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Prevalence of Psychological Distress regarding the Pandemic Caused by COVID-19 in the Chilean Population

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Abstract: ***In Chile, the crisis caused by Covid-19 is superimposed over the sociopolitical crisis which began on 18 October 2019, creating a highly complex scenario affecting human psychological wellbeing. With this outlook, it is necessary to have reliable instruments allowing for measurement of the psychological wellbeing associated with the exclusive conditions of the pandemic, and to know the profile of the most affected people. The study objectives was to evaluate the prevalence of psychological distress in the Chilean population through the Covid-19 Peritraumatic Distress Index (CPDI) instrument, which has been used in several countries for the same purposes. The study is of a quantitative nature with a non-probabilistic sample design and it measured peritraumatic distress in two different moments of the pandemic. The sample included a total of 4379 participants. The results allow us to conclude that the CDPI has a high degree of reliability for the Chilean population, with a Cronbach's α of .901. Peritraumatic distress prevalence was 73.2% in the first measurement and 73.8% in the second, and principally affected women, students, the unemployed, people with incomes below the minimum wage, and middle-income people.***

Keywords: COVID-19, Psychological Distress, Pandemic, Covid-19 Peritraumatic Distress Index

1. Introduction

The Covid-19 pandemic caused a global health and social crisis, not only because of the high infection rate and the high numbers of deaths due to the complications the virus generates in the human body, but also because of the psychosocial effects arising from the health emergency conditions (1).

In Chile, this crisis has also taken place against the backdrop of a complex social and political scene which has developed since the so-called social uprising which began in October 2019, to a degree that, as the rectors of two of the most important Chilean universities said, "the pandemic is not unfolding on a blank slate, but on a general crisis of legitimacy" (2). Following Grez Toso (3) this is the largest sociopolitical crisis of the last few decades, arising from the profound social inequities present in Chile regarding pensions, health care, education and economic inequality, among others. This situation has meant a strong disruption to national power structures, initiating a movement for political change whose most important inflection point may be the process of drafting a new constitution via a constituent assembly. Although the definitive results of this process are still not known, it can be affirmed that it is a scenario which has strongly shaken Chilean society and which may become a factor contributing to generating stress in the population, given the context of uncertainty and political polarization which go together with it, as seen in other locations worldwide (4)(5). In fact, a recent systematic review (6) shows major evidence indicating that riots, revolutions and political protests, even when nonviolent, have a negative effect on the mental health of the population. With this background in mind, and given the complex outlook of two superimposed, parallel and interrelated crises arising in Chile, it may be pertinent to describe the situation in this country as a "syndemic", that is:

"the interaction of multiple causal agents: social conditions (poverty, inequality, injustice, social conflict, unemployment), environmental processes (climate change, socio-natural and ecological disasters) and pathological states (comorbidities between diseases like depression, diabetes and hypertension affecting many Chileans) which amplify its negative effects on individuals' lives and exacerbate the load of the diseases on certain population groups (…) As they interact synergistically, the multiple syndemic factors contribute to the etiology and persistence of mental health problems, worsening vulnerabilities and reproducing health disparities" (7) Pp.4.

If this syndemic outlook is assumed, any analysis carried out on the social and health crisis should consider the interactions of the epidemiological picture caused by Covid-19 with the health conditions which coexist in people and with the social determinants of their health (8). It is precisely because of these interactions that differentiated impacts are generated according to social and health vulnerability (age, gender, social class, territory, and more), with some sociodemographic profiles being more affected than others in biological, psychological and social terms (9).

The pandemic in Chile emerges from within this scenario, causing profound changes in daily personal routines, obligating physical distancing, periods of confinement, and over time generating a major economic deficit in much of the population due to job loss and indebtedness, among other effects (10)(11).

Along with this, researchers cannot ignore mental health indicators prior to the pandemic arising, which could mean

greater psychological impact in the population. UN studies on the subject have placed Chile among the countries with the highest morbidity load for psychiatric illnesses in the world (23.2%) with major depression, anxiety disorders and alcohol consumption reporting the highest rates, respectively (12).

It is probable that all of this context, with exceptional characteristics, generates a much more significant psychological impact among people. Studies about the topic indicate that during previous coronavirus infection outbreaks psychological distress and clinical mental health problems have appeared among people (13) and that negative effects can increase due to contextual stressors such as the sociopolitical conditions in which the pandemic appeared, as well as the degree of economic well-being of a given population at the moment the disease appeared (6). In this regard, the data from the Disease Prevention and Control Division of the Health Ministry (14) conclude that people with lower education levels, young people, women and aboriginal peoples have the greatest mental health morbidity. In the same vein of the study on the social determinants of health, Mena et al., (15) showed that the impact of the pandemic is directly related with the social class to which the affected people belong, leading to the observation that greater socioeconomic vulnerability was related to a greater rate of incidence both in Covid-19 infection probability and in the psychosocial effects which arise.

The literature also describes factors intrinsically associated to pandemics and their control which modulate the impact on populational mental health. These include elements such as the uncertainty associated with the health and social crisis, the rise of new variants and strains (16), prolonged confinements with their subsequent social isolation, changes caused in routines and human perceptions about the various dimensions of the health emergency (17). Particularly regarding prolonged confinements, factors such as loneliness and living conditions explain the psychological impact among people. The study by Bravo et al., (18) concluded that anyone living unaccompanied during confinement periods and/or in small living spaces showed higher rates of mental health impact (4.3 points more than accompanied people with better living spaces).

In this case, it should be asked what psychological impacts have arisen in the Chilean population due to the pandemic, and which population groups are the most affected in this way. The question is relevant, given that since the rise of Covid-19 various studies have shown the psychological impact which this disease has caused and its varying associated social dimensions in other latitudes. For example, social distancing and lockdowns for pandemic control have generated a sensation of isolation among people, stress, anxiety, irritability and insomnia (5) (19) (1). On the other hand, economic slowdowns and their consequences on well-being are highly stressful factors for facing the crisis (19).

Other emerging studies support this trend, suggesting that mental health consequences have been greater among women (20) and in young students (21) and even that during the pandemic, this has worsened among 65% of Chileans aged between 18 and 29 years (22). In turn, it is suggested that lack of household income or decreased income is associated with higher rates of anxious and depressive symptoms (23).

Studies on focused groups have concluded that by contrast with the pre-pandemic period, a large percentage of the population has seen the appearance and/or rise of depressive or anxious symptoms, which is perturbing. In this line, Sáez et al., (24) indicated that parents of schoolchildren experienced extreme anxiety levels and moderate stress and depression levels, and that comparing their results with other samples of studies following pandemic exposure, differences were observed, including lower scores reported in countries including China, Singapore and India (13) (25). In turn, a study by Larraguibel et al. (26) showed that 20.6% of pre-school and school-age students showed a mental health indicator (sadness, appetite changes, worry about school tasks, headache and irritability, among others). The same occurred with health care workers, who presented symptoms of psychological malaise, depression and suicidal ideation (27) (28).

Considering these factors, it is fundamental to evaluate psychological impacts since they contribute, on the one hand, to understanding the magnitude of the effects from the social and health crises on well-being, and on the other hand they make it possible to establish possible scenarios regarding mental health status and preventing eventual side-effects (7). In this context, a pertinent construct for evaluating the psychological impact of the pandemic is “peritraumatic distress”, which refers to distress arising from specific situations, or more concretely to the presence of behaviors, emotions, thoughts and symptoms associated with stress during or immediately after a traumatic event (29). It is also a psychological impact indicator which makes it possible to predict deterioration in psychological well-being, and more specifically the development of possible post-traumatic stress disorder (30). In the specific case of Chile, a study by Duarte and Jiménez-Molina (23) found that during the Covid-9 pandemic period, 19.2% of the sample presented psychological distress. The results from this study also showed that anxiety and depression symptoms were more frequent among women than men. While these are relevant data, given that they allow us to assume that the pandemic produces a psychological impact on the population, the characteristics of the instrument used in the study, which was not specifically constructed to evaluate the effect of Covid-19, do not allow us to affirm with empirical certainty the existence of a relation between both variables. To move in the preceding direction, an instrument must be used which is specifically designed for said ends, along with carrying out evaluations at different moments during the pandemic, so that epidemiological behavior, pandemic control strategies, and socioeconomic conditions can have contingent variations, leading to differentiated impacts on human wellbeing.

Considering the aforementioned aspects, Qiu et al (31) created the Covid-19 Peritraumatic Distress Index (hereinafter CPDI) whose goal was to measure levels of psychological distress regarding Covid-19. This instrument, whose first application was in China during January 2020, has been validated and used in various countries to date,

showing high reliability levels (7) and reporting results about psychological distress in the pandemic context experienced in various locations worldwide. Figure 1 shows distress levels reported in Spain (32), Brazil (33), Italy (34), Bangladesh (35), Iran (36) and India (37).

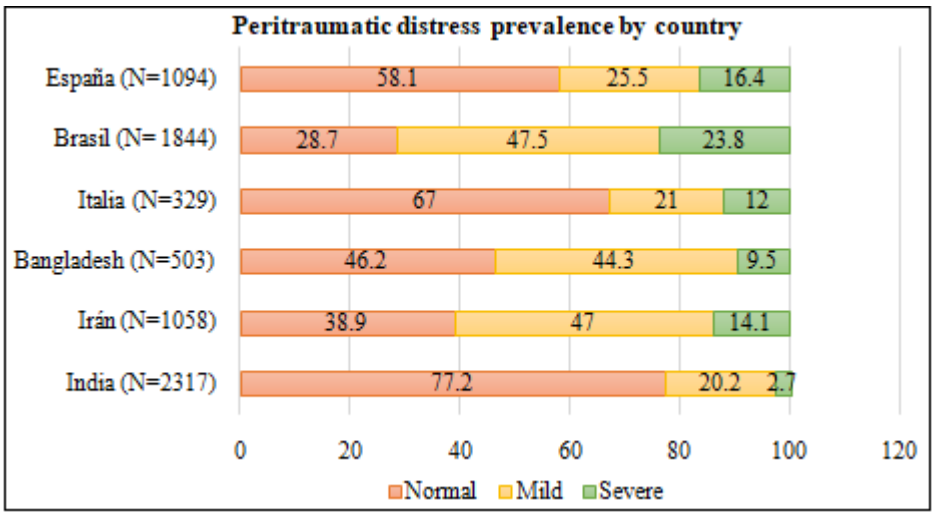

Figure 1: Psychological distress prevalence in countries which have used the Covid-19 Peritraumatic Distress Index (CPDI)

this shows that in all countries which have seen evaluations of peritraumatic distress caused by the pandemic, some degree of impact from the crisis can be observed, whether moderate or severe. However, it should be noted that, given the cultural and contextual characteristics of each country, along with the epidemiological behavior of Covid-19 and the measures which each government has taken to face the health crisis, it is not pertinent to establish comparisons between countries.

Furthermore, all of the aforementioned studies mentioned having found greater levels of distress among females, when compared with the impact found among men.

It is also possible that psychological impact can present different degrees of expression as a function of other sociodemographic variables including age, occupation, income level or education level, since it is reasonable to assume that human living conditions modulate the psychological impact caused by the pandemic (38).

Given these points, and the need to have information on the levels of psychological distress in the local population, this study aimed to characterize the prevalence of psychological distress in the Chilean population, following the methodology that other countries have used for these same purposes. through the use of the Covid-19 Peritraumatic Distress Index Instrument (CPDI) (CPDI) (32) (33) (34) (35) (36) (37).

2. Materials and Methods

2.1 Procedure

The study procedure included five work stages, described hereinafter:

1) First, the instrument was translated into Spanish via the back-translation method to decrease inconsistencies.
2) Next, a content validation process was done via a panel of experts under the V analysis methodology from Aiken (39). This methodology offers a magnitude which reports on the proportion of judges showing positive valuation of the appraised object, which can be adopted as a criterion for decision-making regarding reviewing or eliminating items. To apply this methodology, two questions were formulated (Likert scale-type replies) referring to the clarity and pertinence of the statements in each one of the items, as well as about the level of coherence existing between them and the dimension which they measured. The criterion established for eliminating items and/or reviewing them for modification was an Aiken's V value below .7 (equivalent to medium scores on the Likert-type scale below 3). The expert panel included 12 judges proportionately linked to the clinical, academic and research fields.
3) Regarding the field work, the study considered two evaluation moments with different participant simples, whose goal was to establish peritraumatic distress prevalence in two periods with differentiated contexts and contingent conditions. The first measurement was done between the months of July-September, 2020, five months after the pandemic was declared and during the weeks when the country underwent the strictest lockdowns, with 1732 Covid-19 deaths (40) and a national unemployment rate of 13.5% (41). The second measurement was done during the month of April, 2021 – slightly over a year after the pandemic was declared, with a total of 3109 deaths due to Covid-19 (40), and unemployment rate of 9.3% (41) and coinciding with the activation of lockdowns following the vacation permits due to a sustained rise in infections (second wave) and with the beginning of the vaccination campaign. In both cases, information gathering was done via an online tool. All participants gave informed consent when they began answering the instrument. To choose the participants who ultimately comprised the study sample, we considered people with a stable residence in Chile during the pandemic period (March 2020 onwards) and who were legal adults. The instrument was widely distributed via social media

(Twitter, Facebook, and others) and specifically via public and private institutions (municipalities, universities, social services and organizations)

4) Once the instrument was applied, and considering the first measurement (July-September 2020) reliability and internal consistency analyses were done to determine the psychometric properties of the "Covid-19 Peritraumatic Distress Index (CPDI)" in the Chilean population.
5) Finally, to characterize population results, descriptive and inferential statistics were used considering different sociodemographic variables, analyzing the psychological distress rate in two moments of the pandemic (July-September 2020 and April 2021), each one with a specific and differentiated participant sample.

2.2 Instruments

The Covid-19 Peritraumatic Distress Index (CPDI) includes 24 items which are grouped into four evaluation dimensions: State of mood; Changes in behavior and cognitive abilities; Tiredness and hyper-reactiveness; Somatization. The aim of the instrument is to measure frequency of anxiety, depression, specific phobias, cognitive changes, avoidance and compulsive behavior, physical symptoms and loss of social functioning during the last week linked to the context of the Covid-19 pandemic. The items have a Likert scale-type response structure with five options from zero (absolutely nothing) to four (total presence). Total score on the instrument ranged from zero to 100. According to the parameters established for the Chinese population a classification is established for the score obtained as a function of the following levels: below 28 points indicates that there is no peritraumatic distress, 28 to 51 points is considered to be moderate distress, and over 51 points means severe distress. The Cronbach's Alpha for the original version of the CPDI is 0.95 ($p<0.001$). In the case of the present study, apart from applying the instrument the data gathering process was complemented with a sociodemographic survey in order to characterize the participants. This instrument considered variables including gender, occupation and income, among others.

2.3 Participants

For the first measurement, a sample of 1911 participants was reached, while for the second measurement the sample included 2468 participants.

In both evaluations, the sample had a non-probabilistic snowball design (42). Tables 1 and2 show the characteristics of the sample.

Table 1: Characteristics of the sample in the first evaluation

	EDAD					**GÉNERO**		
	Entre 18 y 25 años	Entre 26 y 39 años	Entre 40 y 54 años	Entre 55 y 69 años	Más de 70 años	Masculino	Femenino	Otro
Frecuencia	707	561	445	170	28	474	1425	12
Porcentaje	37%	29,4%	243,3%	8,9%	1,5%	24,8%	74,6%	0,6%

	ACTIVIDAD					
	Labores domésticas	Trabajadores dependientes	Trabajadores independientes	Estudiantes	Jubilados o pensionados	Desempleados
Frecuencia	50	841	157	706	42	93
Porcentaje	2,6 %	44%	8,2 %	36,9%	2,2%	4,9%

Categoría	**NIVEL DE INGRESOS (en US dólares)**							
	Sin ingresos	Menos de 392	Entre 393 y 680	Entre 681 y 1087	Entre 1088 y 1645	Entre 1645 y 2403	Entre 2403 y 3314	Más de 3314
Frecuencia	622	202	202	272	258	185	80	90
Porcentaje	32,5%	10,6%	10,6%	14,2%	13,5%	9,7%	4,2%	4,7%

Categoría	**NIVEL DE ESTUDIOS**				
	Educación básica	Educación media	Educación Técnica	Educación Universitaria o Superior	Educación de Postgrado
Frecuencia	13	647	137	694	419
Porcentaje	0,7%	33,9%	7,2%	36,3%	21,9%

Table 2: Characteristics of the sample in the second evaluation

	EDAD					**GÉNERO**		
	Entre 18 y 25 años	Entre 26 y 39 años	Entre 40 y 54 años	Entre 55 y 69 años	Más de 70 años	Masculino	Femenino	Otro
Frecuencia	815	638	600	366	77	595	1873	26
Porcentaje	32,6,9%	25,5%	24,0%	14,7%	3,1%	23,8%	75%	1%
	ACTIVIDAD							

	Labores domésticas	Trabajadores dependientes	Trabajadores independientes	Estudiantes	Jubilados o pensionados	Desempleados
Frecuencia	55	1138	228	861	105	55
Porcentaje	2,2 %	45,6%	9,1%	34,5%	4,2%	2,2%

Categoría	NIVEL DE INGRESOS (en US dólares)							
	Sin ingresos	Menos de 392	Entre 393 y 680	Entre 681 y 1087	Entre 1088 y 1645	Entre 1645 y 2403	Entre 2403 y 3314	Más de 3314
Frecuencia	344	287	303	414	458	302	205	185
Porcentaje	13,8%	11,5%	12,1%	16,6%	18,3%	12,1%	8,2%	7,4%

Categoría	NIVEL DE ESTUDIOS				
	Educación básica	Educación media	Educación Técnica	Educación Universitaria o Superior	Educación de Postgrado
Frecuencia	4	731	171	953	636
Porcentaje	0,2%	29,3%	6,8%	38,2%	25,5%

2.4 Data analysis

The data gathered were extracted to Microsoft Excel, and subsequently imported and analyzed using SPSS (Statistical Package for Social Sciences) version 24. An initial univariate analysis was done of all the variables to evaluate sample distribution. After this, reliability analyses and non-parametric inferential and descriptive-type analyses were done, as the reliability analysis results had shown an atypical sample distribution ($p>.05$). The inferential analysis included comparison of medians via the Mann Whitney U and Kruskal-Wallis tests.

3. Results

3.1 Content validity

Following the results derived from the content analysis done via the expert panel, we decided to eliminate item 22 as it did not reach the values established by Aiken's V (above 0.7). Furthermore, all dimensions of the CDPI (State of mood; Changes in behavior and cognitive abilities; Tiredness and hyperreactivity; Somatization) reached acceptable values. Total Aiken's V values for CDPI appear in Table 3.

Table 3: Content validation via the Aiken's V methodology for the Covid-19 Distress Peritraumatic Index (CDPI) scale

Ítem		V Aiken
	Global	
1	Me siento más nervioso y ansioso que de costumbre	.94
2	Me siento inseguro y he comprado muchos productos. como medicamentos. desinfectantes. guantes. máscaras y/u otros suministros para la casa.	.83
3	No puedo parar de imaginar que mi familia o yo nos infectamos y me siento aterrado y ansioso al pensarlo.	.87
4	Me siento vacío e indefenso. sin importar lo que haga.	.83
5	Siento empatía por los pacientes con COVID-19 y sus familias. Me siento triste por ellos.	.90
6	Me siento impotente y enojado con las personas a mi alrededor. con los gobernantes y los medios de comunicación.	.92
7	Pierdo la esperanza en las personas que me rodean	.77
8	Reviso información sobre COVID-19 todo el día. Aunque no sea necesario. no puedo evitar hacerlo.	.88
9	Creo en la información sobre el COVID-19 de todas las fuentes sin evaluarlas.	.85
10	Prefiero creer en las noticias negativas sobre COVID-19 y ser escéptico sobre las buenas noticias.	.87
11	Comparto constantemente noticias de COVID-19 (principalmente negativas).	.90
12	Evito ver noticias de COVID-19 porque estoy demasiado asustado para hacerlo.	.90
13	Estoy más irritable y tengo conflictos frecuentes con mi familia.	.92
14	Me siento cansado y a veces incluso agotado.	1.00
15	Debido a la ansiedad que siento. mis reacciones se han vuelto más lentas.	.96
16	Me cuesta concentrarme	.98
17	Me cuesta tomar cualquier decisión.	.92
18	Durante la epidemia de COVID-19. frecuentemente me he sentido mareado. he tenido dolor de espalda o molestias en el pecho.	.94
19	Durante la epidemia de COVID-19. frecuentemente he experimentado dolor de estómago. hinchazón u otras molestias estomacales.	.94
20	Me siento incómodo al comunicarme con otras personas.	.88
21	Últimamente. rara vez hablo con mi familia.	.85
22	No duermo bien. Siempre sueño que mi familia o yo nos contagiamos con Coronavirus.	.67
23	He perdido el apetito.	.87
24	He tenido estreñimiento o ganas frecuentes de orinar.	.85
Dimensión		

D1	Estado de ánimo negativo	.87
D2	Cambios en el comportamiento y en las habilidades cognitivas	.87
D3	Cansancio e hiperreactividad	.93
D4	Somatización	.85

3.2 Psychometric properties of the instrument

The Cronbach's α coefficient for the Chilean version of the CPDI was .901. Correlations between the score for each item and the total score on the instrument were over .8, except for items 9 and 11. Table 4 shows the Cronbach's α coefficients for the CDPI items.

Table 4: Cronbach's α values for the Chilean version of the Covid-19 Distress Peritraumatic Index (CPDI).

Alpha de Cronbach global	.901
ítem	Alpha de Cronbach
1	.897
2	.902
3	.899
4	.895
5	.904
6	.901
7	.902
8	.905
9	.909
10	.904
11	.906
12	.903
13	.898
14	.897
15	.896
16	.897
17	.897
18	.899
19	.898
20	.899
21	.906
23	.903
24	.901
Dimensión	
D1	.780
D2	.605
D3	.855
D4	.760

3.3 Prevalence of psychological distress in Chilean sample. First evaluation

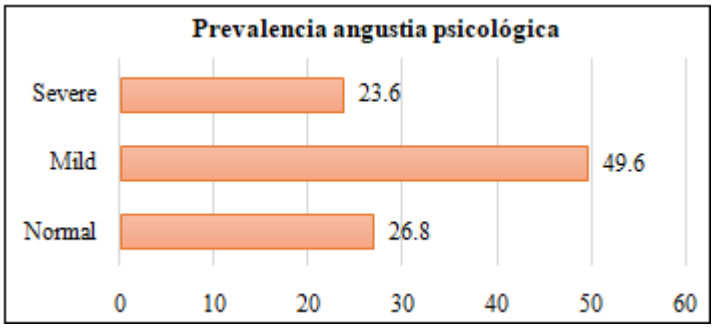

Figure 2: Prevalence of psychological distress in the Chilean population.

Considering the categories "moderate" and "severe", figure 2 shows the total prevalence of psychological distress in the participant sample from the first evaluation was 73.2%. Specifically, 49.6% of the participants presented moderate distress and 23.6% had severe distress. A higher prevalence of peritraumatic psychological distress was also found among women compared with men (p<.001); women presented a 27,2% severe distress rate, and men were at 12,9%.

Analyzing the data gathered as a function of the type of activity done by the study participants allows us to see that 81.7% of the student population reported some level of distress, with this group having the highest rate when compared with other groups (p<.001) which do different activities (employees, independent workers, unemployed people, retirees and people in domestic work).

If the results are examined with the participants' income levels in mind, we can see that 81.7% of the population with the lowest incomes presents moderate and/or severe distress. We can also see that as incomes rise, the prevalence of peritraumatic psychological distress decreases (p<.001).

Second evaluation

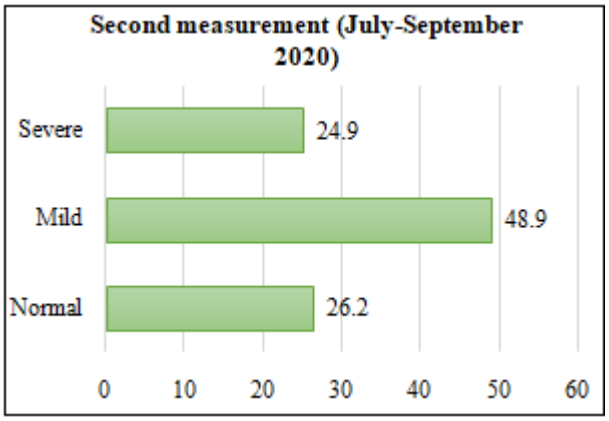

Figure 3: Psychological distress prevalence in the Chilean population

Figure 3 shows that the prevalence of peritraumatic psychological distress in the participant sample for the second evaluation is 73.8% (considering the moderate and severe categories). Specifically, 48.9% of the participants presented moderate distress, and 24.9% had severe distress.

For women, 28.4% presented severe distress compared to men, who reported a 12.3% severe distress level (p<.001).

Figure 4 shows the prevalence of the sociodemographic groups which presented statistically significant differences in psychological distress.

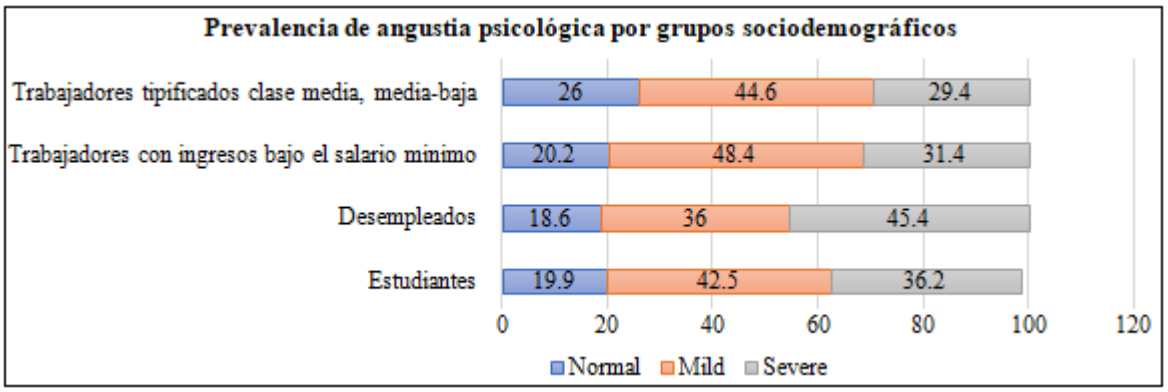

Figure 4: Psychological distress prevalence by sociodemographic groups

At 81.4%, the unemployed population presents the greatest distress (moderate or severe), if the data from this second evaluation are analyzed as a function of the activity done by study participants (p<.001). When we examine the results by income level, we can see that two groups show statistically significant differences from the rest. On one side, 79.8% of people with incomes below the minimum wage established in Chile reported severe or moderate distress (p<.002), while around 74% of the population with incomes between 393 and 1645 USD reported some degree of peritraumatic psychological distress (p<.001).

If the results are reviewed by the participants' activity, we can observe that the student population reported a 78.7% rate (p<.001) of psychological distress, which was the group presenting the most distress when compared with those comprised of people doing other types of activities.

4. Discussion and Conclusions

The CDPI for the Chilean population has adequate psychometric properties, reaching a Cronbach's α of .901. These results are similar to those obtained in measurements carried out in other countries and allow it to be considered a good tool for measuring peritraumatic psychological distress in the context of the pandemic caused by COVID-19. This fact is relevant, since existing information to date regarding the disease is that it is a virus which will probably be with us for a long time, given the mutation capacities it has shown (43)(44). In this context, it is useful to have a tool which makes it possible to do successive evaluations regarding the distress level experienced by the population during each stage of the social and health crisis. Having this information is an advantage for designing measures intended to diminish negative impacts, given the feasibility of studying the modulation of degrees of distress due to contextual changes arising during the progression of the pandemic. For instance, knowing how distress varies in a context of intensified social control measures implemented in a given moment, or considering the effect of the political outlook in which the crisis unfolds, are possible topics when one has a reliable instrument making it possible to take successive snapshots of the psychological impact of the pandemic. This information could support the design of public policies based on empirical evidence to prevent the deterioration of mental health in the population moving forward. Similarly, incorporating a sociodemographic survey into future evaluations, as done in this case, would make it possible to consider different emphases according to the specific conditions of each population group, thus moving towards diversifying the measures to implement. This latter step appears to be an urgent need, given the magnitude of the impact which the crisis has had on the Chilean population (as analyzed herein).

While it is evident that it is not strictly pertinent to compare the results obtained from the Chilean population with those from other countries, the high levels of peritraumatic distress detected are still notable. In the two measurements of the present study, the results show the highest rates when compared with findings from other latitudes. The outlook is concerning, and it appears to be necessary to look further into those factors which could lie behind these results. In this regard, there are some elements which, at first glance, could be related with this notably deteriorated situation. First, as mentioned during the introduction of this study, it is inescapable to consider the various types of inequality creating tension in Chilean society (1) which led to the greatest sociopolitical crisis of recent years in this country (3). In Chile, as previously mentioned, the pandemic arose in a crisis of ongoing sociopolitical crisis, creating a synergy which may explain part of the high rates of distress detected. There is some background in the literature to support this hypothesis. First, as affirmed in studies done by the International Monetary Fund (IMF), there is a strong relation between pandemics and sociopolitical crises, since the former manifest and aggravate pre-existing social problems, raising the possibilities of social protests (45). In this context, aspects including a lack of institutional trust, bad governance, poverty or growing inequality help exacerbate the sensation of uncertainty, polarization and conflict within societies, all of which lead to a negative impact on the mental health of the population (4)(6). On the other hand, and also as previously mentioned, it is probable that high distress rates found in the present study are also related with previous mental health indicators in Chile which showed it to be in profound deterioration before the health crisis (12). Since it is known that pandemics per se involve a negative impact on human mental health, it should be asked (in line

with the results of the present study) how this effect is amplified when the mental health baseline is altered. Regarding this point, for an example we can assume a priori that undergoing a profoundly stressful situation, as in a pandemic situation, with prior depression or another form of psychopathology may be a motive for greater distress levels than the "normal" levels from a social and health crisis. This background and other related points are invitations to perform longitudinal studies on how populational distress levels may evolve, in order to design appropriate mitigation plans.

Regarding this final point, even when the study performed does not have this characteristic, and therefore cannot allow us to evaluate the evolution of distress surrounding COVID-19, it is still relevant to consider both the similarities and the changes which arise between both of the two evaluations done, since they may suggest aspects to explore in future longitudinal studies. Regarding the similarities, the first notable one is the similarity of the figures obtained for overall distress rates (moderate distress + severe distress) in both evaluations (76.4% in the first, 75.1% in the second). The next notable point is that, when one considers that both evaluations were done during highly complicated moments for public health (July-September 2020 and April-May 2021) given that we found ourselves facing infection peaks, mandatory lockdowns and an important economic crisis as well, it seems understandable that the results would be similar in both evaluations. This is why it is worth asking about eventual changes in these results, now that the national health and economic outlooks have changed, a question which invites us to carry out new evaluations about the subject. In both evaluations, we also see that both women and students were demographic groups which stood out for higher distress levels when compared with other sociodemographic categories. Regarding gender, the results correspond consistently with findings from other countries including Brazil, Spain, France, Iran and China. It should be considered that in Chile, during the pre-pandemic period, women already reported higher levels of depressive symptoms (20), and the results of the present study lay the frame for future studies (possibly qualitative) to consider the influence they have on this greater psychological impact. These factors include the extra burden of housework, gender roles and social and cultural conditions faced by women. Similarly, the results which show higher distress levels from both evaluations among students imply a need for future exploration regarding which elements associated with this role in society translate into greater vulnerability in an adverse context, such as the pandemic.

Regarding the differences between the two evaluations performed, we can highlight the fact that the second measurement detected high distress levels among some sociodemographic groups which did not report these tendencies in the first. Specifically, we observed that, alongside women and students – who showed higher distress levels in the first measurement – we can also see, in the second survey, the groups comprised of unemployed people and people with lower-middle income levels. These results could arise from the drawn-out timeframe of the crisis, as well as its subsequent impact in economic terms, among other factors which should be analyzed with more detail in future studies.

Beyond the specific issues associated with each particular sociodemographic groups, the aforementioned differences refer to an overall whole, namely the fact that the health crisis is also a social, cultural and even political crisis. Due to this, the study herein shows us that the risk of disease caused by Covid-19 is not the only factor associated to high distress levels in the population. On the contrary, the data gathered and the analyses performed indicate that the contextual factors within which the pandemic progresses have an important modulating effect on the final impact in terms of psychological effect on the population. Because of this, the previously analyzed concept of a "syndemic" appears to be a focus which allows us to approach a situation of major psychosocial complexity for the Chilean population with greater precision (9). We are facing a reality which will probably have negative consequences into the near future in terms of deteriorated mental health among the population (19).

5. Limitations

This study has a series of limitations which must be detailed in order to clarify the conclusions which it can provide. First, the methodological design characteristics used did not allow us to do an inferential analysis regarding the evolution of distress in the Chilean population, as the two samples considered in the study were different. Longitudinal studies would make it possible to evaluate the evolution of peritraumatic distress, as well as identifying factors associated with peritraumatic distress (e.g. the social conditions of the population for facing the health and social crisis). On the other hand, it appears convenient to determine the incidence of the general perception of the population about various contextual dimensions which define the social and health crisis caused by Covid-19 upon various distress indices. Furthermore, while the focus of the study considered the crisis as a reality which has surpassed strictly health-related aspects by leaps and bounds, there are various variables which were not considered in the present study and which should be part of new studies with the goal of moving towards a more complete diagnosis of the situation associated with the pandemic which Chile faces. In this sense, aspects including perceptions among the population about the approach of the current government for pandemic control, or the sensations associated with the sociopolitical crisis, which are the backdrop of the health crisis, are aspects which should be evaluated in future studies.

Next, this study did not control for contextual variables, including the quarantine time which people had undergone at the moment of doing the questionnaire, and the differential quarantines by territory.

Finally, as previously touched upon, it is relevant to highlight that, given the quantitative focus of the survey performed, we do not currently have information allowing us to have a deeper comprehension of the specific factors translating into greater psychological impact of the pandemic among certain population groups. For instance, while some factors can be assumed to mean a greater

distress burden among women, such as the extra load involved in superimposing childrearing tasks on educational and labor demands, it is necessary to complement this study with other qualitative investigations allowing us to further probe the lived situation of this and other disfavored groups in our population. Similarly, another research front which can open up based on the findings of this study lies in the possibility of finding and describing psychosocial profiles which make it possible to group together different emotional and demographic conditions, as well as their interaction modes, moving towards a more integrated comprehension of how the crisis impacts the population.

6. Declarations

Ethics approval and consent to participate

The study was done following the rules from the Helsinki Declaration of 1975, revised in 2013, and also had the approval of the Scientific Ethics Committee at Universidad Mayor Chile under the resolution C.R.I. 245, as the sponsoring institution of this study. All participants also gave informed consent, and their participation was totally voluntary, ensuring the confidentiality of their identity and the proper treatment of data for the exclusive purposes of this study. In no point of the study was any information requested which could establish participants' identity.

Consent for publication
N/A

Competing interests
The authors declare no conflict of interest.

Availability of data and materials
Output fles are available upon request from the corresponding author

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Conception, study design, Statistical Analysis, Investigation, Data Interpretation, Writing Original Draft Preparation and Writing-Review & Editing Segovia-Lagos P. & Bachler Silva.

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References

[1] United Nations. (2020). Shared responsibility. Global solidarity: Responding to the socio-economic impacts of COVID-19. Obtenido de https://www.un.org/sites/un2.un.org/files/sg_report_socio-economic_impact_of_covid19.pdf
[2] Vivaldi E. y Sánchez I. (17 mayo 2020). Sindemia, el concepto que grafica la simultaneidad de amenazas que afectan a la población. El Mercurio. https://www.emol.com/noticias/Nacional/2020/05/17/986319/Sindemia-amenazas-coronavirus-estallido-economia.html
[3] Grez Toso, S.(2019). Rebelión popular y proceso constituyente en Chile. En Folchi M. (Ed.), Chile Despertó lecturas desde la historia del estallido social de octubre (pp.13-20) Editorial Universidad de Chile.
[4] Hagan, M. J., Sladek, M. R., Luecken, L. J., & Doane, L. D. (2020). Event-related clinical distress in college students: Responses to the 2016 U.S. presidential election. Journal of American College Health, 68(1), 21–25. https://doi.org/10.1080/07448481.2018.1515763
[5] Brooks, S., Webster, R., Smith, L., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. Lancet, 395, 912-920. doi:https://doi.org/10.1016/S0140-6736(20)30460-8
[6] Ni, M. Y., Kim, Y., McDowell, I., Wong, S., Qiu, H., Wong, I. O., Galea, S., & Leung, G. M. (2020). Mental health during and after protests, riots and revolutions: A systematic review. Australian & New Zealand Journal of Psychiatry, 54(3), 232–243. https://doi.org/10.1177/0004867419899165
[7] Jiménez, M., Rieker, J., Reales, J., & Ballest, S. (2021). COVID-19 Peritraumatic Distress as a Function of Age and Gender in a Spanish Sample. Int. J. Environ. Res. Public Health, 18, 52-53. doi:https://doi.org/10.3390/ijerph18105253
[8] Venegas Arluciaga, F., Gamboa Valenzuela J., Cruz Parada J., Uribe reyes V. y Ortiz Contreras R. (2021). Sindemia por COVID-19, multimorbilidad y determinantes sociales en Chile. Revista Cuad Med Soc, 61(2), 29-41
[9] Singer, M., Bulled, N., Ostrach, B., y Mendenhall, E. (2017). Syndemics and the biosocial conception of health. The Lancet, 389(10072), 941–950. https://doi.org/10.1016/s0140-6736(17)30003-x
[10] González Suazo, L. (2020). Desde el estallido social chileno a la pandemia COVID-19: aproximaciones de un cambio profundi. Revista de Comunicación y Salud, 10(2), 417-429. doi:https://doi.org/10.35669/rcys.2020.10(2).417-429
[11] Heiss, C. (2020). Chile: entre el estallido social y la pandemia. Análisis Carolina, 18, 1-14. Recuperado el 28 de junio de 2021, de https://www.fundacioncarolina.es/wp-content/uploads/2020/04/AC-18.2020.pdf
[12] Vicente, Benjamín, Saldivia, Sandra, & Pihán, Rolando. (2016). Prevalencias y brechas hoy: salud mental mañana. Acta bioethica, 22(1), 51-61. https://dx.doi.org/10.4067/S1726-569X2016000100006
[13] Chew, Q.H., Q., Wei, K.C, K., Vasoo, S., Chua, H., & Sim, K. (2020). Narrative synthesis of psychological and coping responses towards emerging infectious disease outbreak in the general population: Practical

considerations for the COVID-19 pandemic. Singap. Med. J., 61, 350-356. doi:https://doi.org/10.11622/smedj.2020046

[14] División de Prevención y Control de Enfermedades, MINSAL (2020) Salud mental en Chile. https://diprece.minsal. cl/programas-de-salud/salud-mental/salud-mental-en-chile/

[15] Mena, G.E., Martinez, P.P., Mahmud,A.S., Marquet, P.A., Buckee, C.O. y Santillana, M.(2021). Socioeconomic status determines COVID-19 incidence and related mortality in Santiago, Chile. Science, 372(6544),eabg5298. https://doi.org/10.1126/science.abg5298

[16] Torales, J., O'Higgins, M., & Castaldelli-Maia, J. (2020). The outbreak of coronavirus and its impact on global mental health. Int. J. Soc. Psychiatry, 66, 317-320. doi:https://doi.org/10.1177/0020764020915212

[17] Fiorillo, A., & Gorwood, P. (2020). The consequences of the COVID-19 pandemic on mental health and implications for clinical practice. European Psychiatry: The Journal of the Association of European Psychiatrists. https://doi.org/10.1192/j.eurpsy.2020.35

[18] Bravo, D., Errázuriz, A., Campos, D. y Fernández, G (2020). Termómetro de la salud mental en Chile. ACHS-UC [Archivo PDF]. https://www.uc.cl/site/efs/files/11421/presentacion_termometro_de_la_salud_mental_en_chile_25082020.pdf .

[19] Holmes , E., O'Connor , R., Perry , V., Tracey , I., & Wesse, S. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. Psiquiatría Lancet, 7(6), 547-560.

[20] Urzúa, Alfonso, Samaniego, Antonio, Caqueo-Urízar, Alejandra, Zapata Pizarro, Antonio, & Irarrázaval Domínguez, Matías. (2020). Salud mental en trabajadores de la salud durante la pandemia por COVID-19 en Chile. Revista médica de Chile, 148(8), 1121-1127. https://dx.doi.org/10.4067/S0034-98872020000801121

[21] Mac-Ginty S., Jimenez Molina A. y Martinez V.(2021). Impacto de la pandemia por COVID-19 en la salud mental de estudiantes universitarios en Chile. Revista Chilena Psiquiatr.Neurol.Infanc.Adolesc., 32 (1), 22-37

[22] Palma I, Aceituno R, Duarte F, Valenzuela P, Asún R, Canales M. Modos de sentir: experiencia en la vida cotidiana en pandemia. 2020. Disponible en: http://vidaenpandemia.cl/2020/08/27/reporte1/

[23] Duarte, F., & Jimenez-Molina, Á. (2020). Psychological distress during the COVID-19 epidemic in Chile: the role of economic uncertainty. MedRxiv. doi:https://doi.org/10.1101/2020.09.27.20202648

[24] Sáez-Delgado, F., Olea-González, C., Mella-Norambuena, J., López-Angulo, Y., García-Vásquez, H., Cobo-Rendón, R., & Sepúlveda López, . F. (2020). Caracterización Psicosocial y Salud Mental en Familias de Escolares Chilenos durante el Aislamiento Físico por la Covid-19. Revista Internacional De Educación Para La Justicia Social, 9(3), 281–300. https://doi.org/10.15366/riejs2020.9.3.015

[25] Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., McIntyre, R., Chooe, F., Tranc, B., Hoe, R., Sharmah, V. y Ho, C. (2020). A longitudinal study on the mental health of general population during the Covid-19 epidemic in China. Brain, Behavior, and Immunity, 87, 40-48. https://doi.org/10.1016/j.bbi.2020.04.028

[26] Larraguibel M., Rojas-Andrade R., Halpern M. y Montt M.E. (2021). Impacto de la Pandemia por COVID -19 en la Salud Mental de Preescolares y Escolares en Chile. Rev.Chil.Psiquiatr.Neurol.Infanc.Adolesc., 32 (1), 12-21

[27] Hossain MM, Tasnim S, Sultana A, others. Epidemiology of mental health problems in COVID-19: a review [version 1; peer review: 2 approved]. F1000Research. 2020; 9: 636

[28] Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors Associated with Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019. JAMA Netw open. 2020; 3 (3): e203976.

[29] Bovin, M., & Marx, B. (2011). The importance of the peritraumatic experience in defining traumatic stress. Psychol Bull, 37, 47-67.

[30] Thomas , É., Saumier , D., & Brunet , A. (2012). Peritraumatic Distress and the Course of Posttraumatic Stress Disorder Symptoms: A Meta-Analysis. The Canadian Journal of Psychiatry, 57(2), 122-129. doi:10.1177/070674371205700209

[31] Qiu , J., Shen , B., Zhao , M., Wang , Z., Xie , B., & Xu , Y. (2020). A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations. Gen Psychiatr, 33(2).

[32] Liu, S., & Heinz, A. (2020). Cross-Cultural Validity of Psychological Distress Measurement during the Coronavirus Pandemic. Pharmacopsychiatry, 53, 237-238. doi:10.1055/a-1190-5029

[33] Abad, A., da Silva, J., de Paiva Teixeira, L., Antonelli-Ponti, M., Bastos, S., Mármora, C., . . . da Silva, J. (2020). Evaluation of Fear and Peritraumatic Distress during COVID-19 Pandemic in Brazil. Advances in Infectious Diseases, 10, 184-194. doi:10.4236/aid.2020.103019

[34] Constantiny, A., & Mazzotti, E. (2020). Italian validation of Covid-19 Peritraumatic Distress Index and preliminary data in a sample of general population. Riv. Psichiatr., 55, 145-151. doi:http://dx.doi.org/10.1708/3382.33570

[35] Marzo, R. R., Singh, A., & Mukti, R. F. (2021). A survey of psychological distress among Bangladeshi people during the COVID-19 pandemic. Clinical epidemiology and global health, 10, 100693. https://doi.org/10.1016/j.cegh.2020.100693

[36] Jahanshahi, A., Dinami, M., Madavani, A., LI, J., & Zhan, S. (2020). The distress during the Covid-19 pandemic—More distressed than the Chinese and with different predictors. Brain Behav. Immun., 87, 124-125. doi:https://doi.org/10.1016/j.bbi.2020.04.081

[37] Ramasubramanian, V., Mohandoss, A., Rajendhiran, G., Pandian, P., & Ramasubramanian, C. (2020). Statewide survey of psychological distress among people of Tamil Nadu in the COVID-19 pandemic. Indian J. Psychol. Med, 42, 368-373. doi:https://doi.org/10.1177/0253717620935581

[38] Murguía Lores, A. (2021). Epidemiología, Ciencias Sociales y Sindemia. Espacio Abierto, 30(2). https://doi.org/10.5281/zenodo.4965784
[39] Aiken, L. (1985). Three Coefficients for Analyzing the Reliability and Validity of Ratings. Educ Psychol Meas(45), 131-142.
[40] Departamento de Estadística e Información en Salud [DEIS] (3 de diciembre 2021).Defunciones en Chile por Covid-19 2020-2021. https://informesdeis.minsal.cl/SASVisualAnalytics/?reportUri=%2Freports%2Freports%2F357a72ec-43b7-4ca9-89cb-33f4818d2ab3&sectionIndex=0&sso_guest=true&reportViewOnly=true&reportContextBar=false&sas-welcome=false
[41] Instituto Nacional de Estadisticas [INE] (3 diciembre 2021). Tasa de desocupación nacional. https://www.ine.cl/estadisticas/sociales/mercado-laboral/ocupacion-y-desocupacion
[42] Hernández Sampieri, R., Fernández Collado, C., & Baptista Lucio, P. (2014). Metodología de Investigación (6a. Ed.). México: McGraw-Hill.
[43] Sahoo, J. P., & Samal, K.C. (2021). Mundo en alerta: La OMS designó a Sudáfrica como nueva cepa de COVID (Omicron/B.1.1.529) como variante de preocupación. Biotica Research Today, 3(11), 1086-1088. Recuperado de https://bioticainternational.com/ojs/index.php/bioresto day/article/view/1244
[44] Ortega García, MV. (2020). COVID-19: la nueva enfermedad X. Sanidad Militar, 76(1), 5-7. Epub 05 de octubre de 2020.https://dx.doi.org/10.4321/s1887-85712020000100001
[45] Fondo Monetario Internacional (22 febrero 2021). El FMI alerta de protestas sociales tras la pandemia. El Plural. https://www.elplural.com/economia/fmi-alerta-protestas-sociales-pandemia_260263102

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