



The Predictive Power and Dominance of Variables of Purpose and Social Support for Depression, Anxiety, and Fear of COVID-19 in Paraguay

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Abstract

The advent of the COVID-19 pandemic forces us to investigate new emotional phenomena, as well as the validity of psychological variables associated with well-being and mental health. In this cross-sectional study with a correlative-predictive scope, there were 265 participants, adults residing in the Republic of Paraguay. The objectives of this research were to determine the predictive power and dominance of the social support and purpose variables for depression, anxiety, and fear of COVID-19. Both social support and purpose presented a significant negative prediction level for depression. In contrast, only social support presented a negative prediction for anxiety and fear of COVID-19, while purpose even presented a positive relationship with respect to the variable. When evaluating the relationship between the variables of social support and purpose, the perception of meaning presented dominance and negative predictive power for depression, while a positive link between destiny-freedom, depression, anxiety, and fear of COVID-19 was obtained. The probable causes of the results are explained; new research is suggested, and it is concluded on the need to review salutogenic psychological concepts in light of the new pandemic context.

Keywords Social support · Purpose · Depression · Anxiety · Fear of COVID-19

Introduction

The COVID-19 pandemic generated an increase in environmental pressure, and therefore, a considerable merger in various mental pathologies such as depression (Bueno-Notivol et al., 2021; Necho et al., 2021), anxiety (Necho et al., 2021;

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Santabárbara et al., 2021), post-traumatic stress disorder (Salehi et al., 2021), and insomnia (Cénat et al., 2020). The effects of the COVID-19 pandemic are various. On the one hand, there is evidence that infection and subsequent recovery from the virus alter relevant neurological aspects for emotional and mood regulation (Mazza et al., 2021; Mei et al., 2021), as well as cognitive aspects (Evans et al., 2021; Kumar et al., 2021) and circadian rhythms (Haspel et al., 2021). On the other hand, the effect of increased environmental threats, the loss of loved ones, isolation, job losses, and detrimental environmental changes are the factors of proven impact on mental health (Fiorenzato et al., 2021; Rohde et al., 2016). Although the pandemic globally affected the physical and mental health of the world, in developing countries, with fewer resources to combat and alleviate its effects, the consequences have been greater (Gallegos et al., 2020). In Paraguay, the pandemic generated elevated levels of deaths per inhabitant (John Hopkins University & Medicine, 2021, Ministerio de Salud Pública y Bienestar Social, 2021). The country has one of the lowest vaccination rates in the world (Our World in Data, 2021) and a health collapse (Unidades de terapia intensiva ocupadas al 100% en públicos y 99% en privados advierten, 2021) with a concomitant strong economic crisis (Crisis sanitaria y económica dejará en Paraguay un nuevo diseño de pobreza, afirman, 2021).

There are multiple psychological and environmental factors that have protective effects against environmental stress, loss, physical, and mental illness. Among them, the variables of purpose and those of social support have theoretical and factual relevance. Although the emergence of theorizations about meaning and purpose in psychology initially had a strong speculative and reductionist character (Frankl, 1949/1991), later, various approaches managed to support both theoretically and empirically the relevance of the concepts of meaning and purpose as salutogenic variables in psychology and psychiatry (Crego et al., 2021; Crumbaugh & Henrion, 1988; Crumbaugh & Maholick, 1964; Deci & Ryan, 2012; Hedberg et al., 2010; McKnight & Kashdan, 2009; Reilly et al., 2019) And in the context of the current pandemic (Karataş & Tagay, 2021).

From the relational frame theory, purpose is linked to the identification and pursuit of values, which have the properties of altering the function of stimuli. Thus, this allows the development of greater autonomy with respect to the most primitive mechanisms, such as emotions and impulses. On the other hand, this modification in the function of the stimuli makes it possible to cushion the impact of aversive stimuli and the loss of appetitive stimuli, generating greater independence with respect to environmental stimuli. All this would result in a greater number of search behaviors and a reduction in reactive behaviors, such as avoidance or renunciation, with the reduction of the negative effects of the environment on emotions, mood, and behaviors (Harte & Barnes-Holmes, 2021; Kissi et al., 2017).

Concerning social support, the variable is widely recognized as a preventive and therapeutic factor in mental health. Social support, from behavioral theories, is a source of positive reinforcement, due to the enormous amount of appetitive stimuli it provides, as well as negative reinforcement due to the relief of aversive stimuli, such as those of low mood and anxiety (Abreu & Abreu, 2020). From the theory of self-determination, social support contributes to the satisfaction of a basic psychological

need, such as affiliation, resulting in psychological well-being (Deci & Ryan, 2012; Ryan & Solky, 1996). From interpersonal theories, social support is a preventive factor for depressive disorders, as well as a protector respecting suicide, generating experiences of connection and social belonging (van Orden et al., 2010). In addition, there is evidence that suggests that social support has a slight protective role in health workers facing the COVID-19 pandemic (Alnazly et al., 2021). Finally, from the integration of behavioral, endocrine, neurological, and evolutionary aspects, social support can be seen as a set of appetitive stimuli and a reduction of aversive stimuli that modify the neurochemistry of renunciation and avoidance, reducing cortisol levels, concomitantly reducing the levels of cytokines, which had prepared the body to defend itself against environmental aggressions, thus reducing avoidance and withdrawal behavior and generating an internal environment consistent with the increase in search behaviors (Panza Lombardo, 2021).

Although the purpose and social support are two variables recognized as salutogenic, there is some discrepancy regarding which variables are of greater importance. While interpersonal theories emphasize social support, self-determination theory considers that autonomy and competence, the two needs directly linked to purpose, are of greater importance than affiliation, which is a need related to social support. On the other hand, the variables of purpose and social support present differences whose relationship with the mental health variables is diverse, and therefore necessary to be specified.

Based on basic and applied evidence, depression can be functionally thought as being the result of a reduction in reinforcers, a reduction in reinforcer-eliciting behaviors, and a loss of the reinforcing function of stimuli (Panza Lombardo, 2021). The restrictions of the pandemic constitute an environmental framework conducive to these phenomena (Kunzler et al., 2021). Purpose, due to its role in modifying the function of stimuli and social support, due to its reinforcing and modeling character, should have a protective role against depression.

Regarding anxiety, uncertainty, threats, and the loss of reinforcers have been reported as factors that increase the phenomenon (Dygdon & Dienes, 2014; Zinbarg et al., 2022). Anxiety generates avoidance behaviors that are negatively reinforced, maintaining and increasing the aversive nature of the environment. The stimulus modification role that the purpose has could help to face aversive stimuli, reducing their functions, and therefore generating active coping behaviors instead of avoidance. On the other hand, social support would reduce the loss of reinforcers, and would help, through modeling, to maintain active coping behaviors instead of avoidance.

The novel aversive characteristics of a pandemic could modify the previously reported effects of variables related to the prevention and treatment of mood, emotional, and adaptive conditions. Previous knowledge regarding salutogenic variables must be put to the test in this new context of threat that constitutes the COVID-19 pandemic.

The pandemic theoretically constitutes an opportunity to generate specific knowledge regarding predictive and causal factors on mental health variables, as well as a need to generate such knowledge in order to improve preventive and therapeutic practices. Taking into account the reported consequences of the current pandemic

and its theoretical opportunities and practical needs, it is of interest to determine the predictive power of the mentioned variables, as well as to provide data regarding their dominance and specificity. Therefore, the purpose of this research is to evaluate the predictive power and dominance of the purpose and social support variables with respect to depression, anxiety, and fear of COVID-19 as secondary objectives, to specifically evaluate the predictive role and dominance of the variables' experience of meaning, objectives, and goals, perception of meaning and destiny, and freedom, on the one hand, and instrumental support, emotional support, affective support, and positive social interaction, on the criterion variables.

Method

Type of Study

A cross-sectional study with a correlational-predictive scope.

Sample

A non-probabilistic sample of 265 participants residing in the Republic of Paraguay was obtained between July and September of 2020, with a mean age of 36 ± 11.4 , with a minimum of 20, and a maximum of 60, 80% female. The minimum size of the sample was estimated according to the recommendations of Green (1991), applying the formula $50 + 8k$, where k is the number of forecasters. Considering that the maximum number of predictors used was 8, the minimum sample size resulted in 114.

Procedures

The instruments in their reported Spanish version were entered into a Google Form questionnaire. An invitation link was sent to the participants through Whatsapp, who signed informed consent, in which the rationale of the study, freedom of participation, and confidentiality were explained. The ethical procedures recommended by the American Psychological Association (2010) were followed in terms of participation and confidentiality criteria. The completion of the data took between 10 and 20 min. The data were obtained between July and September of 2020.

Instruments

GAD-7 (General Anxiety Disorder Seven)

It is a self-administered instrument of seven Likert scale items from 0 to 3, which measures generalized anxiety symptoms. However, it is also used as an indicator

of other anxiety disorders, such as panic, social anxiety, and even post-traumatic stress disorder (Spitzer et al., 2006). The original instrument presented high levels of reliability and validity. Accordingly, various authors adapted and validated the instrument into Spanish (Moreno et al., 2019).

In the sample of the present study, an alpha of 0.86, a KMO value of 0.89, and a significant level were obtained in the Bartlett sphericity test ($p < 0.05$). Finally, a unifactorial structure was obtained by performing an exploratory factor analysis with the maximum likelihood extraction method and a Kaiser Varimax rotation.

PHQ-9 (Patient Health Questionnaire 9)

The PHQ-9 is a self-administered instrument with nine items with a Likert scale from 0 to 3, evaluating each of the diagnostic criteria for major depressive disorder. The instrument presented adequate validity and reliability (Kroenke et al., 2010); in turn, a successful adaptation and validation into the Spanish language was carried out (Diez-Quevedo et al., 2001). In the sample of the present study, an alpha of 0.89, a KMO value of 0.91, and a significant level was obtained in the Bartlett sphericity test ($p < 0.05$). Performing an exploratory factor analysis with the maximum likelihood extraction method and a Kaiser Varimax rotation, a unifactorial structure was obtained.

MOS (Medical Outcome Study)

The MOS questionnaire is a self-administered 19-item instrument, Likert scale from 1 to 5, which measures the level of social support presented by the participant. It consists of four factors: (a) emotional support, which is to have people who provide empathy, advice, and counseling; (b) instrumental support, material help that others can provide; (c) positive social interaction, the availability of people with whom you can share recreational activities; and (d) affective support, expressions of love, and recognition that are received by the person (Sherbourne & Stewart, 1991). The instrument presented adequate reliability and validity in various countries and its version in Spanish (García-Alandete et al., 2013). In the sample of this study, an alpha of 0.93 and a KMO value of 0.96 were obtained with a significant level for the Bartlett test of sphericity ($p < 0.05$). While in the exploratory factor analysis, with a maximum likelihood extraction method, and a Kaiser Varimax rotation, a bifactorial structure was obtained.

PIL Test (Purpose in Life Test)

It is a self-administered test that operationalizes the variable purpose in life or meaning of life, based on Frankl's theory. It presents 20 questions, Likert scale from 1 to 7. Although in various investigations, it presented a monofactorial or a bifactorial structure (Schulenberg & Melton, 2010); four factors could

also be identified: (a) perception of meaning, awareness, and knowledge of the reasons for which to live; (b) experience of meaning, experimentation of the meaning of life in daily activities; (c) goals and tasks, objectives, plans, and actions related to the meaning of life; and (d) destiny-freedom, the knowledge, and experience that one has control over life. The instrument presented adequate levels of reliability and validity in various countries and in its version in Spanish (García-Alandete et al., 2013). Regarding the sample of the present investigation, a Cronbach's alpha 0.47 of was obtained, which is very low and reflects low internal consistency, but with a KMO value of 0.93 and a significant level in the Bartlett sphericity test ($p < 0.05$). Regarding the results of the exploratory factorial analysis, following the same procedures as in the other instruments, a trifactorial structure was obtained.

Fear of COVID-19 Scale

The COVID fear scale is a self-administered instrument that measures the level of fear of COVID-19 (Ahorsu et al., 2020). It has seven items on a Likert scale from 1 to 5. The instrument presented adequate reliability and validity (Huarcaya-Victoria et al., 2020), and an invariance in seven Latin American countries (Caycho-Rodríguez et al., 2021). Regarding the validity and reliability of the sample used, adequate levels of internal consistency (0.82) and a monofactorial structure were obtained, with adequate KMO values (0.82) and significant levels of sphericity ($p < 0.05$), in the exploratory factor analysis carried out with the same specifications as in the previous instruments.

Data Analysis

The software SPSS 25 version was used to establish the simple and multiple linear regressions, while for the dominance analysis, the Budescu (1993) and Azen and Budescu (2003) formulas were followed, calculated by hand because standard statistical software does not have the function to calculate it.

Dominance Analysis for $p = 3$

Variable(s)	ρ^2	Contribution of		
		X_1	X_2	X_3
—	0			
X_1	$\rho_{Y \cdot X_1}^2$	$\rho_{Y \cdot X_1}^2$		
X_2	$\rho_{Y \cdot X_2}^2$	—	$\rho_{Y \cdot X_2}^2$	
X_3	$\rho_{Y \cdot X_3}^2$	$\rho_{Y \cdot X_1 X_2}^2 - \rho_{Y \cdot X_1}^2$	$\rho_{Y \cdot X_1 X_2}^2 - \rho_{Y \cdot X_2}^2$	$\rho_{Y \cdot X_3}^2 - \rho_{Y \cdot X_1}^2$
X_1, X_2	$\rho_{Y \cdot X_1 X_2}^2$	$\rho_{Y \cdot X_1 X_2}^2 - \rho_{Y \cdot X_1}^2$	$\rho_{Y \cdot X_1 X_2}^2 - \rho_{Y \cdot X_2}^2$	—
X_1, X_3	$\rho_{Y \cdot X_1 X_3}^2$	—	$\rho_{Y \cdot X_1 X_3}^2 - \rho_{Y \cdot X_1}^2$	$\rho_{Y \cdot X_1 X_3}^2 - \rho_{Y \cdot X_3}^2$
X_2, X_3	$\rho_{Y \cdot X_2 X_3}^2$	$\rho_{Y \cdot X_1 X_2 X_3}^2 - \rho_{Y \cdot X_1}^2$	$\rho_{Y \cdot X_1 X_2 X_3}^2 - \rho_{Y \cdot X_2}^2$	—

Formula extracted from Budescu (1993), for a dominance analysis of 3 predictors.

Following Cowles and Davis (1982) recommendations, a significance level of 0.05 was chosen for the simple and multiple linear regressions.

Results

The following means and standard deviations were obtained for the study variables, depression 7.24 ± 6.08 , anxiety 8.04 ± 5.00 , fear of COVID 16.22 ± 6.12 , social support 75.53 ± 24.53 , purpose in life 90.54 ± 10.13 , and age 36.64 ± 11.40 .

Three two-step multiple linear regressions were carried out, forced entry, with the criterion variables depression, anxiety, and fear of COVID-19, and the predictor variables social support, purpose, and age, as presented in Table 1. The most powerful negative predictor for depression and anxiety was social support, explaining, respectively, 12% and 7% of the variance, while the purpose was the most powerful predictor with respect to fear of COVID, but positive, with a coefficient of determination of 3%. Although the percentage of prediction is low, it was not expected that a supposedly protective variable would positively predict the fear of COVID. As can be seen in Table 1, when the other variables are added, the main predictor variable continues to retain its highest predictive power significantly.

The dominance analysis with respect to the predictive variables of depression yielded similar results than the multiple linear regression, on the one hand, the similarity in the coefficients of determination of the three predictor variables (-12% , -10% , -10%). Regarding the predictive power of the three variables together, social support presented a dominance of 40%, over 32% for age, and 28% for purpose. For anxiety as a criterion variable, according to the previous multiple linear regression, the dominance analysis showed the preponderance as a predictor of social support over the other variables, being 77.17%, followed by 19.57% for age, and an almost null 3.26% for the purpose. As can be seen in Table 2, the dominant factor regarding fear of COVID was purpose. In order to make the comparison with respect to the predictive power, the determination coefficients were compared by removing the negative sign. The low coefficients of determination of all the predictor variables should be highlighted. However, the dominance analysis was conducted in order to know their percentages, with emotional support and positive social interaction variables of a similar and preponderant dominance over goals and tasks.

Bearing in mind the interest of knowing in a more detailed way the predictive power of each of the factors of the social support and purpose constructs, multiple linear regressions of forced entry and of a single step and dominance analysis were performed with respect to the three criteria variables.

Unlike results previously obtained, with social support as the main predictor of depression, when the factors of each of the instruments were broken down, the predictive power of the variables was modified; being the variables' perception of meaning and goals and tasks, two variables of purpose, those that present a greater negative predictive power, followed by instrumental support, a variable of social support. The previous results are explained by the fact that the experience of meaning has a positive and significant predictive power and is of great descriptive interest in the pandemic situation. While knowing and being aware of the meaning of life is a negative predictor of depression, experiencing meaning in everyday life is a positive predictor, something that is strange and that will require further theoretical

Table 1 Multiple linear regression with depression, anxiety, and fear of COVID as criterion variables

	<i>B</i>	<i>SE B</i>	β
Depression			
Step 1			
Constant	13.84	1.13	
Social support	-0.08	0.01	-0.35**
Step 2			
Constant	27.50	3.07	
Social support	-0.07	0.01	-0.29**
Purpose	-0.12	0.03	-0.20**
Age	-0.13	0.03	-0.25
Anxiety			
Step 1			
Constant	12.34	0.95	
Social support	-0.05	0.01	-0.28**
Step 2			
Constant	12.58	2.69	
Social support	-0.05	0.01	-0.27**
Purpose	0.02	0.03	0.04
Age	-0.06	0.02	-0.13*
Fear of COVID-19			
Step 1			
Constant	5.51	3.32	
Purpose	0.11	0.03	0.19**
Step 2			
Constant	6.91	3.34	
Purpose	0.13	0.03	0.22**
Social support	-0.04	0.01	-0.17**
Age	-0.01	0.03	-0.03

For depression: $R^2=0.12$ for step 1; $\Delta R^2=0.12$ for step 2 ($ps < 0.001$); for anxiety: $R^2=0.07$ for step 1; $\Delta R^2=0.09$ for step 2 ($ps < 0.001$); for fear of COVID: $R^2=0.03$ for step 1; $\Delta R^2=0.07$ for step 2 ($ps < 0.001$)

* $p < 0.05$; ** $p < 0.001$

analysis. In line with the data regarding depression, the destination freedom was presented as the main positive predictive variable of anxiety, and also as the variable with the greatest predictive power in the multiple linear regression (Table 3), in turn, that the perception of meaning presented the highest negative prediction coefficients. The results about fear of COVID are surprising; in part, they replicated what was previously obtained with respect to the destination-freedom variable, but they also contradicted what could be expected from a variable with the significant negative predictive power of depression and anxiety, the perception of meaning. While there are no significant negative predictors for fear of COVID, the best predictors are fate-freedom and the perception of meaning.

Table 2 Dominance analysis for the criterion variables depression, anxiety, and fear of COVID-19

Subset model (X)	R ² Y.X	X1 Purpose	X2 Social support	X3 Age
Depression: additional contribution of				
Null and $k=0$ average	0	-0.12	-0.10	-0.10
X1	-0.12		-0.07	-0.09
X2	-0.10	-0.09		-0.07
X3	-0.10	-0.11	-0.07	
$k=1$ average		-0.10	-0.08	-0.08
X1X2	-0.19			-0.06
X1X3	-0.21		-0.04	
X2X3	-0.17	-0.08		
$k=2$ average		-0.08	-0.04	-0.06
X1X2X3	-0.25			
Overall average		-0.10	-0.07	-0.08
Percentage relative importance		40%	28%	32%
Anxiety: additional contribution of				
Null and $k=0$ average	0	-0.07	-0.002	-0.02
X1	-0.07		-0.009	-0.001
X2	-0.002	-0.07		-0.022
X3	-0.02	-0.07	-0.004	
$k=1$ average		-0.07	-0.005	-0.014
X1X2	-0.079			-0.02
X1X3	-0.095		-0.002	
X2X3	-0.024	-0.073		
$k=2$ average		-0.073	-0.002	-0.02
X1X2X3	-0.097			
Overall average		-0.071	-0.003	-0.018
Percentage relative importance		77.17%	3.26%	19.57%
Fear of COVID*: additional contribution of				
Null and $k=0$ average	0	0.03	0.01	0.005
X1	0.03		0.03	0.009
X2	0.01	0.05		0.01
X3	0.005	0.03	0.02	
$k=1$ average		0.04	0.02	0.009
X1X2	0.06			0.01
X1X3	0.03		0.04	
X2X3	0.02	0.05		
$k=2$ average		0.05	0.04	0.01
X1X2X3	0.07			
Overall average		0.04	0.02	0.007
Percentage relative importance		59.70%	29.85%	10.45%

*All determination coefficients were considered positive for the comparison

Table 3 Multiple linear regression with depression as the criterion variable and factors of social support and purpose as predictors

	<i>B</i>	<i>SE B</i>	β
Depression			
Constant	22.97		
Instrumental support	-0.188	0.087	-0.163*
Emotional support	-0.006	0.061	-0.011
Affective support	0.038	0.154	0.023
Positive social interaction	-0.014	0.134	0.023
Experience of sense	0.344	0.083	0.234**
Goals and tasks	-0.328	0.082	-0.230**
Perception of sense	-0.359	0.046	-0.433**
Destiny-freedom	0.294	0.077	0.196**
Anxiety			
Constant	10.71	2.67	
Instrumental support	-0.036	0.087	-0.038
Emotional support	-0.080	0.061	-0.161
Affective support	0.088	0.154	0.065
Positive social interaction	-0.035	0.134	-0.034
Experience of sense	0.172	0.083	0.142*
Goals and tasks	-0.107	0.082	-0.091
Perception of sense	-0.120	0.046	-0.176**
Destiny-freedom	0.326	0.077	0.263**
Fear of COVID			
Constant	10.17	3.49	
Instrumental support	0.032	0.114	0.028
Emotional support	-0.099	0.080	-0.164
Affective support	0.181	0.201	0.110
Positive social interaction	-0.179	0.175	-0.141
Experience of sense	0.060	0.108	0.040
Goals and tasks	-0.180	0.108	-0.125
Perception of sense	-0.120	0.046	0.227**
Destiny-freedom	0.459	0.077	0.300**

* $p < 0.05$; ** $p < 0.001$

In the comparison of the three negative predictive variables of depression, as seen in Table 4, a predictive preponderance of sense perception was observed, with a determination coefficient of 35%, and dominance over goals and tasks and instrumental support of 79.50%. Data from the dominance analysis of the positive predictors of depression are of great interest due to their rarity. Unlike the results of the multiple linear regression, the dominant variable was destination-freedom, with a coefficient of determination of 14%, while effective support and social interaction presented a 9% explanation of the variance. 55% of dominance presented the destiny-freedom variable.

Table 4 Dominance analysis for the negative and positive predictor variables of depression

Subset model (X)	R ² Y.X	X1 Perception of sense	X2 Goals and tasks	X3 Instrumental Support	
Depression negative predictors: additional contribution of					
Null and $k=0$ average	0	-0.35	-0.08	-0.07	
X1	-0.35		-0.01	-0.03	
X2	-0.08	-0.28		-0.07	
X3	-0.07	-0.31	-0.08		
$k=1$ average		-0.29	-0.04	-0.05	
X1X2	-0.36			-0.02	
X1X3	-0.38		0.00		
X2X3	-0.15	-0.23			
$k=2$ average		-0.23	0.00	-0.02	
X1X2X3	-0.38				
Overall average		-0.31	-0.04	-0.04	
Percentage relative importance		79.50%	10.25%	10.25%	
Depression positive predictors: additional contribution of					
Null and $k=0$ average	0	0.03	0.14	0.09	0.09
X1	0.03		0.13	0.10	0.09
X2	0.14	0.01		0.07	0.07
X3	0.09	0.04	0.12		0.01
X4	0.09	0.03	0.12	0.01	
$k=1$ average		0.02	0.16	0.06	0.05
X1X2	0.15			0.07	0.06
X1X3	0.13		0.09		0.00
X1X4	0.12		0.09	0.01	
X2X3	0.21	0.01			0.00
X2X4	0.21	0.00		0.00	
X3X4	0.10	0.03	0.11		
$k=2$ average		0.01	0.09	0.02	0.02
X1X2X3	0.22				0.00
X1X2X4	0.21			0.01	
X1X3X4	0.13		0.08		
X2X3X4	0.21	0.01			
$k=3$ average		0.01	0.08	0.01	0.00
X1X2X3X4	0.22				
Overall average		0.01	0.11	0.04	0.04
Percentage relative importance		5%	55%	20%	20%

Concerning dominance, considering the negative predictors of anxiety (Table 5), the perception of meaning presented a coefficient of determination of 10% and a percentage of the dominance of 53.57%, widely surpassing the other variables. With

respect to the positive predictors of anxiety, the destination-freedom variable presented a coefficient of 14%, somewhat high if one takes into account that it would be assumed that feeling free should provide some negative predictive power with respect to anxiety. It also presented a dominance of 64.70% over the other variables.

In the last analysis of dominance of Table 6, the positive predictive power of the destination-freedom variable is supported, with a coefficient of determination of 8% and a dominance of 69.31%. On the other hand, the low coefficient of determination of the other variables is also clarified, despite the previous results of the multiple linear regression.

It should be reported that in the linear regression tests carried out, the assumptions of this test have been fulfilled: (a) the residuals presented normal distributions; (b) the residues did not present correlations with each other, according to the Durbin-Watson test, whose values were greater than 1 and less than 2; and (c) there was no multicollinearity, as reported by FIV values lower than 10, and tolerances above 0.10 (Rawlings et al., 1998).

Discussion

The aim of the present study was to test two constructs previously reported well-being constructs and their factors in a novel aversive context, the COVID-19 pandemic.

Regarding depression, both social support and purpose were negative predictive factors, as previously reported. Social support being the variable with the greatest dominance, while age (older, less depression) and social support presented similar dominances. Concerning anxiety as a criterion variable, while social support predicted it negatively, there was no relationship between it and the purpose, and age being a significant negative predictor factor (older, less anxiety) with less dominance than social support. Ultimately, the fear of COVID-19 presented as the variable with the greatest predictive power to the purpose, but in a positive way, a surprising data and contrary to what could be expected if previous research is considered in a non-pandemic context. Although it must be considered that both the predictive power and the coefficient of determination were low. Precisely, one of the motivations of this research was to evaluate the relationships between variables that had previously been considered positive, salutogenic, or protective of mental health in a new and aversive context, and with respect to a new variable, fear to COVID-19. In order to specify and better understand the results and fulfill a second objective of the research, the factors of both variables and their relationship with depression, anxiety, and fear of COVID-19 were evaluated. In the analysis of the predictive power of the social support and purpose factors, the results showed different characteristics to those expected from the regressions and dominance analysis previously carried out in the study. The most striking and significant finding was that the perception of meaning achieved the highest negative predictive coefficient for depression, followed paradoxically by the experience of meaning, but in terms of positive prediction, findings contradicting previous research (Karataş & Tagay, 2021). An interesting coefficient of determination of the perception of the meaning of 35%

Table 5 Dominance analysis for the negative and positive predictors of anxiety

Subset model (X)	R ² Y:X	X1 Perception of sense	X2 Emotional support	X3 Goals and tasks	X4 Instrumental support	X5 Positive social interaction
Anxiety negative predictors: additional contribution of						
Null and $k=0$ average	0	-10	0.07	-0.005		-0.06
X1	-0.10		-0.03	0.00		-0.04
X2	-0.07	-0.06		0.00		0.00
X3	-0.005	-0.09	-0.06			-0.05
X4	-0.03	-0.08	-0.01	-0.01		-0.03
X5	-0.06	-0.08	-0.01	0.00	0.00	
$k=1$ average		-0.07	-0.02	0.00	-0.01	-0.03
X1X2	-0.13			0.00		0.00
X1X3	-0.10		-0.03			-0.02
X1X4	-0.11		-0.02	-0.01		-0.01
X1X5	-0.14		0.00	-0.02	-0.02	
X2X3	-0.07	-0.06			0.00	0.00
X2X4	-0.07	-0.06		0.00		0.00
X2X5	-0.07	-0.06		0.00	0.00	
X3X4	-0.04	-0.08	-0.03			-0.02
X3X5	-0.06	-0.06	-0.01			
X4X5	-0.06	-0.06	-0.01	0.00	0.00	
$k=2$ average		-0.06	-0.01	-0.005	-0.006	-0.008
X1X2X3	-0.13				0.00	0.00
X1X2X4	-0.13			0.00		0.00
X1X2X5	-0.13			0.00	0.00	
X1X3X4	-0.12		-0.01			0.00
X1X3X5	-0.12		-0.01			
X1X4X5	-0.12		-0.01	0.00		

Table 5 (continued)

Subset model (X)	R ² Y:X	X1 Perception of sense	X2 Emotional support	X3 Goals and tasks	X4 Instrumental support	X5 Positive social interaction
X2X3X4	-0.07	-0.06				-0.01
X2X3X5	-0.07	-0.06			-0.05	
X2X4X5	-0.07	-0.06		0.01		
X3X4X5	-0.06	-0.06	-0.02			
k = 3 average		-0.06	-0.01	0.002	0.01	0.002
X1X2X3X4	-0.13					0.00
X1X2X3X5	-0.13				0.00	
X1X2X4X5	-13					
X1X3X4X5	-12		-0.01			
X2X3X4X5	-0.08	-0.05				
k = 4 average		-0.05	-0.01	0.00	0.00	0.00
X1X2X3X4X5	-0.13					
Overall Average		-0.06	-0.02	-0.002	-0.01	-0.02
Percentage relative importance		53.57%	17.86%	1.78%	8.93%	17.86%
Anxiety positive predictors: additional contribution of						
Subset model (X)	R ² Y:X			X1 Destiny-freedom	X2 Experience of sense	X3 Affective support
Null and k=0 average	0			0.14	0.04	0.05
X1	0.14				0.00	0.03
X2	0.04			0.10		0.05
X3	0.05			0.12	0.04	
k = 1 average				0.11	0.02	0.04
X1X2	0.14					0.03
X1X3	0.17				0.00	

Table 5 (continued)

Subset model (X)	R ² Y:X	X1 Perception of sense	X2 Emotional support	X3 Goals and tasks	X4 Instrumental support	X5 Positive social interaction
X2X3	0.09		0.08			
k=2 average			0.08	0.00		0.03
X1X2X3	0.17					
Overall average			0.11	0.02		0.04
Percentage relative importance			64.70%	11.77%		23.53%

Table 6 Dominance analysis for the positive predictor variables of fear of COVID-19

Subset model (X)	R ² Y.X	X1	X2	X3	X4	X5
Null and $k=0$ average	0	0.08	0.003	0.009	0.01	0.009
X1	0.08		0.01	0.00	0.00	0.00
X2	0.003	0.07		0.00	0.00	0.00
X3	0.009	0.07	0.07		0.01	0.01
X4	0.01	0.07	0.00	0.01		0.01
X5	0.009	0.07	0.00	0.01	0.00	
$k=1$ average		0.07	0.002	0.005	0.002	0.005
X1X2	0.09			0.00	0.00	0.01
X1X3	0.08		0.02		0.00	0.00
X1X4	0.08		0.01	0.00		0.00
X1X5	0.08		0.02	0.00	0.00	
X2X3	0.01	0.09			0.02	0.00
X2X4	0.01	0.08		0.02		0.01
X2X5	0.01	0.09		0.00	0.01	
X3X4	0.02	0.06	0.06			0.00
X3X5	0.02	0.06	0.01		0.00	
X4X5	0.02	0.06	0.00	0.00		
$k=2$ average		0.07	0.02	0.003	0.005	0.003
X1X2X3	0.10				0.00	0.00
X1X2X4	0.09			0.01		0.01
X1X2X5	0.10			0.00	0.00	
X1X3X4	0.08		0.02			0.00
X1X3X5	0.08		0.02		0.02	
X1X4X5	0.08		0.02	0.02		
X2X3X4	0.03	0.07				0.07
X2X3X5	0.01	0.09			0.09	
X2X4X5	0.02	0.08		0.08		
X3X4X5	0.02	0.08	0.01			
$k=3$ average		0.08	0.01	0.02	0.02	0.02
X1X2X3X4	0.10					0.00
X1X2X3X5	0.10				0.00	
X1X2X4X5	0.10			0.00		
X1X3X4X5	0.08		0.02			
X2X3X4X5	0.03	0.07				
$k=4$ average		0.07	0.02	0.00	0.00	0.00
X1X2X3X4X5	0.10					
Overall average		0.07	0.01	0.007	0.007	0.007
Percentage relative importance		69.31%	9.90%	6.93%	6.93%	6.93%

X1: destiny-freedom, X2: perception of sense, X3: affective support, X4: experience of sense, X5: instrumental support

was obtained, as well as its dominance over the other negative predictor variables should be highlighted. While in terms of positive prediction, the dominance analysis showed the preponderance of destiny-freedom, with 14% of the explained variance, another contradictory data. The results of the multiple linear regression and dominance analysis for anxiety were similar to those for depression. While destiny-freedom presented the highest positive predictive power, the perception of meaning was the variable that best predicted the criterion variable negatively as well as was followed by the experience of meaning. The dominance analysis yielded the destination-freedom variable and the perception of meaning as the two most relevant, in the opposite direction. Unlike the previous variables, the fear of COVID-19 as a criterion variable presented some peculiarities. First, there were no negative predictors that exceeded the significant level. Second, although the destination-freedom variable remained a positive predictor, the perception of meaning, negatively associated in the previous tests, reported a significant positive predictive power. With respect to dominance, the destination-freedom variable prevailed over the others, by a considerable percentage of 69.31.

The negative association between the variables of well-being and depression is expected and previously reported (Crego et al., 2021; Crumbaugh & Henrion, 1988; Crumbaugh & Maholick, 1964; Deci & Ryan, 2012; Hedberg et al., 2010; McKnight & Kashdan, 2009; Reilly et al., 2019). The reason for these results may be due, as previously stated, to the positive reinforcing power of the purpose, its character as a discriminative stimulus for action, its association with reinforcing activities, and its role in modifying the function of stimuli, making the organism less influenced by the aversive stimuli of the environment (Harte & Barnes-Holmes, 2021; Kissi et al., 2017). With regard to social support, there is ample evidence of its role as a positive reinforcer, generating moments of pleasure and gratification, as well as a negative reinforcer, alleviating emotional distress (Abreu & Abreu, 2020; Panza Lombardo, 2021). The dominance of social support over purpose with respect to depression is something to be expected, taking into account the depressogenic aspect of loneliness and isolation, favoring the results in this regard to interpersonal theory (van Orden et al., 2010) and behavioral theories (Panza Lombardo, 2021) that emphasize the environment as an explanatory factor of behavior and well-being.

However, having carried out a detailed analysis, the factors of the variables suggest a different phenomenon, being the perception of meaning the variable that explains the greatest variance with respect to depression, predicting it negatively, and having dominance over the other variables. Contextual behavioral theories have highlighted the importance of identifying values, and consequently, purposes, and this resource has been used as a component of treatment for depression. The results support the theory of acceptance and commitment therapy and the theory of relational frameworks regarding the role of modifying the function of the stimuli presented by values (Harte & Barnes-Holmes, 2021), as well as the behavioral elaborations with respect to depression (Abreu & Abreu, 2020). The finding that the experience of meaning has a positive predictive power with respect to depression is counterintuitive. It could be hypothesized that perhaps in the context of a pandemic, feeling that the day-to-day is valuable could generate fear and apprehension of losing it, taking into account the threats to life and daily life generated by the

epidemiological situation. The dominance analysis with respect to the negative predictors relativizes the previous result, with the destiny-freedom variable being the one that prevails over the others. Why is the conception of being free, of managing one's own destiny, and of being prepared for death (the three items that measure the variable) positive predictors of depression? Regarding freedom, a positive factor in a benevolent environment, it could be thought that perhaps in a chaotic, unpredictable, and adverse one, this freedom could generate a negative personalization or causal attribution, causing the person to blame or self-disqualify in the face of difficulties and environmental losses (Diez-Alegría et al., 2006). Regarding feeling prepared for death, one of the three items of destiny-freedom, although *prima facie* one could see declaring being prepared as a derivative of acceptance and emotional stability, emotional suppression, and emotional regulation mechanism of proven negative impact on normality and psychopathologies, it can also generate responses of a stoic tint, which are really denials in the face of emotional discomfort generated by adverse situations (Aldao & Nolen-Hoeksema, 2012).

What was hypothesized for depression can also be applied to anxiety since destiny-freedom was the variable that best predicted it in a positive way and the perception of meaning in a negative way. In the first place, it must be taken into account that the pandemic context is new, and it is expected that it will present its particularities in terms of protective and risk factors. Second, determinism is a conception that was born early in human civilization, and one of its implicit purposes is to generate acceptance in the face of phenomena that cannot be controlled. It should be remembered that the internal locus of control is not necessarily good; in the face of negative events, internalization, that is, internal causal attribution, is a factor that has been reported as depressogenic and anxiogenic (Diez-Alegría et al., 2006), while maintaining that it is prepared to death could be an indicator of acceptance, but also of emotional suppression, a maladaptive emotional regulation strategy. In order to clarify this phenomenon, it would be interesting to be able to replicate the results in other countries and/or with other samples. In turn, deeper goals, such as the application of path analysis to elucidate the causal links between the variables, would be highly recommended. Being able to relate emotional regulation mechanisms and purpose in relation to depression, anxiety, and fear of COVID-19 could confirm or reject what was proposed in this research as an explanation for the contradictory and unexpected results. It should be taken into account that the mean age of the sample was 36 years old, a generally economically active age, and that other variables such as employment status, working conditions, housing conditions, and income, which could have a great impact on the results, were not considered. Levels of depression and anxiety.

Regarding weaknesses of the study, although the instruments, in general, showed adequate levels of validity and reliability, the alpha of the PIL was very low, and this could influence the poor precision of the measurement. Another aspect that can be considered objectionable is the development of dominance analysis with variables with little predictive power, which was done in order to know the relationship between them with respect to the criterion variable, despite the foregoing. Multiple linear regression in two steps and dominance analysis may not have informed other

interactions between the variables. It is suggested the use of structural equation modeling to reanalyze the data in a further research.

Conclusion

This research suggests the need to rethink and re-evaluate relations between psychological salutogenic concepts and emotional mood and negative phenomena in the context of pandemics. Social support and purpose are variables widely recognized as salutogenic and are the basis for various evidence-based treatments, primarily for depression. The fact that these variables considered salutogenic present contradictory relationships that are difficult to explain from current theories suggests the need to review from the theoretical consistency to its application in preventive and therapeutic contexts. We are experiencing an environmental novelty that requires ratifying or rectifying what is known regarding mental health. At the same time, the importance of understanding the deep mechanisms linked to culturally considered positive purposes is manifested in order to have valid and useful tools to face the pandemic situation, as well as novel situations.

Data Availability The data that support the findings of this study are available on request from the corresponding author M.P. The data are not publicly available due to private character.

Declarations

Informed Consent Informed consent was obtained from all individual participants included in the study.

Conflict of Interest The authors declare no competing interests.

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