Relationship between physical and Mental health in physical education students belonging to different universities in Chile

Relación entre la salud física y salud mental psicológica en estudiantes Educación Física pertenecientes a distintas universidades de Chile

Relação entre saúde física e psicológica em estudantes de educação física pertencentes a diferentes universidades no Chile

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ABSTRACT

The objective of this study was to relate the effects of confinement (COVID-19) on physical and mental health in physical education undergraduate students in Chile. The methodology is quantitative, cross-sectional, and descriptive. The sample consisted of 254 students belonging to seven Chilean universities. Sixty-three percent of the sample were men (n = 160), whereas 37% were women (n = 94). The information was collected through the self-report questionnaire on the Psychological Impact of Coronavirus. The results show that the variable Physical Activity in confinement was negatively and significantly related to the variable of BMI and use of communication media. When relating to behaviors associated with confinement and the Scale of Positive Experiences in the Face of Adversity (EEPA, by its initials in Spanish), it was positive and significant. Concerning the Distress Scale, it was significantly negatively correlated, in the same way with the Coronavirus Interference Scale and the Coronavirus Psychological Impact Questionnaire. It is concluded that there are negative effects on the physical and psychological health of Physical Education students as a result of confinement and some positive ones, such as self-care and protection systems.

Key words: COVID-19, Physical activity, Mental health, Physical education undergraduate students, CPIQ Questionnaire.

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RESUMEN

El objetivo de este estudio fue relacionar los efectos del confinamiento (COVID-19), en la salud física y psicológica, en universitarios de Educación física de Chile. La metodología es cuantitativa, transversal y descriptiva; la muestra estuvo constituida por 254 estudiantes pertenecientes a siete universidades chilenas. El 63% de la muestra fueron hombres (n = 160) y 37% mujeres (n = 94). La recogida de la información fue por medio del cuestionario auto informe del Impacto Psicológico del Coronavirus. Los resultados muestran que la variable Actividad Física en confinamiento se relacionó de forma negativa y significativa con la variable de IMC y Uso de Medios de Comunicación. Al relacionarse con Conductas Asociadas al Confinamiento y Escala de Experiencias Positivas ante la Adversidad, fue positiva y significativa; en relación a la Escala de Distres, se correlacionó negativa significativamente, de igual manera con la Escala de interferencia por el Coronavirus y Cuestionario de Impacto Psicológico del Coronavirus. Se concluye que existen efectos negativos para la salud física y psicológica de los estudiantes de Educación física producto del confinamiento y algunos positivos como el autocuidado y sistemas de protección.

Palabras Clave: COVID-19, Actividad física, Salud psicológica, Estudiantes de educación física, Cuestionario CPIQ.

RESUMO

O objetivo deste estudo foi relacionar os efeitos do confinamento (COVID-19) na saúde física e psicológica em estudantes universitários de educação física no Chile. A metodologia é quantitativa, transversal, descritiva; A amostra foi composta por 254 estudantes pertencentes a 7 universidades chilenas. 63% da amostra eram homens (n = 160) e 37% mulheres (n = 94) As informações foram coletadas por meio do questionário de autorrelato sobre o Impacto Psicológico do Coronavírus. Os resultados mostram que a variável Atividade Física em confinamento esteve negativa e significativamente relacionada com a variável IMC e Uso de Meios de Comunicação. Quanto aos Comportamentos Associados ao Confinamento e à Escala de Experiências Positivas Face à Adversidade, foi positivo e significativo; em relação à Escala de Aflição, apresentou correlação negativa significativa, da mesma forma com a Escala de Interferência do Coronavírus e o Questionário de Impacto Psicológico do Coronavírus. Conclui-se que existem efeitos negativos na saúde física e psicológica dos alunos de Educação Física decorrentes do confinamento e alguns positivos como o autocuidado e os sistemas de proteção.

Palavras chave: COVID-19, Atividade física, Saúde psicológica, Estudantes de educação física, Questionário CPIQ.

INTRODUCTION

Quarantine is one of the most aggressive responses to an epidemic that a government can take, given that it is characterized by two fundamental aspects: the separation or isolation from our family and friends and the restriction of movement, so necessary for human beings. In addition, it means breaking with routines, hobbies or leisure activities and freedom (Andreau, 2020).

The prolongation of this period has been proven in various countries, which produces permanent temporary psychological and physical damage in the general population, revealing compelling data on the notable increase in emotional impact reflected in fears of the coronavirus, sleep problems, emotional symptoms (worry, stress, hopelessness, depression, anxiety, nervousness, and restlessness). Uncertainty about the future, since it is not known what will happen and there is no control over the situation (Sandín et al., 2020).

Exposure to excess information in the media, the Internet and popular applications such as WhatsApp has generated another phenomenon: the spread of hoaxes, a concept associated with false information given by different media, with the aim of harming someone and unverified

information, often by inertia. Excess information about the symptoms of COVID-19 also causes hypochondriac behavior (Andreau, 2020).

In Spain, Sandín et al. (2020) conducted research with the aim of examining the psychological impact of the pandemic and the confinement experienced during the months of March and April. With a sample of 1,161 participants, they reveal that the most common fears correspond to the category of contagion/illness/death, social isolation and work/income problems. In addition, they detected that uncertainty and exposure to the media are powerful predictors of impact. They also noted that confinement favored some positive personal experiences. However, it is not only in this context that the negative impact on psychological health is reflected, but also, the pandemic has led many to stay at home and sit for much longer than usual. Many find it difficult to continue practicing the physical activity they used to and the situation is even more difficult for those who do not usually exercise too much (World Health Organization [WHO], 2020). Although it is well known, since its origins Physical Activity has played a fundamental role in the daily life of man, since thanks to the movements that his locomotor system allowed him to perform, the ability to walk, run, climb and swim, among others, which is why this systematic and somewhat intense physical activity constitutes a factor of health protection and prevention of different disorders, both in the physiological and psychological fields (Pavón & Moreno, 2006; Luarte et al., 2016). Studies carried out during the pandemic show high levels of stress, this is due to the fear of the disease, which is explained by the novelty or uncertainty it generates (Huarcaya, 2020; Parada-Flores et al., 2023). They also point out that the lack of information, or the erroneous information coming from the media, or the absence of contact with others, leaves people vulnerable to complications such as insomnia, anger, anxiety and stress disorders (Ramírez et al., 2020).

Previous studies show multiple consequences of quarantine linked to viral epidemics on people's psychological and physical health; the present study was born in response to the growing uncertainty of psychological health in the Chilean university population, with scientific research on the relationship between psychological and physical health in confinement during the pandemic in the population of Physical Education students. For this reason, this research aims to relate the effects of confinement (COVID-19), on physical and psychological health, in Physical Education University students in Chile.

METHODS

The present study has a quantitative approach and a non-experimental, cross-sectional comparative design. The population consisted of 254 young adults (21.46 ± 2.61 years) who were studying between the first and last year of undergraduate Physical Education, belonging to seven universities in Chile, of the total, 94 (37.0%) are female and 160 (63.0%) are male. The selection of the sample was carried out by convenience (Hernández-Sampieri & Torres,2018) and questionnaires were applied to all physical education students participating in the universities in which the study was carried out, during the year 2021. Sampling was carried out non-probabilistic for convenience, to establish the sample from the available cases to which researchers have access (Link et al., 2008).

Procedures

The information was collected through an electronic survey designed by a multidisciplinary team and uploaded to the Google Forms platform. The survey was conducted using a Google Forms questionnaire (https://forms.gle/cfzAeukGTE8s7pab8), through the directors of Physical Education courses in Chile, who socialized the information via email to all students from their respective schools.

Before starting to respond to the questionnaire, essential aspects related to the study are detailed; it is highlighted that participation is voluntary and that each individual can withdraw or resign at any time, the data obtained being anonymous and confidential. In all cases, informed consent was obtained from the participants, as well as the respective permission from the management of the educational institutions, all of this following the ethical guidelines established by the Helsinki Treaty and the Scientific Ethics Committee of the Catholic University of Maule [UCM], Chile (Manzini, 2000; UCM, 2016). For this research, a questionnaire was created by raising categories from the bibliographic review, referring to the indicators raised from the variable that affect the psychological well-being of university students and, therefore, that may affect their health; finally, it was submitted to the consultation of the expert judgment, to meet the quality criteria.

The validity of the instrument (Coronavirus Psychological Impact Questionnaire [CPIQ]), was carried out through content and construct. It was validated through confirmatory analysis. Seven factors were considered in the model: Coronavirus Experiences Scale (ECOVI); Use of media (UMC); Behaviors associated with confinement (BAC); Coronavirus Fears Scale (CFS); Distress Scale (DS); Coronavirus Interference Scale (CIS); Positive Experiences in the Face of Adversity Scale (EEPA). The alternatives for the questions asked were Likert type, where the assigned values were: 1 to 5, depending on the type of question and where the highest score corresponds to higher risk. Reliability was verified by means of internal consistency of Cronbach's alpha (0.918).

The cut-off points adopted for the ICPC were $p < 25$ (low), $\geq$ p25 to p50 (moderate), $\geq$ p50 to p75 (high), $\geq$ p75 (very high). From the evaluation, a subtotal score (for each category) and a total score (for the entire scale) can be obtained. The highest total scores are warning indicators, since greater attention should be paid to these cases.

In the same questionnaire, participants were asked to indicate their height and weight through self-report (since much of the country was in confinement due to the pandemic). The questionnaires were applied to students between March and May 2021, one year after the first case of COVID-19 was recorded in Chile.

Statistical analysis

Data were analyzed using SPSS 18.0 statistical software for Windows 32 bits (SPSS Inc., IL, USA). Data obtained are presented using descriptive statistics, mean, standard deviation and frequency. The Kolmogorov-Smirnov test was used to determine the distribution of variables, which followed a normal distribution. Differences between variables were determined using the t-student test for independent samples and Pearson correlation between variables. For all analyses, significant differences were determined at $p < 0.05$.

RESULTS

To describe the relationship between each of the variables of BMI, confinement, physical activity and psychological health, the Pearson correlation coefficient was used to determine the degree of relationship between these variables. The final sample of this study was made up of 254 university students from a total of seven universities. 63% of the sample were men (n = 160) and 37% were women (n = 94).

Table 1 shows that the age group with the greatest interest in participating was between 21 and 24 years old. Given their youth and the characteristics of their study career, they have a very good weight, which undoubtedly contributes to physical performance in accordance with the demands of their profession. In relation to height, the trend is in accordance with the characteristics of the Chilean population, that is, rather short. It is important to highlight the significant differences that occur in two indicators, in weight and height in cm, between men and women, and in the case of BMI and age, there are no statistically significant differences.

Table 1

General characteristics of the sample.

	Total n=254		Female n=94		Male n=160		p
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	
Age	21,46	2,61	21,29	2,48	21,57	2,69	0,409
Weight	68,47	11,64	61,91	11,00	72,33	10,23	0,000
Height in centimeters	168,96	8,80	160,80	5,08	72,32	10,23	0,000
BMI	23,89	3,09	23,85	3,50	23,91	2,84	0,877

Statistically significant difference *p<0.05.

From the data it is observed that the highest percentage, both in men and women, have a normal nutritional status 65.7%, however, and without prejudice to the above, it is surprising a percentage of overweight at a very young age and by type of student, approximately 29% for both sexes, even more surprising that there are students with grade I obesity (3 to 5%), a significant fact, which indicates how possible sedentary or unhealthy behaviors are increasing during the pandemic, especially when it comes to physical education students (Table 2).

Table 2

Nutritional Status.

	Total		Female		Male	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Grade II thinness	1	0,4	1	1,1		
Grade I thinness	5	2,0	4	4,3	1	0,6
Normal	167	65,7	57	60,6	110	68,8
Overweight	74	29,1	27	28,7	47	29,4
Grade I obesity	7	2,8	5	5,3	2	1,3
Total	254	100,0	94	100,0	160	100,0

The patterns of negative and significant correlation between physical activity in confinement and BMI are reported, therefore, the greater the physical activity, the lower the BMI indices will be. However, when relating the variable PA in confinement and the scale of use of media (UMC), a negative and significant correlation was reported, which indicates that the greater the PA, the lower the use of the media.

The relationship of PA in confinement and the scale of Behaviors Associated with Confinement (BAC), present a positive and significant correlation, which would indicate that the greater the PA in confinement, the greater the behaviors associated with confinement. On this same variable of PA in confinement, when related to the distress scale (DE), a negative and significant correlation was obtained, which would mean that the greater the PA in confinement, the lower the negative emotional experiences.

As with the previous result of PA in confinement related to the coronavirus interference scale (CIS), a negative and significant correlation is reported, where it shows that the higher the PA in confinement, the lower the negative experiences caused by the coronavirus.

When relating PA in confinement and the EEPA scale of positive experiences in the face of adversities, a positive and significant correlation was obtained, which would indicate that the greater the performance of PA in confinement, the greater the positive experiences in the face of adversities.

Finally, when PA in confinement is related to the coronavirus psychological impact questionnaire (CPIQ), a negative and significant correlation can be seen, from which it can be deduced that the greater the performance of PA in confinement, the lower the psychological impact (Table 3).

Table 3

Pearson correlation between AF variables in confinement and BMI, MUS, BAC, DS, CIS, EPPA and CPIQ.

		IMC	UMC	BAC	DS	CIS	EEPA	CPIQ
In confinement, does physical activity	Pearson correlation	-,126*	-,201**	,193**	-,252**	-,147**	,136**	-,130**
	Sig. (bilateral)	,044	,001	,002	,000	,019	,030	,038
	N	254	254	254	254	254	254	254

Statistically significant difference **p< 0.001; Statistically significant difference *p< 0.05.

The variable that was related to BMI, and that obtained a positive and significant correlation, was the media use scale (MUS), interpreting that, the higher the BMI, the greater the use of the media (MUS) (Table 4).

Table 4

Pearson correlation between BMI and MUS variables.

		MUS
BMI	Pearson correlation	,161**
	Sig. (bilateral)	,010
	N	254

Statistically significant difference **p< 0.001;
Statistically significant difference *p< 0.05.

In the following variable: Experience with coronavirus (ECOVI), it is observed that, when related to CFS, a negative and significant correlation is reported, which shows that the more experiences with coronavirus, the less fears of coronavirus will be.

When the experience with coronavirus (ECOVI) is related to the coronavirus interference scale (CIS), there was a negative and significant correlation, interpreted as: the more experience with coronavirus, the less interference related to coronavirus (Table 5).

Table 5

Pearson correlation between ECOVI, CFS and CIS.

		CFS	CIS
ECOVI	Pearson correlation	-,220**	-,128*
	Sig. (bilateral)	,000	,042
	N	254	254

Statistically significant difference **p< 0.001;
Statistically significant difference *p< 0.05

In the UMC variable, when correlated with the Coronavirus Psychological Impact Questionnaire (CPIQ), it presented a positive and significant correlation, which is interpreted as meaning that the greater the use of media, the greater the psychological impact of the coronavirus (Table 6).

Table 6

Pearson correlation between the UMC and CPIQ variables.

		CPIQ
UMC	Pearson correlation	,123*
	Sig. (bilateral)	,050
	N	254

Statistically significant difference **p< 0.001;
Statistically significant difference *p< 0.05.

The results indicate that CFS correlates positively and significantly with DS, suggesting that the greater the fear of coronavirus, the greater the emotions related to distress (DS). When relating CFS and CIS, a positive and significant correlation was obtained, reporting that the greater the fear of coronavirus, the greater the scale of interference due to coronavirus. Based on the results regarding the relationship between CFS and EEPA, a positive and significant correlation was obtained, understanding that the greater the scale of fear of coronavirus, the greater the scale of positive experiences in the face of adversity.

Finally, in the variable CFS, when correlated with CIPS, it presented a positive and significant correlation, from which it can be interpreted that the greater the scale of fear of coronavirus, the greater the psychological impact of coronavirus (Table 7).

Table 7

Pearson correlation between CFS and the variables DS, CIS, EPPA and CPIQ.

		DS	CIS	EEPA	CPIQ
CFS	Pearson correlation	,566**	,567**	,338**	,774**
	Sig. (bilateral)	,000	,000	,000	,000
	N	254	254	254	254

Statistically significant difference **p< 0.001; Statistically significant difference *p< 0.05.

Table 8 shows: the variables that were positively and significantly related were the Distress scale and the coronavirus interference scale, reporting that the higher the Distress scale, the higher the coronavirus interference scale. When relating the DS variable to the EEPA variable, a positive and significant correlation was obtained, understanding that the greater the negative emotional experiences, the higher the positive experiences in the face of adversity scale. Regarding the DS and CPIQ variables, when related, a positive and significant correlation is reported, understanding that the greater the negative emotional experiences, the greater the psychological impact of the coronavirus (Table 8).

Table 8

Pearson correlation between DS and the variables CIS, EEPA and CPIQ.

		CIS	EEPA	CPIQ
DS	Pearson correlation	,741**	,176**	,838**
	Sig. (bilateral)	,000	,005	,000
	N	254	254	254

Statistically significant difference **p< 0.001; Statistically significant difference *p< 0.05.

The variables CIS and EEPA were positively and significantly correlated, indicating that the higher the scale of intolerance to coronavirus (CIS), the greater the positive effects in the face of adversity (EEPA).

This same CIS scale when correlated with CPIQ, a positive and significant relationship was obtained, indicating that the higher the frequency on the scale of interference due to coronavirus, the greater the psychological impact of the coronavirus (Table 9).

Table 9

Pearson correlation between the CIS, EEPA and CIPS variables.

		EEPA	CPIQ
CIS	Pearson correlation	,180**	,818**
	Sig. (bilateral)	,004	,000
	N	254	254

Statistically significant difference **p< 0.001; Statistically significant difference *p< 0.05.

Regarding the variable scale of positive experiences in the face of adversity (EEPA), when correlated with CIPS, it presented a positive and significant correlation, this means that the greater the frequency of positive experiences in the face of adversity, the greater the psychological impact of the coronavirus (Table 10).

Table 10

Pearson correlation between the EEPA variable and CPIQ.

		CPIQ
EEPA	Pearson correlation	,574**
	Sig. (bilateral)	,000
	N	254

Statistically significant difference **p< 0.001;
Statistically significant difference *p< 0.05.

DISCUSSION

In this study, the patterns of negative and significant correlation between physical activity in confinement and BMI are reported, therefore, the greater the physical activity, the lower the BMI indices. These results coincide with the findings supported by Mera et al. (2020) in the practical recommendations to avoid deconditioning, the evidence indicates that confinement at home increases the levels of physical inactivity and sedentary behavior, which can affect the respiratory and immune systems and lose physical condition, other studies verify this relationship with the performance of physical activity, Giustino et al. (2020), Alarcón & Hall (2020), Castañeda et al. (2020) and Dos Santos et al. (2020), who evaluated university athletes as well as students, the level of physical activity and the MET-minutes/week before and during the COVID-19 confinement, reporting a decrease in physical activity during quarantine, this is consistent with what was reported in this study. However, these studies did not correlate the level of PA with the BMI variable. The research carried out by Ortiz (2017), with schoolchildren aged 8 to 13, found a negative inversely proportional correlation, where the lower the PA, the higher the BMI.

When relating the variable, PA in confinement and the media use scale (UMC), the results are consistent with those of Mera et al. (2020), when they point out that as a result of staying at home, sitting time increases significantly, such as carrying out academic activities, teleworking, which require little energy expenditure, which generates sedentary behavior. The same occurs with the study by Hernández (2020) carried out in Guayaquil with adolescents, who confirm that the relationships between the use of social networks and PA are negative; the greater the use of social networks, the less PA will be carried out, which triggers health problems.

The relationship between PA in confinement and the scale of behaviors associated with confinement (BAC) present a positive and significant correlation, which would indicate that the greater the PA in confinement, the greater the behaviors associated with confinement. This does not agree with what was found by Iriarte & Pardo (2020), who state that regarding the intention to perform PA, the highest percentage of the subjects in the study were in the pre-contemplation stage, this means that they have low and inactive levels of PA. In relation to sedentary behaviors, a product of exposure to screens such as cell phones and TV, the devices most used by the study population, these variables were not correlated, but using the Prochaska-Diclemente transtheoretical model, which measures the intention towards PA and sedentary behavior of adults, could generate the same result as this study.

This same variable of PA in confinement when related to the distress scale (DS), a negative and significant correlation was obtained, which would mean that the higher the PA in confinement, the lower the emotional experiences, similar to the result of the study by Abalde & Pino (2015) who have shown that high levels of PA are associated with the reduction of symptoms of depression and help to reduce anxiety levels, as also stated by the WHO. These results do not agree with the findings of Rico et

al. (2020) who point out that the majority of the sample, with around 46%, performs low PA, and when relating it to health status, emotional impacts on mood and sleep were found.

Like the previous result of PA in confinement related to the coronavirus interference scale (CIS), a negative and significant correlation is reported, where the higher the PA in confinement, the lower the negative experiences caused by the coronavirus. The signs of intolerance to the uncertainty generated by the pandemic are reflected in psychological difficulties that affect and extend beyond anxiety, causing the deconditioning time, due to the increase in physical inactivity, to increase especially during the pandemic. In the findings of Mera et al. (2020), they point out that PA is important to maintain health conditions, as well as participating in household activities, such as cleaning, organizing, etc., since they also count as PA.

When associating PA in confinement and the EEPA scale of positive experiences in the face of adversities, a positive and significant correlation is presented, which would indicate that the greater the PA in confinement, the greater the positive experiences in the face of adversity. The result of this study is related to what was stated by Ramírez et al. (2019), in which they describe the relationship between resilience and the practice of physical activity, pointing out that those people who do more PA had more resilient characteristics than those who did not, since it helps to positively accept changes. When relating PA in confinement with the psychological impact of the coronavirus (CPIQ), a negative and significant correlation is observed, from which it can be deduced that the greater the PA in confinement, the lower the psychological impact. Likewise, Barbosa & Urrea (2018) mention that physical activity and sport are factors that positively influence and lower the risk of suffering from mental illnesses, as well as Delgado et al. (2018), who demonstrated that physical exercise had significant results in reducing anxiety and depression, and also demonstrated the importance of physical exercise as a complementary therapy, similar to the relationship of findings with this study.

The second variable that was related to the BMI, and that presents a positive and significant correlation was that of UMC, interpreting that the higher the BMI, the greater the use of the media, because students spend a large part of their time informing themselves through different media about covid-19, a result that agrees with Chávez (2014), who points out that the most used entertainment media by students are tablets (87%) with an excessive use of 34%. Regarding active consoles that are classified as a physical activity as long as they meet the minimum of 60 minutes to obtain benefits and less than 60, it is considered sedentary, its use was deficient to obtain expected benefits, establishing that excessive use of the media in a sedentary lifestyle are risk factors. Sandín et al. (2020), examined the psychological impact of the pandemic and the lockdown experienced in Spain, indicating that excessive exposure to the media are risk factors, which provide small clues to the impact that the Covid-19 pandemic has generated.

The Experience with the (ECOVI) variable, when related to the CFS, reports a negative and significant correlation, which shows that the more experiences with the coronavirus, the less fears there will be. What Wang et al. reported. (2020) reports this in a study of a Chinese population, in which a large part of the respondents spent between 20 and 24 hours a day at home (84.7%), reported no physical symptoms (60.81%) and very few had a history of direct or indirect contact with people with confirmed or suspected COVID-19 or had undergone medical consultations related to COVID-19 (≤1%), relevant data in relation to

experiences with the coronavirus, on the other hand, other results in accordance with the coronavirus fear scale reveal that the majority of respondents (> 70%) were worried about the possibility of their family members contracting COVID-19, but believed that they would survive if they became infected. Therefore, if there is a significant negative relationship between experiences with the coronavirus and fears of the coronavirus, it is not largely due to the proximity and information provided by the media about this disease, but could be due to certain safeguards against the pandemic, the severity it can have when infected and the low expectation of having a quick solution.

As the experience with the coronavirus (ECOVI) is related to the interference due to the coronavirus (CIS), it presents a negative and significant correlation, interpreted as the greater the experience with the coronavirus, the less the interference related to it will be. This indicates that Physical Education students in relation to their experiences with the coronavirus tend to adopt the necessary measures to face the pandemic, but it does not mean that they trust the information provided by the media and can see a short-term solution regarding the pandemic, that is, it was noted that the data of the CIS scale, understood as uncertain situations that could disturb some situations in life, can be reflected in the context of the pandemic. These results coincide with the findings of Valero et al. (2020), who point out the worrying and discouraging number of positive infected cases in the world, which fills different people with helplessness, due to the fact of not knowing how to eliminate or reduce the pandemic. It can also be seen reflected in social and economic aspects, the quarantine and isolation of family members and those people with catastrophic illnesses, pregnant women, older adults, which consequently have increased their anxiety, loneliness, insomnia, despair and sadness. In other studies, university professors Cáceres et al. (2020), through a consultation against the thesis that the pandemic affects people's mental state, maintain that they feel great uncertainty, especially in the face of sudden changes from face-to-face to virtual classes, as well as the necessary training and access to tools, both for them and the students. These studies agree with the fact of the high levels of uncertainty of different populations, which are faced with the pandemic, which are not very clear or precise with the situations proposed by the experiences with the coronavirus, so it would be interesting and relevant to take into account whether they have been infected, if they have been hospitalized, etc.

The UMC variable, when correlated with the psychological impact of the coronavirus (CIPS), presents a positive and significant correlation, which is interpreted as meaning that the greater the use of the media, the greater the psychological impact of the coronavirus will be. These results coincide with those reported by Mejía et al. (2020), which characterizes associations of the perception of fear transmitted by the media in the covid-19 pandemic, indicating that participants perceived social networks (64%) and television (57%) to exaggerate the information; also, participants stated that television (43%) and social networks (41%) increased the perception of fear. As for their family/friends, they perceived that they exaggerated the situation (39%) and generated fear (25%). The study by Ovalle & Vásquez (2020) carried out a narrative and bibliographic review regarding the phenomenon of Cyberchondria, a new clinical entity, which involves the excessive and repetitive search for information on health issues. The research investigated on Cyberchondria is scarce, the increase of this phenomenon has been demonstrated, especially

in its dimensions of excess. Finding in accordance with the results of this study.

The results indicate that CFS correlates positively and significantly with DS, that is, the greater the fear of coronavirus, the greater the emotions related to distress. The findings of Sandín et al. (2020) indicate that the emotional profile associated with covid-19 suggests a predominance of symptoms of worry, stress, hopelessness and sleep problems. Regarding the research by Marquina & Jaramillo (2020), the psychological impacts that covid-19 produces in the population are negative, both in the general population and in health personnel who are on the front line of care for this virus. Among the main effects: symptoms of post-traumatic stress, confusion and anger. Stressors include the length of quarantine, fears of infection, frustration, boredom, inadequate supplies, inadequate information, and financial losses, which are closely related to the results of this study. Regarding the experiences of healthcare workers in Wuhan, they reported concerns about infection in colleagues (72.5%), infection and family members (63.9%), and protective measures (52.3%), resulting in psychological distress (Dai et al. 2020). The findings are consistent with those of Brooks et al. (2020), who conducted a review about the psychological impact of quarantine and how to reduce it. These authors reported negative psychological effects, such as post-traumatic stress, confusion, and anger. They also report that there would be different factors that influence people's responses to social distancing, such as: the duration of quarantine, fears of infection, financial losses, etc. In relation to the first reports shown by Torales et al. (2020) and Shigemura et al. (2020) The psychological reactions and states observed in the population and their emotional responses such as extreme fear and uncertainty, give rise to mental health problems such as anxiety (insomnia, anger, extreme fear of the disease even in non-exposed people).

When relating CFS and CIS, a positive and significant correlation is observed, reporting that the greater the fear of coronavirus, the greater the interference from the coronavirus. In relation to this, there is a relationship with what was investigated by Del Valle et al. (2020), a study carried out with university students, where it is indicated that there is an effective association between the variables of difficulties that the person experiences to effectively regulate negative emotions and intolerance to uncertainty, understanding that the greater the difficulties that the person experiences to regulate their emotions, the greater the levels of intolerance to uncertainty, a finding that agrees with this research. Sandín et al. (2020) indicate that the factors of vulnerability to fears of coronavirus are intolerance to uncertainty, the negative effect, understanding intolerance to uncertainty as the discomfort that a person experiences when faced with unclear or uncertain situations.

The results regarding the relationship between CFS and EEPA indicate a positive and significant correlation, that is, the greater the scale of fears of coronavirus, the greater the scale of positive experiences in the face of adversity. Regarding the results of this study, it corresponds to what was pointed out by Melchor et al. (2021) in which Psychology students, with respect to isolation due to COVID-19, present a feeling of loneliness among university students and difficulties in adapting, such as the impossibility of leaving home, frequenting friends and family or adapting to online classes, fear of contagion, as well as positive aspects emerged in the lives of university students, such as the possibility of improving self-care, opportunity to learn new things, improve nutrition and avoid transportation trips.

The CFS variable when correlated with CIPS, presents a positive and significant correlation, which is interpreted as, the greater the scale of fears of the coronavirus, the greater the psychological impact of the coronavirus. These results are related to what was found by Monterrosa et al. (2020), carried out on Colombian general practitioners, where they describe that seven out of ten general practitioners presented symptoms of anxiety, work stress, while four presented fear of covid-19, data that could increase, since as time goes by these symptoms may or may not increase considerably. With reference to these changes, the review carried out by Marquina & Jaramillo (2020), established that given the circumstances of the covid-19 pandemic and preventive measures, they produce a broad, substantial effect that could be maintained over time, affecting the general population.

Another of the variables that correlated positively and significantly was DS and CIS, reporting that, the greater the scale of distress, the greater the scale of interference due to the coronavirus. Likewise, these results are similar to those described by Ardón (2020) in a population of students from Honduras, who felt worried, stressed and anxious due to the uncertainty of this new disease. Data that agrees with the results of this study.

When correlating the DS variable with the EEPA variable, a positive and significant correlation was obtained, understanding that the greater the negative emotional experience, the higher the scale of positive experiences in the face of adversity. The results agree with the findings of Johnson et al. (2020), in the Argentine population, in which feelings of fear, uncertainty and anguish were highlighted. However, a sense of responsibility and care also emerges along with the appreciation of the social dimension of people and the possibility of reflection, which would give the situation of social isolation as a positive consequence.

In the DS and CPIQ variables, when related, a positive and significant correlation is reported, understanding that the greater the negative emotional experiences, the greater the psychological impact of the coronavirus. Which coincide with the studies of González et al. (2020); Ramírez et al. (2020); Ozamiz et al. (2020); Sandín et al. (2020); Lozano (2020), where his findings show the impact generated by the covid-19 disease and the consequences regarding the measures that have been implemented as quarantines, generating emotional responses that affect mental health, such as stress disorders, anxiety, anguish, depression, which increase as time goes by. Also studies such as those of Piña (2020), which reveals the psychological impact of a quarantine may include symptoms of insomnia, irritability, anxiety, anguish and feelings of loss of freedom, which reflects that the covid-19 pandemic generates a great effect on the population with negative emotional experiences.

With the CIS and EEPA variables, they correlated positively and significantly, indicating that the higher the scale of intolerance to coronavirus (CIS), the higher it will be on the scale of positive effects in the face of adversities (EEPA). These results coincide with those of Melchor et al. (2021), with psychology students, from whom positive aspects in life emerged, despite the pandemic, such as the possibility of improving self-care, better nutrition, exercise, better sleeping habits, etc.

This same CIS scale when correlated with CPIQ presents a positive and significant relationship, indicating that, the greater the frequency on the scale of interference by the coronavirus, the greater the psychological impact of the coronavirus. The research carried out by Hernández (2020), in a search of the literature in

relation to the impact of COVID-19 on people's mental health, indicates that it has a negative impact on mental health in the general population, consequently, uncertainty is associated with this disease, plus the effect of social distancing, isolation and quarantine, which can further aggravate the mental health of the population. Report that agrees with the results of this study.

Regarding the EEPA when correlated with CIPS, a positive and significant correlation is noted, this means that the greater the frequency on the scale of positive experiences in the face of adversity, the greater the psychological impact of the coronavirus. Delgado (2020) mentions the importance of resilience factors in the face of any adverse situation, since the quarantine caused by COVID-19 represents an extreme situation that has put personal subjective well-being and post-traumatic growth to the test. Among the different strategies used by young people, the importance of some type of routine stands out, carrying out activities that keep in touch with other people, whether at home or online, and art in any of its dimensions (movies, painting, music).

One of the limitations of this research is that the data are self-reported, which may be subject to research bias (Faúndez et al., 2021), so, for future research, it is recommended that these variables be controlled by a professional in the area of physical activity and a psychologist (Contreras et al., 2022). In addition, the current connectivity situation and the use of technologies available to each of the subjects belonging to the study sample were unknown. Despite the limitations, this type of pilot study allows for a rapid approach and provides scientific evidence in this field, analyzes the potential for generalization of studies in this area and identifies areas for further research.

CONCLUSION

In conclusion, the most significant correlations between the variables related to the physical and psychological health of physical education students are framed in the field of physical activity in confinement, where when correlated with BMI, the higher the PA, the lower the body mass index. Likewise, when correlating PA and the use of media in confinement, there is a significant negative relationship where the higher the PA, the lower the use of the media in students. However, when correlating PA with behaviors associated with coronavirus in confinement, there was a significant positive relationship, alluding to the fact that the more PA university students practice in confinement, the greater the behaviors associated with coronavirus, such as, for example: sleeping more than before, watching more TV or exercising more than before, etc. This is not the case for the practice of PA correlated with fears of coronavirus, since a significant negative relationship arises, which means that the greater the physical activity, the lower the fears of coronavirus. The relationship that emerges between PA and the distress scale presented a significant negative relationship, where the higher the PA, the lower the emotions of anxiety, feeling nervous, sad, etc.

As for PA and the coronavirus interference scale, it presented a significant negative correlation, showing that the higher the PA during confinement, the lower the interferences due to the pandemic, such as: difficulties studying, conflicts with family members or not being able to see some relatives. On the other hand, when correlating PA and positive experiences in the face of adversities during confinement, a significant positive relationship was obtained where the higher the PA in confinement, the more positive experiences in the face of adversities, such as, for example,

valuing or appreciating things that they did not value before. Finally, a significant negative correlation is seen between the PA variables and the psychological impact of the Coronavirus, understanding that the greater the PA practice, the lower the psychological impact on physical education students in confinement.

The findings of this study reinforce the need to implement interventions and strategies aimed at promoting better mental health of university students in Chile, especially in pandemic contexts.

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