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Artículos científicos

Cambios en el nivel de salud mental positiva en los colaboradores de una organización causados por la pandemia de covid-19

Changes in the level of positive mental health in an organization's employees caused by the Covid-19 pandemic

Mudanças no nível de saúde mental positiva nos colaboradores de uma organização causadas pela pandemia de covid-19

Linda Miriam Silerio Hernández

Tecnológico Nacional de México, Instituto Tecnológico de Durango, México

linda.silerio@itdurango.edu.mx

<https://orcid.org/0000-0002-5149-9126>

Mayela del Rayo Lechuga Nevárez

Tecnológico Nacional de México/Instituto Tecnológico de Durango, México

mlechuga@itdurango.edu.mx

<https://orcid.org/0000-0003-3221-0742>

Gustavo Morán Soto

Tecnológico Nacional de México/Instituto Tecnológico de Durango, México

gmoran@itdurango.edu.mx

<https://orcid.org/0000-0003-3864-7742>

Mayela del Rayo Lechuga Nevárez*

Tecnológico Nacional de México/Instituto Tecnológico de Durango, México

mlechuga@itdurango.edu.mx

<https://orcid.org/0000-0003-3221-0742>

*Autora de correspondencia:

Resumen

Abordar el tema de la salud mental positiva en los docentes de una institución educativa de nivel superior antes y durante la pandemia de covid-19 ha sido de gran relevancia y necesidad, pues existía un desconocimiento de la situación real, lo cual dificultaba la implementación de medidas de cuidado, apoyo y atención adecuadas. Este estudio, por ende, ha contribuido al conocimiento teórico, práctico y metodológico de este complejo constructo educativo. El objetivo principal fue evaluar si se produjo algún cambio significativo en los niveles de salud mental positiva de los docentes de una institución educativa de nivel superior tanto al inicio como durante el desarrollo de la pandemia de covid-19. La pregunta de investigación formulada fue la siguiente: ¿existe algún cambio significativo en el nivel de salud mental positiva al inicio y a lo largo de la pandemia de covid-19 en los catedráticos de dicha organización? El enfoque ha sido cuantitativo, el alcance descriptivo e inferencial, para lo cual se aplicó la encuesta a 201 catedráticos seleccionados aleatoriamente. Los resultados sugieren que la capacitación a los docentes en el uso de las tecnologías de la información y comunicación, el apoyo psicológico y el esfuerzo para lograr los objetivos planteados favorecieron que el nivel de salud mental positiva en los catedráticos mencionados se mantuviera sin cambios significativos, es decir, los docentes presentaron frecuentemente un nivel de salud mental positiva al inicio y a lo largo del confinamiento; también se encontró que el 20 % de los catedráticos casi nunca presentaron autocontrol, autonomía y relaciones interpersonales.

Palabras clave: educación virtual, competencias docentes, tecnologías de la información, salud mental y física.

Abstract

Addressing the issue of positive mental health before and throughout the COVID-19 pandemic in the professors of a higher education organization has been relevant and essential to solve the lack of information about the levels of this variable, given the lack of knowledge of the real situation, for their care, support, and care; This study has provided theoretical-practical and methodological knowledge of this multifactorial educational construct. The aim of the research was to determine whether there were any significant changes in the level of positive mental health of professors in a higher education organization caused by the COVID-19 pandemic previously, at the beginning and later during it. The research question: Is there any significant change in the level of positive mental health at the beginning and throughout the COVID-19 pandemic among the professors of that

organization? The approach has been quantitative, the scope was descriptive and inferential, and the survey was applied to 201 professors randomly. The results suggest that the training of teachers in the use of Information and Communication Technologies, psychological support, and the effort to achieve the objectives set, favored that the level of positive mental health in the mentioned professors, remained without significant changes, that is, teachers frequently presented a level of positive mental health at the beginning and throughout it; It was also found that 20% of the professors almost never presented self-control, autonomy, and interpersonal relationships.

Keywords: Virtual education, teaching skills, information technology, mental and physical health

Resumo

Abordar a questão da saúde mental positiva em docentes de uma instituição de ensino superior antes e durante a pandemia de covid-19 tem sido de grande relevância e necessidade, uma vez que houve desconhecimento da real situação, ou que dificultou a implementação de cuidados adequados, medidas de apoio e cuidados. Este estudo, portanto, contribui para o conhecimento teórico, prático e metodológico desse complexo construto educacional. O objetivo principal foi avaliar se houve alguma alteração significativa nos níveis positivos de saúde mental dos docentes de uma instituição de ensino superior tanto no início como durante o desenvolvimento da pandemia de Covid-19. A investigação realizada foi a seguinte: existe alguma alteração significativa no nível de saúde mental positiva no início e ao longo da pandemia de covid-19 entre os professores da referida organização? A abordagem foi quantitativa, ou descritiva e inferencial, para a qual a pesquisa foi aplicada a 201 professores selecionados aleatoriamente. Os resultados sugerem que a formação dos professores não utiliza tecnologias de informação e comunicação, o apoio psicológico e os esforços para atingir os objetivos enunciados favorecerão o nível de saúde mental positivo dos referidos professores permanecendo sem alterações significativas. Um nível positivo de saúde mental não começa durante o confinamento; Verifica-se também que 20% dos professores nunca demonstram autocontrole, autonomia e relacionamento interpessoal.

Palavras-chave: educação virtual, competências docentes, tecnologias de informação, saúde mental e física.

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Introduction

In October 2019, the World Health Organization (WHO) reported the onset of a global disease caused by Covid-19. This triggered a public health emergency that required government and health authorities to take biosecurity measures, social isolation and personal care practices to protect health and mitigate the danger of contagion (Alvarán López *et al.*, 2021). Due to this situation, international organizations also asked mental health services to address the increase in psychological conditions derived from the pandemic (Organización de las Naciones Unidas [ONU], 2020), as this is a fundamental component of well-being and human development. For example, in the work environment, there are psychosocial factors that can have a significant impact on employees' performance and, therefore, their quality of life, especially when work occupies a significant part of their daily life (Osorio, 2022).

In fact, as a consequence of covid-19, an increase in diseases that affect various systems of the body, such as the nervous, circulatory, digestive and respiratory, among others, has been observed, while at a psychological level problems such as anxiety, depression, stress, lack of satisfaction and work commitment.

In the case of the educational sector, complicated situations have arisen in which teachers experience psychological disorders that affect their performance in the classroom, resulting in physical and emotional wear and tear that hinders the teaching-learning process.

In addition, changes in their usual activities, such as teaching from home, lack of interpersonal interaction and absence of coexistence with colleagues, as well as the interruption of sports, recreation and cultural activities, had a profound effect on their well-being and performance. (Berasategi *et al.*., 2020).

This situation has highlighted the importance of providing emotional support and guidance both during and after the pandemic (Alvarán López *et al.*., 2021), hence it is crucial for professors to develop socio-emotional learning skills, as these skills will allow them to face stressful situations with strength and balanced emotional responses (Peraza de Aparicio, 2021).

On the other hand, it is worth mentioning that the transition to online learning and remote work due to the pandemic generated a series of challenges for teachers at all educational levels. This gave rise to feelings of anguish, despair and anxiety, which in turn had an impact on their performance and personal satisfaction (Ferreira and Oliveira, 2018; Dos Santos *et al.*., 2020; Soto-Crofford and Deroncele-Acosta, 2021).

Indeed, the transition to online education significantly increased the demands for teaching skills, hence teachers have been forced to familiarize themselves with and use tools, resources,

equipment, networks, programs and virtual media that posed a considerable challenge to them. This became a problem, especially for those professors who were used to face-to-face education and who lacked the necessary ICT training. This was especially evident in educational organizations that did not have the resources to provide computer equipment, internet facilities and *software* required to conduct virtual classes. The sudden need to acquire skills in the use of ICT to carry out their teaching responsibilities generated high levels of anxiety, stress and fear in teachers, which had a negative impact on their mental health (Gómez and Rodríguez, 2020).

This has resulted in a greater workload for professors in terms of time and effort dedicated to achieving their educational objectives (De la Torre and Fontalvo, 2021). In addition, they have had to face various challenges, including overcoming resistance to change, maintaining motivation in the face of school closures, undergoing continuous training to ensure the quality of teaching in virtual environments, and dealing with an increase in workload. (Hordatt and Haynes-Brown, 2021).

On the other hand, the availability of computer equipment, internet access, and educational platforms in students' homes played a crucial role in the choice of educational strategies that professors could use during the pandemic (Peraza de Aparicio, 2021). This challenge is further exacerbated by the number of additional hours that teachers involved in distance education had to dedicate without having adequate working conditions (Chaquime and Mill, 2016). Furthermore, in many educational institutions, teachers often do not receive the recognition they deserve for their academic performance (Silva *et al.* , 2020). In other words, the difficulty in measuring the time required to effectively plan and carry out online classes can also have an impact on remuneration, which often does not reflect the additional effort required (Chaquime and Mill, 2016).

For all of the above, it is essential to comprehensively address the health of professors during the covid-19 pandemic, both in physical and mental terms. Any strategy aimed at improving the health of these professionals must consider individual factors and be designed collectively, recognizing that each person has their own life story. Therefore, the review of theoretical constructions is suggested in light of contemporary events and circumstances that may affect teaching work (Dos Santos *et al.* , 2020).

While it is true that the most immediate psychological and professional impacts on professors have been explored, it has also been pointed out that the discussion about education experts remains limited (Dos Santos *et al.* , 2020). Therefore, the objective of this research was to observe the work of professors at a higher educational organization and identify the changes that have occurred in the positive mental health variable before and during the covid-19 pandemic.

Given the circumstances generated by the pandemic, these types of studies are essential to collect information on changes in the mental health of professors at the beginning and throughout this crisis. This will contribute to expanding our knowledge on the subject and provide accurate information to prevent and address mental health problems for the benefit of their work performance in the classroom.

Therefore, the question that guided this research was the following: is there any significant change in the level of positive mental health at the beginning and throughout the COVID-19 pandemic in professors at a higher education organization? The corresponding hypothesis states that there is no difference between the average levels of positive mental health before and throughout the covid-19 pandemic in professors at a higher educational organization.

Positive mental health

For a better analysis of the health of teachers, this research uses the concept of positive mental health proposed by Barrera and Flores (2013), who describe it as “a set of personality characteristics and bio-psycho-social skills that a person has. to achieve vital and self-realization goals, states of well-being and adaptation to their context” (p. 5). This concept is analyzed in the context of higher education, since there is great interest in generating more theoretical-practical and methodological knowledge on this topic.

The relevance of positive mental health has been increasing at the state, national and international level since the beginning of the covid-19 pandemic due to the different effects it has generated on the activities of professors in higher-level educational organizations. Therefore, reference is made below to the definitions of the explanatory dimensions of the positive mental health model of the present study, according to the contributions of Lluch (1999, April 15, 2020) and following the criteria of Jahoda (1958).

- Dimension 1. Personal satisfaction: Refers to satisfaction with oneself, sense of identity, pleasure with one's own existence and with the future outlook. It is manifested through the accessibility of the self to consciousness, self-esteem and sense of identity.
- Dimension 2. Prosocial attitude: Includes a person's sensitivity to their social environment, the willingness and attitude to help and/or support others, as well as their acceptance. It manifests itself through motivation for life and implications.
- Dimension 3. Self-control: Refers to the person's ability to confront stressful and conflictive situations, maintain harmony, control emotions, and resist anguish and tensions.

- Dimension 4. Autonomy: Refers to the person's ability to have their own criteria and make their own decisions, as well as the way to self-regulate their own actions and a good level of personal security and confidence to be able to express their personal opinions: how sit down, ask for what you need, express your disagreement with something, make suggestions or express your ideas without feeling bad about it.
- Dimension 5. Problem solving and self-actualization: Refers to the person's ability to analyze and make decisions, be flexible and adapt to changes, as well as the development of growth attitudes, through objective perception, empathy or social sensitivity.
- Dimension 6. Interpersonal relationship skills: Refers to the person's abilities to build interpersonal relationships, be empathetic, understand what people feel, provide emotional support and build connections with others in a deep way through adaptations in the way to relate in the areas of friendship, couples, family, work activities and leisure time, as well as the skill to compensate for what the environment demands and the fearlessness to solve problems.

Having explained the above, it can be stated that the work environment experienced by higher education teachers can have an impact on their mental health, which is why it is important to provide direct and critical monitoring, both at a theoretical, conceptual and empirical level, to understand their situation.

One way to better understand the work environment of teachers is by knowing their level of positive mental health, which becomes relevant due to the various changes and adjustments that have been necessary to implement due to the covid-19 pandemic, such as change from the face-to-face modality to the virtual modality, the adjustments to new ICT, the increase in the number of hours in the workday both in the school environment and in the family environment, the fear of contagion of covid-19, distancing social and the confinement of teachers in their homes. Having a better understanding of the positive mental health states of professors justifies and facilitates the development of strategies that help generate a work environment that benefits the health of teachers and strengthens their professional work, which would have great benefits for the entire educational community. .

Purpose

This research work is focused on facilitating the development of strategies to identify the strong and weak aspects presented by professors of a higher-level educational organization in the *positive mental health variable* ; In addition, an attempt is made to generate a better understanding of the effects that the covid-19 pandemic had on the positive mental health of professors. To achieve this objective, this research was guided by the following research question: is there any significant change in the level of positive mental health at the beginning and throughout the Covid-19 pandemic in professors at a higher education organization?

In order to answer this question, the following specific objectives were raised:

- To identify changes in the levels of positive mental health globally and in the six dimensions in professors of a higher educational organization throughout the covid-19 pandemic.
- Identify the highest and lowest average levels of the dimensions of the *positive mental health variable* in professors of a higher educational organization during the covid-19 pandemic.
- Identify the percentiles that provide relevant information regarding the behavior of professors in the six factors of the *positive mental health variable* throughout the covid-19 pandemic.

Theoretical framework

The conceptualization of mental health represents a significant challenge today. Macaya *et al.* (2018) highlight that due to the diversity of interpretations and the lack of conceptual clarity around mental health, there are various perspectives on this concept. This leads to a plurality of ideas about how to relate health to mental health, starting from the notion of health-illness. To address this definition, it is important to consider multiple perspectives, including clinical, social and cultural, since the concept of mental health is complex and has multiple facets based on different approaches: biomedical, behavioral, cognitive and socioeconomic (Macaya *et al.* , 2018).

The World Health Organization (2004) defines mental health as “ a state of well-being in which the individual is aware of his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to your community ” (p. 14). This conceptualization highlights the mental and personal aspects, as well as the habitual interaction with the concept of *enjoying mental health* . This implies the relationship of the person

with their environment, using their adaptive skills, which vary according to the different spaces in which the person is (Vargas, 2018). In essence, mental health manifests itself in the ability to fully enjoy life in relation to other individuals in any context (Santos and Silva, 2022).

On the other hand, Álvaro *et al.* (2012) argue that the conception of mental health has evaluative connotations, since the evaluation of symptoms and attitudes, with their cognitive, emotional and behavioral components, which are used to determine whether a person is healthy or sick, change in function of the resources that the person has to interpret their social reality, as well as the cultural models prevalent in their social, cultural and historical environment. According to these authors, although the concept covers emotional, cognitive and behavioral aspects, it also develops in a symbolic context that evolves throughout culture and history (Ortiz *et al.*, 2022).

Santiago *et al.* (2020) They gathered the concepts related to the positive aspects of mental health and found the following: happiness, optimism, well-being, psychological well-being, emotional well-being, social well-being, flourishing and positive mental health. In addition, they listed the dimensions that make them up, and among the main theoretical models to which they referred are the following:

1. Jahoda's (1958) model of positive mental health, which addresses this concept and its six dimensions: attitudes towards oneself, growth and self-actualization, integration, autonomy, perception of reality and social sensitivity and mastery of the environment.
2. Ryff's theory of well-being (1989) addresses the concept of psychological well-being with six dimensions: self-acceptance, purpose in life, autonomy, positive interpersonal relationships, mastery of the environment and personal growth.
3. Keyes's (1998) theory of social well-being, which addresses the concept of social well-being with five dimensions: social integration, social acceptance, social contribution, social updating and social coherence.
4. Seligman's theory of happiness (2002), which addresses the concept of authentic happiness with three dimensions: positive emotions, commitment and meaning in life.
5. Seligman's (2011) theory of well-being, which addresses the concept of PERMA, with the dimensions of positive emotions, commitment and positive interpersonal relationships.
6. Theory of the complete state of health. Model of the two *continuums* (Keyes, 2005) that addresses the concept of flourishing with thirteen dimensions: positive affects, perceived quality of life, self-acceptance, purpose in life, autonomy, positive interpersonal relationships, mastery of the environment, personal growth, social integration, social acceptance, social contribution and social updating social coherence (p. 118).

7. Multifactorial model of positive mental health by María Teresa Lluch (April 15, 2020), which addresses the concept of positive mental health with the following dimensions: personal satisfaction, prosocial attitude, self-control, autonomy, problem solving and self-actualization, and management skills. interpersonal relationship and is the model on which this research is based.

Santiago *et al.* (2020) assert that positive mental health is a concept made up of two sectors: the hedonic and the eudamonic. The hedonic sector is essentially made up of joy in life, positive and negative emotions and the balance between them; On the other hand, the eudamonic sector is made up of psychic nuances related to autonomy and the ability to resolve complicated situations of daily living, such as aspects of social interrelation, which express the level of social approval and help to humanity that each individual provides, among others. (Santiago *et al.*, 2020).

Materials and methods

The approach of this research work was quantitative, supported by numerical measurements and the exploration of information to establish its behavior (Hernández Sampieri y Mendoza, 2018). The research was non-experimental, since the authors have not conducted the variables and the population was made up of professors from a higher-level educational organization. In addition, a descriptive and inferential analysis was carried out following a cross-sectional design, since the data were collected in a single period of time.

The study was carried out at the beginning of the covid-19 pandemic (from January to March 2020), and during the spread of the SARs-CoV-2 virus (from October 2021 to February 2022). The sample size used in both periods was 201 professors, and was obtained from the sample size formula for finite populations (Aguilar-Barojas, 2005). For this, a confidence level of 95%, a margin of error of 5%, and an equal probability of success and failure of 50% were used. The population was made up of a total of 420 professors. The type of sampling used in both periods was stratified probabilistic.

For field work, the survey technique was used and the questionnaire was used as an instrument. The positive mental health questionnaire proposed by Martínez *et al* was used. (2015). This consists of 39 items that use a Likert scale from 1 to 4 depending on the frequency with which the event described by the question occurs: 1 = *never*, 2 = *almost never*, 3 = *frequently* and 4 = *always*. (Soto-Crofford y Deroncele-Acosta, 2021).

These 39 items are distributed among the six factors that define the concept: personal satisfaction with nine items, among which are statements such as “I like who I am,” “I feel about

to explode,” “I see my future with pessimism.” and “I feel dissatisfied with myself.” Prosocial attitude with five items, with statements such as the following: “I find it especially difficult to accept others when they have different attitudes than mine”, “I think I am a trustworthy person” and “I think about the needs of others” . Self-control with five items, with statements such as the following: “Problems block me easily”, “I am able to control myself when I experience negative emotions” and “I am able to maintain a good level of self-control in conflictive situations in life”. Autonomy with five items, such as “I am worried about what others think of me”, “Others' opinions have a great influence on my decision-making” and “I am worried that people criticize me”. Problem solving and self-actualization with nine items, among which are “I am able to make decisions for myself”, “I try to improve as a person”, “When faced with a problem I am able to request information” and “I am able to Say no when I want to say no. Finally, interpersonal relationship skills with statements such as “I have difficulty establishing deep and satisfying interpersonal relationships with some people,” “I think I am a sociable person,” and “I have difficulty relating openly with my teachers/bosses.”

The formulation of each of the questions and indicators that evaluate the different factors of positive mental health allowed the collection of sufficient information to know its behavior in higher education professors. The results were analyzed using descriptive statistical analysis, with which the average of each of the factors of the *positive mental health variable was obtained* ; In addition, inferential statistics were used through the use of the comparison of means method to compare the behavior of the variable at the beginning and during the pandemic. These statistical analyzes were carried out using SPSS *software* (version 25) and Excel as support.

To know the changes in the state of positive mental health in higher education professors before and during the covid-19 pandemic, the non-parametric Mann Whitney U test was carried out (Anderson et al., 2008) . It was determined that this test was the most appropriate for the inferential analysis of the data, given that the Kolmogorov Smirnov test was previously carried out (Romero-Saldaña, 2016), which showed the behavior of the distribution of the items and factors of the positive mental health variable as non-normal, obtaining -p values less than the significance value of 0.05.

During the inferential statistical analysis, it was necessary to generate information that would allow us to know the dispersion of the data, so the percentiles were obtained. “The percentile fragments the data into two segments; boundary of p percent of the data present values lower than the p percentile and around (100-p) percent of the observations present values greater than or equal

to the p percentile (Anderson *et al.*, 2008, p. 86). These percentiles provide the generation of information regarding the dispersion of observations in an interval from the smallest to the largest.

Results

The following findings are presented with the objective of answering the research question formulated, that is, is there any significant change in the level of positive mental health at the beginning and throughout the covid-19 pandemic in professors of a higher education organization ? The answer to this question was found through the results found when concluding the specific objectives already indicated.

Descriptive analysis

Obtaining numerical measurements allowed us to know the behavior of the data in a clear and precise way. In this sense, professors from a higher-level educational organization presented an average positive mental health at the beginning of the pandemic of 3.3 and throughout the pandemic at a level of 3.1 with a standard deviation of 0.33; on a scale from 1 to 4 , where: 1 = *never* , 2 = *almost never* , 3 = *frequently* and 4 = *always* . Tables 1 and 2 present the results of the means by dimension and the general means, as well as the corresponding standard deviations obtained in the two periods of information collection.

Table 1. Descriptive statistics of the positive mental health variable at the beginning of the covid-19 pandemic

Factor	Half	Standard deviation
Personal satisfaction	3.63	0.76
Prosocial attitude	3.36	0.85
Self-control	3.20	0.88
Autonomy	3.30	0.93
Troubleshooting and self-updating	3.51	0.76
Relationships	2.99	0.96
Overall average	3.33	

Source: self made

Table 2. Descriptive statistics of the positive mental health variable throughout the covid-19 pandemic.

Dimension	Half	Standard deviation
Personal satisfaction	3.35	0.47
Prosocial attitude	3.39	0.39
Self-control	2.84	0.42
Autonomy	2.91	0.51
Troubleshooting and self-updating	3.35	0.43
Relationships	2.96	0.55
Overall average	3.14	0.33

Source: self made

The dimensions that presented the highest averages of positive mental health were prosocial attitude, personal satisfaction and problem resolution and self-actualization; while the lowest averages were presented in the dimensions of self-control, autonomy and interpersonal relationships.

Inferential analysis

The steps carried out in the Mann Whitney U test are presented below:

1. Formulation of the null hypothesis: There is no difference between the average levels of positive mental health at the beginning and during the covid-19 pandemic.

$$H_0 : \mu_1 = \mu_2$$

$$H_0 : 3.3 = 3.1$$

2. Formulation of the alternative hypothesis: There is a difference between the average levels of positive mental health at the beginning and during the covid-19 pandemic.

$$H_1 : \mu_1 \neq \mu_2$$

$$H_1 : 3.3 \neq 3.1$$

3. Ascending ordering of data and rank assignment. It is presented in table 3 and 4.

Table 3. Ascending sort and rank assignment

Rang e	Dimension	Half	Moment	Range	Dimension	Half	Moment
1	Self-control 2	2.84	During	7	Personal satisfaction 2	3.35	During
2	Autonomy 2	2.91	During	8	Troubleshooting 2	3.35	During
3	Relations interpersonal 2	2.96	During	9	Prosocial attitude 1	3.36	At the beginning
4	Self-control 1	3.20	At the beginnin g	10	Prosocial attitude 2	3.39	During
5	Autonomy 1	3.30	At the beginnin g	eleven	Troubleshooting 1	3.51	At the beginning
6	Relations interpersonal 1	3.33	At the beginnin g	12	Personal Satisfaction 1	3.63	At the beginning

Source: self made

Table 4. Classification of scores according to the moment of application of the questionnaire with the corresponding range

At the beginning	Range	During	Range
3.20	4	2.84	1
3.30	5	2.91	2
3.33	6	2.96	3
3.36	9	3.35	7.5
3.51	Eleven	3.35	7.5
3.63	12	3.39	10
	R1=47		R2=31

Source: self made

4. Obtaining the upper and lower critical limits: $\mu_u \pm z_{\alpha} \frac{\sigma_u}{2}$

where $\mu_u = \frac{n_1 n_2}{2} = \frac{(6)(6)}{2} = 18$ is the mean of the statistic U .

$z_{\frac{\alpha}{2}}$ is obtained from the significance level: $z_{\frac{.10}{2}} = z_{.05} = 1.645$

$$\sigma_u = \sqrt{\frac{n_1 n_2 (n_1 + n_2 + 1)}{12}} = \sqrt{\frac{(6)(6)(6 + 6 + 1)}{12}} = 6.24 \text{ Therefore:}$$

$$\mu_u \pm z_{\frac{\alpha}{2}} \sigma_u = 18 \pm (1.645)(6.24) = (18 \pm 10.26) = (7.74, 28.26)$$

5. Obtaining the U statistic: $U = n_1 n_2 + \frac{n_1(n_1 + 1)}{2} - R_1; U = (6)(6) + \frac{(6)(7)}{2} - 47 = 13$

6. The value of the statistic $U = 13$ falls within the range of critical limits; Therefore, the null hypothesis is accepted and it is concluded that the average levels of positive mental health in higher education professors at the beginning and during the pandemic are equal, which suggests that the changes that occurred in these levels were not They are significant.

The results of this research reflect that higher education professors have a high level of positive mental health, despite the problems presented by the covid-19 pandemic. For a better understanding of positive mental health, Table 5 identifies the dimensions with the lowest levels among higher education professors with the aim of addressing possible areas of opportunity. To this end, the percentiles were obtained that revealed the percentage of professors who presented a low level in any of the six dimensions of this variable (table 5), that is, who *almost never* presented positive mental health. during the covid-19 pandemic.

Table 5. Positive mental health variable, factors and percentiles

Percentile	Dimensions					
	Personal satisfactio n	Attitude prosocial	Self-control	Autonomy	Troubleshooting and self-updating	Relations interpersonal
5	2.5	2.8	2.2	2.2	2.6	2.0
10	2.6	2.8	2.2	2.2	2.9	2.1
fifteen	2.9	3.0	2.4	2.4	2.9	2.2
twenty	3.0	3.0	2.4*	2.4*	3.0	2.4*
25	3.0	3.2	2.6	2.6	3.0	2.7
30	3.1	3.2	2.6	2.6	3.1	2.7
35	3.1	3.2	2.6	2.6	3.2	2.9
40	3.2	3.2	2.8	2.8	3.2	2.9
Four. Five	3.2	3.4	2.8	2.8	3.3	2.9
fifty	3.4	3.4	2.8	2.8	3.3	3.0
55	3.4*	3.4	2.8	3.0	3.4	3.0
60	3.5	3.4*	3.0	3.0	3.6	3.1
65	3.6	3.6	3.0	3.0	3.6	3.2
70	3.7	3.6	3.0	3.2	3.7	3.3
75	3.8	3.6	3.0	3.3	3.7	3.3
80	3.8	3.8	3.2	3.4	3.8	3.4
85	3.9	3.9	3.2	3.4	3.9	3.6
90	4.0	4.0	3.4	3.6	3.9	3.7
95	4.0	4.0	3.6	3.8	4.0	3.9

Source: self made

According to the results presented in Table 5, between 55% and 60% of professors *frequently express* personal satisfaction and a prosocial attitude, while 20% *almost never* present self-control, autonomy, and interpersonal relationships; Regarding the *problem resolution and self-actualization dimension*, the professors presented a level 3 and 4 corresponding to *frequently* and *always*.

Discussion

The results show that higher education professors present high levels of positive mental health with an average of 3.1 on a scale from 1 to 4 (see table 2). These data are relevant, since this study was carried out during the covid-19 pandemic, when many factors affected the physical and mental health of people in general. Salinas-Rehbein and Ortiz (2020) propose from health psychology that health-disease processes are determined by multiple factors, including biological, behavioral and social factors such as those generated in interpersonal relationships, which have been widely studied for their effect on health. physical and mental. This suggests that higher education professors knew how to adapt their social relationships during the pandemic, since those people who suffer more stress and get sick less (Salinas-Rehbein y Ortiz, 2020).

In addition, the good management and adaptation of ICT by professors must be considered to carry out their work, since during the virtual classes the need to make innovations in the teaching-learning processes arose, which It could have had negative consequences on your mental health (Cuenca *et al.*, 2020). Therefore, it is important that higher education institutions provide technical support and training courses for better management of ICT, since this type of frustration can cause physical and mental exhaustion, lack of absolute motivation, sensitivity to criticism, loss of energy and stress .

Likewise, strategies should be planned to improve the mental state of those who already presented low levels of positive mental health. This is of greater relevance in complicated times such as those experienced by the Covid-19 pandemic, and can be achieved by providing care to professors at a psychosocial level and providing them with tools to improve their emotional management in uncertain and demanding scenarios (Said-Hung *et al.*, 2021). It is also suggested to design strategies to cope with the excessive workloads caused by online classes, since such drastic changes can cause alterations in the mental health of the teacher and the student (Alvarado y Berra, 2021; Delgado-Benavides y Henríquez-Coronel, 2021; Salinas-Rehbein y Ortiz, 2020).

On the other hand, when analyzing in more detail the six dimensions of the professors' positive mental health, it was found that the highest average was that of prosocial attitude, with an average of 3.39 (see table 2). This dimension evaluates relationships with other people and the way in which the teacher perceives what his coworkers think of his behavior. In this sense, it is inferred that positive mental health remained at a high level, mainly due to social relationships in the workplace and the way in which professors adapted to continue with a positive prosocial attitude during the pandemic. (Salinas-Rehbein y Ortiz, 2020). The analysis of the percentiles showed that between 55% and 60% of the professors expressed that they frequently felt personal satisfaction

and a prosocial attitude, which reaffirms that the problems they experienced during the pandemic did not affect social relationships with their colleagues. work, nor the satisfaction generated by doing teaching work.

On the other hand, the positive mental health dimension with the lowest index was self-control, with an average of 2.84 (see table 2). This should be interpreted as an area of opportunity, since the pandemic may have affected your ability to control and manage feelings of emotional instability, stress, insecurity, and impulsive behaviors. Delgado-Benavides and Henríquez-Coronel (2021) explain that self-control in today's teachers must be recognized as an elementary skill and capacity for the development of adequate work; Therefore, the educational system must readjust the teaching profile and articulate socio-emotional strategies to reduce impulsive actions, frustration, emotional imbalance and loss of teacher patience. In this way, the permanence, continuity and compliance of the teaching-learning process can be guaranteed. In addition, they must be helped to improve their interpersonal relationships, contribute to decision-making with greater lucidity, optimize their self-esteem, facilitate their development in complex situations with better efficiency and allow them to maintain emotional stability (Delgado-Benavides y Henríquez-Coronel, 2021).

On the other hand, the percentile results found that 20% of professors *almost never* felt autonomy during the covid-19 pandemic. Autonomy is normally related to the concern that people experience about what others think of them, that is, the concern they have when people criticize them, the difficulty in having personal opinions, and the security they feel when making important decisions. This lack of autonomy could affect the positive mental health of the professors and negatively impact their ability to create their own criteria, self-regulate, be independent, and have self-confidence. This suggests that higher education professors experienced problems adapting to a more autonomous way of working, where they had to make personal decisions to be able to teach online. These decisions were complicated, since they forced professors to make personal financial outlays to pay for certain technologies, Internet access and other technological tools, in addition to planning changes in the work day, in consulting hours, in clarifying doubts, in the didactics used and in the development of the educational resources used, with which they lost autonomy in the administration of their time.

Another dimension of positive mental health analyzed in the percentiles showed that 20% of them *almost never* felt emotional support to establish deep and satisfying interpersonal relationships with their coworkers or bosses. This lack of connections caused them to have difficulty understanding others' feelings and being empathetic with their peers' way of expressing

themselves. This is important because interpersonal relationships allow the flow of information and knowledge necessary between people to ensure the survival of any society, and this coexistence was abruptly stopped as part of the health measures in the covid-19 pandemic. The proposal to overcome this problem is not to neglect ties by promoting social and recreational events, such as gatherings and sports competitions. In addition, new means of communication can be adopted that facilitate coexistence in case of not being able to carry out physical activities. These activities can help reduce the social isolation arising from the pandemic, which, in turn, can reduce its negative effects, such as an increase in anxiety-depressive disorders, cardiovascular diseases, diabetes mellitus, and an increase in *mortality* . among others (Salinas-Rehbein y Ortiz, 2020).

In short, the results suggest that thanks to the strategies that were implemented during the pandemic in the higher-level educational organization, the average levels of the positive mental health variable remained without significant changes at the beginning and during the health emergency. Even so, it is important that higher education institutions are prepared to continue the teaching-learning process. For this, it is necessary that professors are better trained in the use of ICT and publication of online content. Therefore, it is essential that institutions offer courses for their professors to update their knowledge in these areas and provide them with psychological support and tools to improve their mental health care.

Conclusions

In the social empirical field, the implementation of this educational research project has made it possible to identify the level of positive mental health of professors at the beginning and during the covid-19 pandemic, as well as present a classification of the strengths and weaknesses in each one. of the dimensions of this variable. Although the level of positive mental health of higher education professors was good throughout the covid-19 pandemic, this research proposes activities that allow better development of comprehensive health, especially for the 20% of teachers who They *almost never* presented self-control, autonomy and interpersonal relationships.

In addition, it is important that measurements are made of mental health aspects that may affect the performance of professors to identify areas of opportunity in the work environment. Positive mental health can be very useful to improve the performance of professors, especially in aspects related to self-control and autonomy, since these two factors were the ones that achieved the lowest rates during the pandemic. This shows that professors need support to feel that they have more control over the time necessary to program, design and carry out their activities in front of a group, in addition to feeling that they have the support of their superiors in case they develop their

skills with the use of ICT. and mastery of online classes. If activities are not carried out to improve the lowest dimensions of positive health, a stressful work environment may be experienced that may lead professors to express problems that affect their mental health and their work in front of a group, such as anxiety, difficulty in adaptation psychosocial, depressive symptoms, grief, addictions, violence, insomnia, among others.

Therefore, it must be kept in mind that positive mental health is dynamic, and not conclusive, depending on the internal and external circumstances of individuals. In short, it is a process that is built daily through adaptation and stabilization processes.

The scientific contribution of this research has generated valuable information for identifying the levels of biopsychosocial well-being of professors at the beginning and during the pandemic, which can help strengthen their teaching work and their quality of life.

Future lines of research

This research will serve as a background to carry out comparative studies of positive mental health and its impact on the behavior of employees of organizations; Furthermore, the continuation of research is proposed that allows focusing on this topic with emphasis on generating solutions to this health problem, as well as its study prioritization.

It is important to consider that positive mental health—being understood as the set of personality characteristics and biopsychosocial skills that people possess to achieve their vital and self-realization goals—presents changes continuously depending on the way they adapt to crises. , the different moments and sociocultural contexts in which collaborators operate.

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Contribution Role	Author(s)
Conceptualization	Linda Miriam Silerio Hernández, Mayela del Rayo Lechuga Nevárez <<same>>
Methodology	Linda Miriam Silerio Hernández, Mayela del Rayo Lechuga Nevárez <<same>>
Software	Linda Miriam Silerio Hernández, Mayela del Rayo Lechuga Nevárez <<same>>
Validation	Linda Miriam Silerio Hernández, Mayela del Rayo Lechuga Nevárez <<same>>
Formal Analysis	Linda Miriam Silerio Hernández, Mayela del Rayo Lechuga Nevárez <<same>>
Investigation	Linda Miriam Silerio Hernández, Mayela del Rayo Lechuga Nevárez <<same>>
Resources	Linda Miriam Silerio Hernández, Mayela del Rayo Lechuga Nevárez, Gustavo Morán Soto <<equal>>
Data curation	Linda Miriam Silerio Hernández, Mayela del Rayo Lechuga Nevárez, Gustavo Morán Soto <<equal>>
Writing - Preparation of the original draft	Linda Miriam Silerio Hernández, Mayela del Rayo Lechuga Nevárez, Gustavo Morán Soto <<equal>>
Writing - Review and editing	Linda Miriam Silerio Hernández, Mayela del Rayo Lechuga Nevárez, Gustavo Morán Soto <<equal>>
Display	Linda Miriam Silerio Hernández, Mayela del Rayo Lechuga Nevárez <<same>>
Supervision	Linda Miriam Silerio Hernández, Mayela del Rayo Lechuga Nevárez, Gustavo Morán Soto <<equal>>
Project management	Linda Miriam Silerio Hernández, Mayela del Rayo Lechuga Nevárez <<same>>
Fund acquisition	Linda Miriam Silerio Hernández, Mayela del Rayo Lechuga Nevárez, Gustavo Morán Soto <<equal>>