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Do optimism and subjective well-being help in coping with COVID-19?

¿Ayuda el optimismo y el bienestar subjetivo en el afrontamiento del COVID-19?

O otimismo e o bem-estar subjetivo ajudam no enfrentamento da COVID-19?

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Abstract

The SARS-CoV-2 pandemic has affected the whole world, bringing uncertainty and changes in people's lives, including in their emotional aspects. The main aim of this study was to understand, in the light of Positive Psychology, which are the roles of positive and adaptive internal resources for coping with the situation, highlighting the optimism and subjective well-being constructs as auxiliaries in this process. For that a cross-sectional study with a correlational design was carried out. The survey was conducted via internet, with a sample of 433 people, using a sociodemographic questionnaire, the Satisfaction with Life Scale, Affects Scale and LOT-R. Statistical regression analyses, correlations, t-test and ANOVA were performed. As a result, it was confirmed that optimism and the components of well-being are significantly related, with a strong magnitude and that there is a predictive power of optimism with the components of well-being, and family income on positive affect and satisfaction with life. COVID-19 coping variables showed data variance in relation to the components of subjective well-being and optimism.

Keywords: COVID-19; subjective well-being; optimism; pandemic; positive psychology

Resumen

La pandemia por el virus SARS-CoV-2 ha afectado al mundo entero, trayendo incertidumbres y cambios en la vida de las personas, incluso en sus aspectos emocionales. El objetivo de este estudio fue comprender, a la luz de la psicología positiva, cuáles son los recursos internos positivos y adaptativos para el afrontamiento de esta situación, donde se destacan los constructos optimismo y bienestar subjetivo como auxiliares en ese proceso. Para esto se realizó un estudio cuantitativo, con diseño correlacional y análisis transversal. La encuesta se realizó vía internet, con una muestra de 433 personas, utilizando un cuestionario sociodemográfico, la Escala de Satisfacción con la Vida, Escala de Afecto y LOT-R. Se realizaron análisis estadísticos de regresión, correlación, pruebas t y ANOVA. Como resultado, se confirmó que el optimismo y los componentes del bienestar están significativamente relacionados, con una fuerte magnitud y que existe un poder predictivo del optimismo con los componentes de bienestar e ingreso familiar sobre el afecto positivo y satisfacción con la vida. Las variables de afrontamiento al COVID-19 presentaron variación de datos en relación a los componentes de bienestar subjetivo y optimismo.

Palabras clave: COVID-19; bienestar subjetivo; optimismo; pandemia; psicología positiva

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Resumo

A pandemia de SARS-CoV-2 tem afetado o mundo inteiro, trazendo incertezas e mudanças na vida das pessoas, inclusive em seus aspectos emocionais. O objetivo deste estudo foi compreender, à luz da psicologia positiva, quais são os recursos internos positivos e adaptativos para o enfrentamento da situação, destacando os construtos otimismo e bem-estar subjetivo como auxiliares nesse processo. Para tanto realizou-se estudo quantitativo, com delineamento correlacional e coleta transversal. A pesquisa foi realizada via internet, com uma amostra de 433 pessoas, utilizando-se um questionário sociodemográfico, a Escala de Satisfação com a Vida, Escala de Afetos e LOT-R. Foram realizadas análises estatísticas de regressão, correlação, teste t e ANOVA. Como resultado, confirmou-se que o otimismo e os componentes do bem-estar estão relacionados de maneira significativa, com magnitude forte e que existe um poder preditivo de otimismo com os componentes de bem-estar e renda familiar sobre afetos positivos e satisfação com a vida. As variáveis de enfrentamento da COVID-19 apresentaram variação de dados em relação aos componentes de bem-estar subjetivo e otimismo.

Palavras-chave: COVID-19; bem-estar subjetivo; otimismo; pandemia; psicologia positiva

The COVID-19 pandemic rapidly spread across the globe in 2020 and 2021. The increasing number of infected individuals, collective mourning, social distancing, and absences gave rise to a myriad of emotions, including fear, anxiety, loneliness, insecurity, family conflicts, anguish, guilt, and anger. This list aptly describes the feelings experienced by a significant portion of the population during the COVID-19 era (Li et al., 2020; Serafini et al., 2020; Wang et al., 2020). Nevertheless, people also needed to tap into both external and internal positive and adaptive resources to cope with the situation, such as seeking help from mental health professionals like psychologists (Karekla et al., 2021; Schmidt et al., 2020).

In a review of the psychological impact of quarantine on individuals, Brooks et al. (2020) identified several stressors responsible for these effects, including quarantine duration, fear of contamination, inadequate information, and financial loss, among others. Zanon et al. (2020) further highlighted that prolonged social isolation and confinement led to the development of various psychological symptoms, especially stress, depression, and anxiety.

A study conducted by Almeida et al. (2020) emphasized the importance of social restriction measures, while also recognizing the adverse consequences for family income and the direct impact on the physical and mental health of individuals. These impacts affected different segments of the population unequally, with socially vulnerable groups suffering the most due to exposure to the virus and poor working conditions, coupled with low family income. The study's results indicated that over half of the respondents reported a decrease in family income, with more than a quarter of those surveyed losing their jobs, with informal workers being the most affected.

The uncertainties surrounding the disease, the loss of loved ones, social isolation, and the need to adapt to the new pandemic-imposed restrictions have led to significant

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psychological issues (Lima et al., 2021). Estrela et al. (2020) provided insights into individuals' self-assessment of their health conditions, with 29.4 % reporting a deterioration in their health, 45 % experiencing sleep problems, 40 % frequently feeling sad, and 52.5 % dealing with anxiety or nervousness. Additionally, 21.7 % sought health services, and among them, 13.9 % were unable to receive care. These effects were even more pronounced in individuals with a prior diagnosis of depression, aligning with international studies assessing mental health during the pandemic (Qiu et al., 2020; Webster et al., 2020).

Amid the COVID-19 pandemic and extended periods of isolation, people had to develop coping strategies utilizing their available psychological resources. Many individuals turned to unhealthy coping mechanisms such as increased alcohol and food consumption, smoking, or other forms of buffering (Brooks et al., 2020). Conversely, others began to appreciate family time, strengthen their bonds with loved ones, engage in outdoor or indoor activities with their families, and dedicate themselves to personal growth and skill improvement (Brouzos et al., 2021). Waters et al. (2022) suggest that positive psychology factors can play a crucial role in building positive capacities and internal processes to confront these challenges.

The focus of this study lies in the constructs of Positive Psychology, namely, optimism and subjective well-being (SWB). Optimism is associated with individuals' positive expectations about the future, reflecting a belief in positive outcomes (Carver & Scheier, 2014). It is defined as a motivating force that sustains an individual's persistence and resilience, enabling them to persist in their pursuits even in the face of difficulties and obstacles (Carver et al., 2010). Optimism is rooted in motivation, shaping behavior around the pursuit of one's goals.

SWB comprises a cognitive factor (e.g., life satisfaction) and two emotional factors (e.g., positive and negative affects) that collectively determine one's perceived happiness (Diener et al., 2017). Positive affects refer to the frequency and intensity of positive emotions like enthusiasm and joy, while negative affects encompass emotions like anguish, sadness, and fear (Watson & Clark, 1994). Individuals with high SWB exhibit high levels of life satisfaction, frequent positive affects, and infrequent negative affects (Zanon et al., 2020). SWB pertains to the assessment of one's positive life experiences, encompassing aspects such as family, work, social relationships, and positive affective experiences (Woyciekoski et al., 2014).

The research around subjective well-being has increased significantly in recent decades, largely due to the propositions of the scientific movement of Positive Psychology (Passarelli & Silva, 2007). According to Genç and Arslan (2021), this increased interest led researchers to examine the SWB in relation to a set of psychological, social and cultural variables, including optimism and hope.

In light of the above, this study aims to investigate the relationship between optimism and subjective well-being during the COVID-19 pandemic's psychological toll (Orsini & Rodrigues, 2020). A search conducted in PsycInfo on November 25, 2021, using keywords such as 'COVID-19 pandemic,' 'positive psychology,' 'optimism,' and 'subjective well-being' revealed a lack of relevant articles within Brazilian literature. Therefore, this study delves into the internal and external resources individuals require, to cope with the global crisis resulting from social isolation, quarantine, and lockdowns (Sohrabi et al., 2020). By examining these constructs and their role in managing uncertainty during the pandemic, the authors aim to support interventions that promote mental health and well-being during and after this crisis.

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The primary objectives of this survey are to understand, within the framework of Positive Psychology, the roles of positive and adaptive internal resources in coping with the COVID-19 pandemic. Specifically examine the constructs of optimism and subjective well-being as potential facilitators in this process. The study explores the relationships between optimism, subjective well-being, and measures taken to cope with the COVID-19 pandemic. Additionally, it was investigated the explanatory power of optimism in relation to components of subjective well-being, while considering factors such as monthly family income, the initiation of psychological and psychiatric treatments, and the use of controlled medications. A final purpose of this survey was to verify whether the way in which the participants endorse the behaviors in connection with the pandemic coping have an impact on the constructs addressed.

Hypothesis

For this study the following hypotheses were formulated:

H1: It is estimated that the present study will find significant, low to moderate correlations between optimism and the components of subjective well-being in coping with the COVID-19 pandemic.

H2: It is believed that optimism, initiation of psychological and psychiatric treatments and use of controlled drugs, in addition to monthly income, will have a significant impact on the components of subjective well-being.

H3: It is believed that significant differences will be found in the variables associated with COVID-19 coping, namely, monthly family income during the pandemic, beginning of psychological or psychiatric treatment, use of medication, among others, in relation to the endorsement of the items by the participants.

Method

Participants

A total of 433 participants, aged between 18 and 79 years ($M = 44.5$; $SD = 13.4$), both genders, participated in this study; 85.3 % were women, 52.4 % of the respondents were married and 54.5 % were postgraduate students or had completed their postgraduate course. The participants were invited by convenience (social media and networking of the authors) and had to be over 18 to participate and accept the free and informed consent form. Participants are from all geographic regions of Brazil with predominance of the Southeast region (77.8 %). Out of the total number of participants, 15.9 % started their psychological sessions during the pandemic; 7.9 % started psychiatric treatment and 16.9 % started taking controlled medication; 81.5 % experienced mood swings; 53.3 % were afraid of transmitting the virus, 38.8 % were afraid of contracting the virus and 18.7 % said they had been contaminated by the virus.

Instruments

Sociodemographic Questionnaire. The questionnaire was prepared by the authors, exclusively for this survey, aiming to obtain relevant information about the sociodemographic characteristics: age, sex, marital status, education, ethnicity, region in which they live, data about work, income, employment status during the pandemic, mental health during the pandemic, feelings and behaviors caused by COVID-19, behavior in the face of the political, hygiene and health recommendations guidelines imposed by the government, and whether there was COVID-19 contagion (by themselves

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or someone of the family). This tool consisted of 44 items that collected data on the participants.

Revised Life Orientation Test (LOT-R; Scheier et al., 1994; Bastianello et al., 2014). The LOT-R is a self-report instrument to measure dispositional optimism and consists of 10 items, three about pessimism (items 3, 7 and 9), three about optimism (items 1, 4 and 10) and four filter items, which results are not computed. Questions examples include the following: "Considering the difficulty, I believe everything will be all right" and "I don't expect good things to happen to me". The answer key is a Likert-type scale, ranging from 1 *strongly disagree* to 5 *strongly agree*. The test had an internal consistency of .80 and a one-dimensional structure for the Brazilian sample (Bastianello et al., 2014).

Satisfaction with Life Scale (SWLS; Diener et al., 1985; Giacomoni & Hutz, 1997). The instrument consists of 5 self-report items with a Likert-type statements ranging from 1 to 7, where 1 is *strongly disagree* and 7 is *strongly agree*. SWLS measures the level of overall life satisfaction and participants should mark sentences such as "If I were born again, I would change almost nothing in my life" and "The conditions of my life are excellent". The scale revealed an adequate precision index, with a coefficient of $\alpha = .87$ (Zanon et al., 2013).

Positive and Negative Affect Schedule (PANAS; Zanon et al., 2013). PANAS is a self-report instrument for evaluating the positive and negative affects that the individual experiences. The instrument consists of 20 items, 10 of which are positive affects (PA) and 10 items are negative affects (NA), presenting a two-factor solution for the set of items. The items are composed of sentences to be marked on a 5-point Likert-type scale in which the participants mark a number that corresponds to how much they feel the emotions described in the sentences, being 1: *strongly disagree* and 5: *strongly agree*. The items are composed of sentences like: "I've felt sad lately" and "I'm brave when I'm faced with a challenge". The scale has an internal consistency of $\alpha = .88$ and $\alpha = .85$ for positive and negative affects respectively (Zanon et al., 2013).

Procedures

After the project was approved by the Research Ethics Committee of Universidad São Francisco (CAEE: 44259521.6.0000.5514), the link for data collection was disclosed on social networks (Instagram, Facebook, LinkedIn and WhatsApp). The collection took place online, using Google Forms, from 03/19/2021 to 05/05/2021 and to start the survey, participants had to indicate their agreement with the Free and Informed Consent Term. The average duration of collection was 20 minutes. The data collection took place virtually due to the measures implemented to fight the COVID-19 pandemic, thus following the guidelines of the World Health Organization (WHO, 2020), including maintaining social distancing and/or quarantine, according to the seriousness of the situation.

Study design and data analysis

This is a cross-sectional, quantitative, descriptive and correlational study. It aims to describe and determine the relationship between variables, as well as possible predictions (Hernández et al., 2014).

Initially, to analyze the normality of the sample, the Shapiro-Wilk technique was used ($p = .221$). As the distribution proved to be normal, it was decided to use parametric statistics. It is noteworthy that the Shapiro-Wilk has weaknesses in detecting normality in small samples, however, in large samples (such as the one in the present study), it

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proves to be an effective technique, as it presents significance for small deviations from normality (Miot, 2017).

In order to meet the objectives proposed by this investigation, the statistical program Jamovi (2020) was used. To assess the relationship between optimism and the components of subjective well-being in coping with the Covid-19 pandemic, the Pearson coefficient (*r*) was used. Levels of $p < .05$ were considered statistical significance indicators. The magnitude of the correlations was interpreted according to the classification of Cohen (1988), namely, .01 to .09 null, .10 to .29 weak, .30 to .49 moderate and .50 to 1.0 strong.

In order to investigate the explanatory power of optimism and income on subjective well-being, the authors used linear regression analysis. Subjective well-being (life satisfaction and affection) was considered as dependent variable (DV) and optimism, beginning of psychological and psychiatric treatments and use of controlled drugs and family income, as independent variables (IV).

Regarding the differences in behavior in the face of the COVID-19 pandemic in terms of optimism and components of subjective well-being, the t-test was used. Finally, to investigate possible differences in monthly income in terms of optimism and components of subjective well-being, ANOVA was used. To verify the significance of differences between groups, the Games-Howell post-hoc test was applied.

Results

The description of the survey outcome will follow the sequence of the proposed objectives and hypotheses. To assess the relationship between the constructs (optimism and components of subjective well-being), the Pearson's correlation analysis (*r*) was performed. Table 1 presents the coefficients found.

Table 1
Correlation between Optimism and Subjective Well-being

	Optimism	LS	Positive Affects
Optimism			
Life Satisfaction	.55*		
Positive Affects	.66*	.59*	
Negative Affects	-.53*	-.45*	-.51*

Note. LS: Life Satisfaction. *$p < .01$

As can be seen in Table 1, all constructs were statistically significantly correlated, with moderate to strong magnitudes. The strongest correlations were between optimism and positive affects (*r* = .66), life satisfaction and positive affects (*r* = .59) and optimism and life satisfaction (*r* = .55).

To understand how optimism, income, the beginning of the psychological treatment and of the psychiatric treatment and the use of medication (IV) explain the components of subjective well-being (DV), and with a view to responding to the second study objective, regression analyses were performed.

Table 2

Regression Analysis: individual contributions of independent variables

	Beginning of psychological and/or psychiatric care		Use of controlled medications		Family income		Optimism	
	β	*p*	β	*p*	β	*p*	β	*p*
Life Satisfaction	.013	.742	.059	.137	.268	.000	.479	.000
Positive affect	.014	.709	.000	.991	.071	.058	.644	.000
Negative affect	-.083	.046	-.152	.000	-.043	.304	-.493	.000

The models were designed considering each component of subjective well-being separately, as indicated by the literature (Diener et al., 2017). For the cognitive component, the regression model was significant $F(4, 427) = 106.75$, $p < .000^b$. The independent variables explained 37 % of the variance in life satisfaction. Regarding the affective components of subjective well-being, the results pointed to significant models in both cases. With regard to positive affects, it was found $F(4, 427) = 106.75$, $p < .000^b$, explaining 44 % of the variance of the dependent variable. Finally, in relation to negative affects, the results pointed to $F(4, 427) = 106.75$, $p < .000^b$, explaining 31 % of the variance of the dependent variable. In Table 2 it is possible to observe the prediction values and their respective significance values.

It was possible to observe that two predictors demonstrated a significant contribution in relation to life satisfaction, namely optimism and monthly family income. Similar to the previous finding, two predictors were shown to have a significant impact on positive affect, namely optimism and monthly family income with a marginal difference. The variables that significantly impacted negative affects were optimism, started psychological or psychiatric care during the pandemic and finally started taking some controlled medication for anxiety or depression during the pandemic (Table 2).

In order to address the third objective, which concerns the mean differences between the variables related to COVID-19 and the constructs investigated in this article, some significant results were found. Participants who started psychological treatment during the pandemic exhibited higher averages in negative affects than those who did not ($M_{\text{start psychological treatment}}= 30.92$, $M_{\text{did not start psychological treatment}}= 28.74$, $p = .014$). The same result was found with the sample volunteers who started psychiatric treatment ($M_{\text{started}}= 31.70$, $M_{\text{did not start}}= 28.82$, $p = .017$) and who started taking medication for anxiety or depression during the pandemic ($M_{\text{started taking medication}}= 32.82$, $M_{\text{did not start}}= 28.20$ $p = .001$), that is, the groups of individuals who showed these behaviors had higher averages in negative affects (Table 3).

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Table 3

Differences in means between psychological and psychiatric treatment groups and medication use

	M(SD)					
	Psychological (Yes – n = 69)	Psychological (No – n = 364)	Psychiatric (Yes – n = 34)	Psychiatric (No – n = 399)	UCM (Yes – n = 73)	UCM (No – n = 360)
Optismim	24.8(4.02)	24.7(4.45)	23.6(5.27)	24.8(4.29)	23.3(4.63)*	25(4.28)*
Life Satisfation	25.5(5.99)	26.1(5.69)	24.4(5.69)	26.1(5.72)	24.2(5.76)*	26.3(5.67)*
Positive affects	39(5.57)	39.2(5.71)	38.2(5.98)	39.2(5.65)	37.9(6.15)*	39.4(5.55)*
Negative affects	30.9(5.40)*	28.7(7.17)*	31.7(5.97)*	28.8(7)*	32.8(6.39)**	28.2(6.83)**
Intra	19.2(3.49)	19.4(3.57)	18.4(4.17)	19.4(3.50)	18.6(4.05)	19.5(3.44)
Inter	35.3(5.78)	34.9(6.25)	35.4(5.98)	35.5(6.19)	35(6.10)	35(6.19)

Note. Psychological: Start Psychological treatment during the pandemic. Psychiatric: Start psychiatric treatment during the pandemic. UCM: Use of controlled medications.
* $p < .05$ **$p < .001$

As shown in Table 4, in the follow-up, those participants who did not experience changes in attention, memory or concentration during the pandemic had higher means in some constructs, namely: optimism ($M_{\text{without alteration}}$= 26.00; $M_{\text{with alteration}}$= 23.85; $p < .001$), satisfaction with life ($M_{\text{without alteration}}$ = 24.7; M = 24.7; $p < .001$) and positive affect ($M_{\text{without alteration}}$ = 40.9; $M_{\text{with alteration}}$ = 37.8; $p < .01$). On the other hand, the individuals who experienced the changes had higher means in negative affects ($M_{\text{with alteration}}$ = 31.20; $M_{\text{without alteration}}$ = 25.92; $p < .001$). Regarding the behavior adopted to face the COVID-19 pandemic, respondents who indicated that they followed the WHO protection and hygiene recommendations exhibited higher averages in life satisfaction (M_{followed}= 26.20; $M_{\text{did not follow}}$= 23.82; $p = .028$).

Table 4

Differences in means in groups of cognitive functions and WHO recommendations

	M(SD)			
	Changes in attention, memory and concentration (Yes – n = 252)	Changes in attention, memory and concentration (No – n = 181)	Follow WHO protection and hygiene recommendations (Yes – n = 401)	Follow WHO protection and hygiene recommendations (No – n = 32)
Optismim	23.8(4.75)**	26(3.44)**	24.8(4.24)	23.8(5.88)
Life Satisfation	24.7(6.08)**	27.7(4.70)**	26.2(5.64)*	23.8(6.53)*
Positive affects	37.8(5.93)**	40.9(4.76)**	39.2(5.46)	37.9(7.89)
Negative affects	31.2(6.41)**	25.9(6.54)**	29(6.89)	28.7(7.96)
Intra	18.7(3.93)**	20.2(2.77)**	19.4(3.42)	18.2(4.94)
Inter	34.5(6.61)**	35.7(5.44)**	35.1(5.80)	33.6(9.72)

* $p < .05$ **$p < .001$

Finally, individuals who indicated that they remained at home as long as possible during the pandemic showed a significant difference in positive affects (as much as possible at home = 39.35; $M_{\text{did not stay at home}}$ = 36.95; $p = .01$). Regarding the feeling of support during the pandemic, volunteers who said they felt supported exhibited higher averages in most constructs, namely: optimism ($M_{\text{felt supported}}$ = 25.22; $M_{\text{did not feel supported}}$ = 22.05; $p = < .001$), satisfaction with life ($M_{\text{felt supported}}$ = 26.43; $M_{\text{did not feel supported}}$ = 23.31; $p = < .001$) and positive affects ($M_{\text{felt supported}}$ = 39.62; $M_{\text{did not feel supported}}$ = 36.43; $p = < .01$).

In contrast, individuals who did not feel supported had higher averages in negative affects ($M_{\text{did not feel supported}}$ = 32.64; $M_{\text{felt supported}}$ = 28.43; p = < .001). Individuals who answered that they had "something" that kept them believing in better days had higher means in the constructs: optimism ($M_{\text{believe in 'something'}}$ = 25.01; $M_{\text{don't believe in 'something'}}$ = 19.92; p = < .001), satisfaction with life ($M_{\text{believe in 'something'}}$ = 26.21; $M_{\text{don't believe in 'something'}}$ = 20.81; p = < .001) and positive affects ($M_{\text{believe in 'something'}}$ = 39.32; $M_{\text{don't believe in 'something'}}$ = 34.53; p =< .01). In contrast, volunteers who indicated absence of "something" that kept them believe exhibited higher averages in negative affects ($M_{\text{don't believe in 'something'}}$ = 32.04; $M_{\text{believe in 'something'}}$ = 28.95; p = .046) (Table 5).

Table 5

Differences in means between stay-at-home groups, feeling supported and "something" to believe in

	M(SD)					
	Stayed at home as long as possible (Yes – n = 396)	Stayed at home as long as possible (No – n = 37)	Felt supported during the pandemic (Yes – n = 34)	Felt supported during the pandemic (No – n = 399)	Having "something" that made them believe in better days (Yes – n = 413)	Having "something" that made them believe in better days (No – n = 20)
Optismim	24.8(4.30)	24.4(5.22)	25.2(4.08)**	22(5.13)**	25(4.15)**	19.9(6.13)**
Life Satisfation	26.1(5.56)	24.6(7.29)	26.4(5.47)**	23.3(6.52)**	26.2(5.57)**	20.8(6.12)**
Positive affects	39.3(5.50)*	36.9(7.05)*	39.6(5.42)**	36.4(6.46)**	39.3(5.47)**	34.5(7.80)**
Negative affects	28.9(6.82)	29.9(8.37)	28.4(6.69)**	32.6(7.50)**	28.9(6.91)*	32(7.51)*
Intra	19.4(3.44)	18.4(4.61)	19.6(3.32)**	17.6(4.40)**	19.5(3.29)**	15.4(5.94)**
Inter	35.2(5.86)*	32(8.40)*	35.3(5.90)*	33.1(7.38)*	35.2(5.92)**	30.6(9.28)**

*p < .05   **p < .001

In terms of family income during the pandemic, the results showed significant mean differences when comparing respondents from different groups. The ANOVA results showed that there were differences between the groups [Welch's $F_{(2, 143.39)}$ = 8.586, p < .01]. The Games-Howell post-hoc test showed that significant differences were found between the groups that were compared. Sample normality tests were performed, which revealed the non-existence of normal distribution in the studied variables (Shapiro-Wilk = 0.95, p < .001, except for Negative Affects; p = .225). The Levene's test showed that the groups exhibited homogeneity of variance (Levene (2, 379) = 9.96, p > .01). The results of differences between groups are presented in Table 6.

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Table 6

Family income, optimism, positive affects and life satisfaction

Optimism (Mean difference)	From two to five minimum wages	From six to ten minimum wages	More than eleven minimum wages
Up to two minimum wages	-0.331	-2.030	-2.871
From two to five minimum wages	-	-1.700*	-2,541**
From six to ten minimum wages	-	-	-0.838
Life Satisfaction (Mean difference)	From two to five minimum wages	From six to ten minimum wages	More than eleven minimum wages
Up to two minimum wages	-2.000	-5.590*	-7.160**
From two to five minimum wages	-	-3.590**	-5.160**
From six to ten minimum wages	-	-	-1.570
Positive affects (Mean difference)	From two to five minimum wages	From six to ten minimum wages	More than eleven minimum wages
Up to two minimum wages	-4.920*	-6.990**	-7.301**
From two to five minimum wages	-	-2.070*	-2.382*
From six to ten minimum wages	-	-	-0.314
Negative affects (Mean difference)	From two to five minimum wages	From six to ten minimum wages	More than eleven minimum wages
Up to two minimum wages	-0.165	1.750	2.760
From two to five minimum wages	-	1.910	2.920*
From six to ten minimum wages	-	-	1.010

*$p < .05$ **$p < .001$

Based on the results described in Table 6, it is possible to state that for the Optimism variable, there were statistically significant differences between families with income between two and five minimum wages and families earning between 6 and 10 minimum wages (MD = -1.70; p = .003) as well as between the group that earned from two to five minimum wages and the one having the highest income i.e. more than 11 minimum wages (MD = -2.54; $p < .001$). In Life Satisfaction, three comparisons showed statistically significant differences: families with two to five minimum wages and families with six to ten minimum wages (MD = -3.59; $p < .001$); families with two to five minimum wages and families with more than 11 minimum wages (MD = -5.16; $p < .001$); and, families with six to ten minimum wages and families with more than 11 minimum wages (MD = -1.57; p = .027). In all the comparisons mentioned above, the families with lower income exhibited lower averages in both constructs.

Finally, with regard to Positive Affects, statistically significant differences were noted between the means of people with monthly family income between two and five minimum wages and families earning six to ten minimum wages (MD = -2.07; p = .005), as well as among the means of individuals with income between two and five minimum wages and those earning above eleven minimum wages (MD = -2.38; p = .002). For Negative Affects, there was only one significant result among the studied groups, namely: a group whose income varies between two and five minimum wages and a group whose income was above eleven minimum wages (MD = 2.92; p = .004).

Discussion

This study's first hypothesis was that low to moderate correlations would be found between optimism and the components of subjective well-being in coping with the pandemic, but the results showed higher than expected correlations, as all constructs were significantly correlated with magnitudes ranging from moderate to strong. Strong

relationships were between optimism and positive affects, life satisfaction and positive affects, and optimism and life satisfaction. These results are due, according to Arslan et al. (2021), to the fact that optimism encourages people to pursue goal-oriented behaviors. Along the same line, Supervia et al. (2020) state that optimism makes people adjust their coping strategies to stressors, demonstrating adaptive behaviors that produce good expectations of future achievements and less propensity to intrapersonal vulnerability and personal unhappiness. Positive affects are consistent with optimism, as optimistic individuals make positive evaluations of their lives, therefore, with greater endorsement of positive affects (Oriol et al., 2020).

As for negative affects, similarly, the study by Owens et al. (2022) found a moderate magnitude correlation coefficient between optimism and stress, confirming the findings of the current study. According to Çutuk (2021), optimism positively affects the SWB because it acts as a shield that calms and mitigates negative experiences, allowing for a change in mood and favoring productive behaviors even in stressful situations making people seek stimuli for solving their problems. Thus, crises and problems are seen as challenges and opportunities for new learning and elevate the SWB, setting in the framework of the pandemic, balance and mental health.

H2 in the current survey set the prediction of optimism, monthly family income, psychological and psychiatric treatments and the use of controlled medication as components of subjective well-being, which was partially confirmed in the outcomes. According to Zanon et al. (2020), during the pandemic, several people underwent changes in their financial conditions, requiring greater efforts to deal with negative aspects, more resistance and determination to face the isolation adverse effects. However, this situation required people to pay more attention to positive factors such as: more time of their own, seeking new ways of overcoming obstacles and reach personal fulfillment, more time with family and children, having the opportunity to listen and better understand their emotions and the search of new hobbies and activities that could bring new challenges, pleasure and satisfaction. Thus, the explanatory power of optimism is confirmed and are in line with the literature.

Furthermore, the contribution of monthly family income (in addition to optimism) in explaining the cognitive component and positive affect of subjective well-being should be highlighted. Regarding negative affects, income did not have a significant coefficient, but the use of controlled medication and the beginning of psychiatric treatments contributed to the explanation as well as optimism. It is also important to note that the three coefficients pointed to negative predictive powers, in line with the literature, meaning that the more optimistic the person less negative feelings she will experience. Moreover, when the person looked for help (initiated psychological or psychiatric treatment and/or started taking medicines) the results pointed to a less endorsement of negative affects, pointing out for the importance of having a support for the balance of mental health.

Corroborating with H3, significant differences were found between the COVID-19 pandemic coping variables and the constructs assessed. The results showed that those who started psychological and psychiatric treatments and experienced changes in memory and attention during the pandemic scored higher averages in negative affects. These findings may be related to the psychological impact that the pandemic bore on individuals, according to Brooks et al. (2020). Zanon et al. (2020) identified studies that revealed that people in a long period of isolation can present depression, anxiety and stress, due to the lack of social interaction. As people faced atypical stressors, culminating in experiencing negative emotions and feelings, they probably felt a greater need to seek external and professional help.

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It was possible to observe that individuals who did not identify changes in memory and attention scored higher in optimism, life satisfaction and positive affects. This outcome can be understood according to Carver and Scheier (2014) as better expectations for the future due to optimism and it is suggested that experiencing lack of attention and memory can impact this more optimistic look for what lies ahead. In line with Diener et al. (1997; Diener et al., 2020), people who claim greater happiness are able to access their memory to recall desirable events, planning for a better future.

Brooks et al. (2020) identified that fear of contamination was a factor that impacted the emotional health of people in quarantine, in line with the result obtained in this survey, in which those who followed hygiene and health recommendations, as well as those who managed to stay at home as much as possible, showed higher averages in life satisfaction and positive affects. For Serafini et al. (2020), this new confined lifestyle and the loss of loved ones bore psychological, social and economic consequences. This may explain the fact that people who felt they had support experienced greater optimism and satisfaction with life, which is an important criterion, since those who did not experience such support had more negative affects.

Carver et al. (2010) argues that individuals imbued with optimism believe in a promising future and can persist and resist in more adverse scenarios. This construct, related to subjective well-being, may explain the findings that people who believe in "something" greater, experienced more positive affects, satisfaction with life and optimism.

Finally, groups were assessed in connection with their average monthly income, revealing that those higher income groups exhibited higher levels of subjective well-being and optimism, confirming the results of the regression analysis. For Zanon et al. (2020), financial losses were identified as risk factors for the development of mental disorders and prolonged negative affects. Financial losses have been shown to be a major risk factor in the development of mental disorders for families with low socioeconomic status. This may be due to the greater impact that the loss of income represents for these families (Brooks et al., 2020). Barros et al. (2020) indicated the prevalence of negative symptoms in the pandemic among family supporters due to the constant concern related to financial stress, preservation of the family's support conditions and uncertainties about the future. These uncertainties can affect people's optimism and, consequently, affect life satisfaction and subjective well-being.

Final considerations

The aim of this study was to evaluate the relationships between optimism, subjective well-being and sociodemographic features and COVID-19 pandemic coping variables. The results revealed that in an adverse situation, of crisis and uncertainty, people who are endowed with higher levels of optimism can overcome more easily the unique emotional manifestations that affect people's mental health when facing such situations. Optimism influences future projections, self-confidence and the search for support and reasons to positively expect what will happen. In addition, monthly family income together with optimism impacted the satisfaction of life and positive affect of the population, meaning that the that public policies must consider not only mental health strategies for the population during periods such as these, but also policies for maintaining their financial conditions.

Finally, the results enhance the question about the importance of designing and implementing public policies that promote better lives for low-income populations, including decent work and livelihood opportunities. From this perspective, it is necessary that welfare policies be implemented, using the tools scientifically validated by Positive Psychology.

The limitations, this study collected a mostly female sample, as well as it counted on a greater participation of postgraduate respondents originating from the Southeast region. Future surveys should evaluate samples in situations outside the pandemic period. More specifically, it is suggested that the impact of income and optimism on the components of subjective well-being be reviewed.

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