation, and in turn more permits were granted for work, recreational and leisure activities, no significant differences were observed in our activity in terms of global percentages of depression, anxiety and burnout in the two periods compared, although a tendency to decrease mild and moderate depression was detected, but without statistical significance.

This lack of benefit could be partly due to the fact that it was not until the end of September that contagion began a downward curve, while the number of infected subjects between June and September

remained relatively stable in the area analyzed. This result would be explained by the fact that the activity permits were not total, and that it was difficult for health workers to use their ordinary license.

On the other hand, the evidence shows the benefit of psychological assistance programs in times of crisis, as well as the importance of the feeling of care from health and government authorities. (20, 21) On this point, as an objective data, availability of personal protective equipment had an upward trend in the second period, although some areas persisted without full access to them, which could have also been reflected in the psychological status of exposed workers. Greater knowledge of the disease over the months did not translate into significant differences in the endpoints between the periods.

Another important point lies in the psychological support to the population and health and other

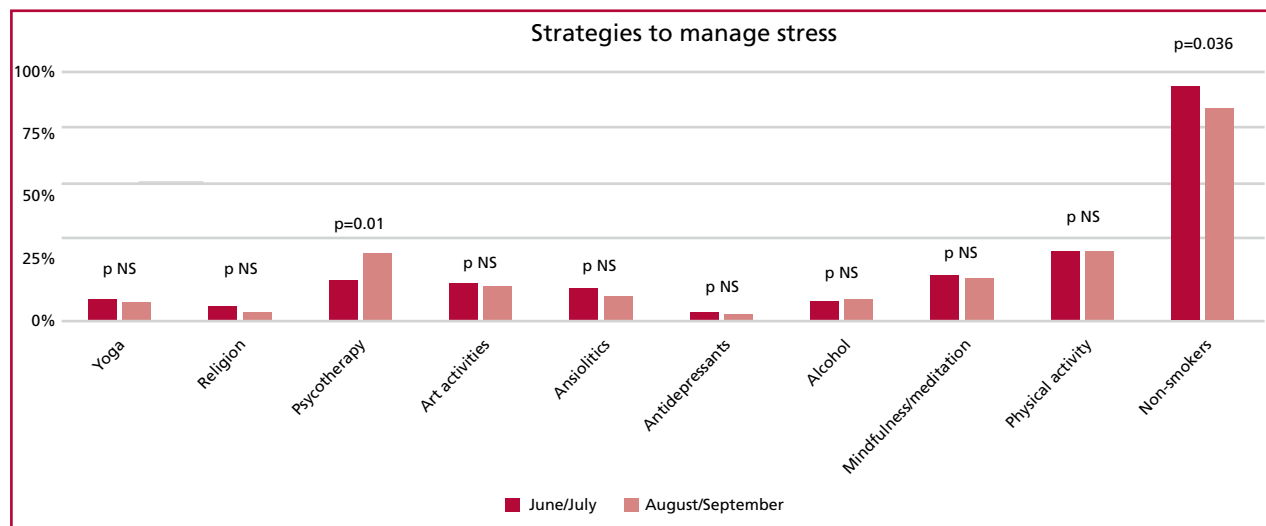


Fig. 2. Percentage of strategies used to manage stress in the periods of time analyzed

essential workers, in times of pandemic. Adequate management of emotions, self-confidence and resilience have shown to act as protective factors against psychological disorders in times of health crisis. (22-25) Several determinants, such as good family support, sleep quality and healthy habits, together with psychotherapy and stress reduction techniques, contribute to achieving the aforementioned factors. (26) In this analysis, the levels of discrimination towards health workers and the deterioration in personal relationships remained stable, but at high levels, during both periods. The performance of physical activity did not show differences between the two time periods. Regarding psychological support, it was more common for health professionals to attend psychotherapy consultation in the second phase of the survey, while other stress management techniques such as meditation did not vary. Thus, certain heterogeneity can be seen in this section, with improvement in some aspects and not in others, which, on the contrary, deepened their negative character, as occurred, for example, with the decrease in non-smokers between the first and second period (85.1% vs. 77.4%, $p=0.036$).

For all these reasons, some questions arise. Was the progressive reopening enough to attenuate the psychological symptoms? Can the negative effect of confinement measures have implications beyond the "peak" of infection? Could this psychological impact be a consequence of the chronic stress sustained over time? More research is needed to elucidate the long-term psychosocial effects of the pandemic.

Among the limitations of the study, it is clear that the data were obtained through a self-administered survey designed for this purpose, which has not been able to reach the total universe of health workers in the country, with a major participation of cardiol-

ogists (which is expected based on the corporate origin of the study). Anxiety, depression and burnout scales were used, which are population screening tools, but do not establish a definitive diagnosis in individual patients. The mini Z questionnaire is pending validation in Spanish, which, added to the low reliability score obtained in our study, should condition the prevalence of burnout to an exploratory nature.

Another limitation is that the analyzed sample corresponds only to the AMBA area, where there could be higher levels of psychological disorders because it was the most affected area of the country and remained in ASPO during the evaluated period, so it cannot be extrapolated to the rest of the country.

Although the initial measures of ASPO were stricter, and later a gradual permit for work and recreational activities began, added to the greater knowledge and adaptation to this emerging pathology, this was not reflected in an improvement of the psychological impact in health professionals. The number of contagions, high in the four months analyzed, may have contributed to this result. Had this analysis been extended, including the transitional months of ASPO towards the social distancing phase (October and November), the lower number of infected individuals could have had a different impact on the result.

The findings of this analysis warn about the intensity and duration of the events registered in the ImPPaCTS-SAC survey.20. The potential consequences in the psychosocial environment of health professionals could require a more marked intervention, with professional assistance and support programs during the pandemic.

CONCLUSIONS

The SARS-CoV-2 pandemic and the health measures adopted have led to a high incidence of depression,

anxiety, burnout, and changes in the habits and lifestyles of the health workers surveyed in CABA and PBA. The evidence regarding its long-term consequences has yielded mixed results. In our analysis, this impact did not present statistically significant differences between the months of June and September, so the effects could be long-lasting and require professional psychological assistance.

Conflicts of interest

None declared.

(See authors' conflict of interests forms on the web/Additional material.)

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