Depression in Bolivian adults during COVID 19 social confinement: Moderating effects of resilience and self-efficacy

Eric Roth [a1], Gustavo Choque[b], M. Fernanda García[b], Andrés Villalobos[b]

[a] Experimental Research Unit, Department of Psychology, Bolivian Catholic University

[b] Scientific Society of Psychology PSIICO, Bolivian Catholic University

ABSTRACT

The purpose of this research has been to provide information about the psychological effects of confinement forced by a prolonged quarantine in a suitable adult sample of 596 Bolivians of both sexes. It was sought to explore the perceptions of the participants about their own emotional state: fears, anxieties, depressions, while they were in isolation to reduce the probability of contagion of *COVID 19*. Additionally, we were interested in verifying the modulating effects of resilience and self-efficacy on such emotional states. The results indicated, in the same direction of similar studies, significant relationships between high perceived loneliness, high levels of stress and anxiety, with relatively high levels of depression. Likewise, it was clear that stress, perceived loneliness, and anxiety are predictors of depression among those in conditions of forced isolation. Finally, it was found that both resilience and self-efficacy exert a clear moderating effect by attenuating the relationships of perceived loneliness and anxiety, on depression.

Keywords: Depression by confinement, *COVID 19*, Bolivia, perceived loneliness, anxiety, moderation effects.

[1] eroth@ucb.edu.bo

INTRODUCTION

In late 2019, the Wuhan Municipal Health Commission (Hubei Province, China) notified the identification of an outbreak of pneumonia cases, subsequently identified as result of a new coronavirus (SARS-CoV-2). A month later, the World Health Organization (WHO) formally announced that the outbreak in China constituted a public health emergency of international concern. Two months later this same organization formalized the new outbreak, COVID 19, (coronavirus disease), as a rapidly spreading pandemic worldwide (WHO, 2020, Sandín, et al, 2020), issuing at the same time a statement recommending some common sense safety measures (WHO, 2020). COVID 19 is a disease caused by the coronavirus (CoV), a family of viruses that affects the respiratory system and causes both common and severe colds. It is part of a group of RNA viruses that affects humans and animals (PAHO, 2020), producing a series of symptoms, including rhinorrhea, sneezing, sore throat, fever, fatigue, dry cough, diarrhea, dyspnea, hemoptysis, headache, anosmia and lymphogenic. The pathogenesis produced by COVID 19 is mainly severe pneumonia and acute cardiac injuries (Rothan, Byrareddy, 2020).

During March 2020, after having identified Europe as the center of the onslaught of the disease, the first death from COVID 19 was reported in Argentina, inaugurating the pandemic in Latin America (Wikipedia, 2020). In the same month, before the detection of the first two cases of COVID 19, the government of Bolivia declared, on March 11, a national emergency, after the first death caused by the disease (CARITAS, 2020).

The total ignorance about the characteristics of this new health threat, together with the prevailing confusion about the measures the population should implement, led governments to adopt different restrictive biosafety measures, such as quarantine and social distancing. Simultaneously, the WHO made known to the world population, a series of measures to

face the pandemic from a psychological perspective (WHO, 2020). Consequently, from then on and during several months, people stayed at home guarding themselves against any type of social interaction, incorporating into their existence an altered lifestyle, far from their own nature and social essence. This new order, that supposes estrangement as a way of life, confronted humanity with loneliness, fear, uncertainty and confusion, psychological ghosts that we all seek to avoid in life. In addition to confinement, labor restrictions and financial threats that were imposed reminded great global conflagrations and world catastrophes (Camelo-Avedoy, 2020; ECLAC, 2020). And as if that were not enough, access to education as it was known until now was restricted (Gallego et al, 2020). All these circumstances forced us to share love, food, work, leisure and education in a single space, making our homes a global institution in the purest sense of Goffman (1972), with unpredictable consequences.

Loneliness and psychological disorders.

There is considerable scientific evidence on the relationship between social isolation and affective and emotional suffering (Orellana y Orellana, 2020, Sandín et al, 2020). Recent research shows that perceived social isolation or loneliness constitutes a risk factor for cognitive performance (Cacioppo & Hawkley, 2009, Cacioppo, Hawkley, & Thisted, 2010), it generates undesirable impacts on the feeling of well-being of patients with psychological problems, including depression, anxiety, and anger (Abad, Fearday & Safdar, 2010), and in particular in older adults (Saito, Kai & Takizawa, 2012, Courting & Knapp, 2017, Taylor et al, 2016). Ge, Yap, Ong, & Heng (2017), showed that the social isolation imposed by a poor connection with relatives and friends and loneliness was associated with depressive symptoms, even after controlling for age, sex, work status and other covariates.

On the other hand, social isolation has proven to be related to an increase in morbidity and mortality of people who suffer it (Teo, 2013, Klinenberg, 2016; Holt-Lunstad et al, 2015).

The attenuation of altered emotional states.

The available literature also suggests that there are certain psychological factors expressed in the form of personal abilities or behavior patterns, which cushion the impact of anxiety and depression. For example, Samani, Jokar & Sahragard, (2007) showed that resilience improves life satisfaction, reducing the levels of negative emotions. Likewise, a study carried out by Steensma, Heijer & Stallen (2007), reported the positive effects of a resilience training program to reduce chronic health disorders, generated by burnout in a sample of employees. Soltani et al (2013) reported correlations between resilience, cognitive flexibility, containment skills, and depression. In this study, resilience was shown to have a significant mediational effect in reducing depression and other emotional responses. On the other hand, Fedina et al (2017) concluded that resilience had the ability to attenuate the symptoms of depression and anxiety, both associated with interpersonal violence, although they warned that these effects could vary according to the ethnic characteristics of the people. Similar results concerning the influence of resilience on depression have been reported in recent years (Wu, et al, 2017; Ding et al, 2017; Poole, Dobson & Pusch, 2017).

Resilience was successfully used to moderate the relationship between adverse childhood experiences and adult depression (Poole, Dobson & Pusch, 2017). Recent studies carried out in the context of the COVID 19 pandemic have also successfully used the ability of resilience to moderate the effect of stress on depression symptoms (Havnen et al, 2020) and sleep disturbances (Grossman, Hoffman, Palgi & Shrira, 2020). Likewise, resilience has been shown to be an important moderating variable of different behavioral alterations in

various population groups: ostracism and depression (Geng-Feng, et al, 2016), anxiety and loss of sense of life (Smedema & Franco-Módenes, 2018), obsessive-compulsive symptoms (Hjemdal et al, 2011), as well as different altered personality traits (Shi, Liu, Wang & Wang, 2015).

There is also empirical evidence on the buffering role of self-efficacy with respect to depression and other affective disorders. Thus, Weng, et al (2008), reported self-efficacy, negatively associated with depressive symptoms in surgical patients. Jun-Pu, Hou & Ma (2017) set out exploring the impact of self-efficacy in depression and verified, by Structural Equation Modeling, the mediating role of the dispositional optimism variable. Other studies explored the effects of self-efficacy on stress, from the sympathetic system point of view (O'Leary, 1992); on anxiety disorders in adolescents (Muris, 2002), and on the attenuation of depression (Maddux & Meier, 1995; Bandura et al, 1999; Ehrenberg, Cox & Koopman, 1991; Maciejewski, Prigerson & Mazure, 2000; Haslam, Pakenham, & Smith, 2006).

Consequently, it has been stressed with increasing strength that both, self-efficacy, and resilience, play an important attenuating role for a series of problems associated with people's psychological well-being. For example, in the case of Self-efficacy, Zhang & Jin (2016) reported that high self-efficacy is a protective condition for postpartum depression. Tonga, Eilertsen, Solem. Arnevik, Korsnes, & Ulstein (2020), suggested that greater self-efficacy may have a positive impact on the quality of life of patients with cognitive impairments and moderate dementia, reducing partially, depression and anxiety, and Liu, Xu, Wang (2017), successfully moderated self-efficacy to reduce physical ailments. Tu, & Zhang (2015), suggested that self-efficacy works as a mediator of the relationship between loneliness, stress and satisfaction with life, while Patrão, Alves & Neiva (2019), found a strong negative correlation between high levels of self-efficacy in the elderly and depression; or on the

relationship of positive humor and cognitive performance (Niemiec & Lachowicz-Tabaczek, 2015). Likewise, Tapia, Iturra, Valdivia, et al (2017), reported that self-efficacy helped older adults to promote and maintain behaviors that ensure a healthier life. Similar results were offered by Tuğba (2016), where self-efficacy operated by moderating the attitudes of young people towards peace and hope; in the modulation of problems related to work stress (Grau, Salanova & Peiró, 2001); in the relationship between stress and job exhaustion or burnout (Makara-Studzińska, Golonka & Izydorczyk, 2019), moderating the relationship between self-esteem and job insecurity (Adekiya, 2018), and the anxiety produced by training (Saks, 1994).

The present study

The purpose of this research was to shed light on the psychological repercussions of confinement forced by a prolonged quarantine in a suitable adult sample of Bolivians of both sexes. It sought to explore the perceptions that people had about their own emotional state: fears, anxieties, depressions, while they were subjected to social confinement, a measure adopted by the national government to reduce the probability of COVID 19 contagion by the population. Additionally, we were interested in verifying the modulating capacity of resilience and self-efficacy, given its antecedents of cushioning the effects of psychological suffering.

The questions that guided the study were the following: a) In what way and to what extent is the loneliness imposed by confinement in quarantine related to affective and / or emotional manifestations such as depression, anxiety and stress? b) Can the variables perceived loneliness, stress and anxiety predict depressive reactions in conditions of social confinement? c) Given its characteristics described above, what is the capacity of resilience

and self-efficacy to moderate by attenuation the influence of perceived loneliness on depression and anxiety, under conditions of quarantine confinement?

Therefore, the hypotheses that these questions suggest within the framework of the theory were the following:

H1. The high values of loneliness perception, produced by social isolation to prevent COVID 19, contribute to a significant increase in the levels of stress, anxiety, and depression of those who suffer confinement.

H2. The states of loneliness, anxiety and stress generated by confinement during quarantine, will allow predicting depression.

H3. Personal skills in the exercise of resilience and self-efficacy will operate as mitigating variables of the effect of both loneliness and anxiety on depression.

METHOD

Sample and participants

The present investigation was carried out with a non-probabilistic sample made up of 596 participants. These were obtained through a survey on the web, using the *Google Forms* platform. The participants were contacted through social networks, attaching a link to access the instruments. Only the persons who voluntarily agreed to answer the scales provided were able to answer them, including implicitly, an informed consent procedure. Additionally, in the instructions section, sufficient information was provided on the purposes and characteristics of the investigation.

The study obtained information from the cities of La Paz (n = 472, 79.2%), Oruro (n = 46, 7.7%), Cochabamba (n = 30, 5%), Santa Cruz de la Sierra (n = 27, 4.5 %) and to a lesser extent from other cities in the country (n = 21, 3.6%). 95.5% lived in urban conglomerates and the remaining 4.5% in rural areas. The age of the participants was between 18 and 75

years old, with a Mean $_{age}$ = 31.36 years and a *SD* = 12.832. 64.9% (n = 387) were female and 35.1% (n = 209) male. A high proportion of the participants were people of middle or upper middle-income class (n = 459, 77%), who lived in houses or apartments with 3 or more rooms. 6.9% of the sample (n = 41), was considered unemployed at the time of the inquiry.

Instruments.

a) *UCLA Loneliness Scale Reduced. Spanish version* (Vázquez-Morejón & Jiménez-García, 1994). This is an instrument with a mono-factorial structure, made up of 4 items measured using a four-point scale (frequently (1), sometimes (2), rarely (3) and never (4), respectively). The rating of the scale is possible by adding the scores of the items. The highest score indicates the highest degree of loneliness. The internal consistency for the four items presents an Alpha coefficient of .749 and the test-retest correlation obtained for the total scores was r = .7056 (N = 33, p < 0.01). The concurrent validity obtained by correlation with the Beck Depression Inventory yielded an acceptable result (N = 42, r = .4698, p < .01) and the correlation of the scores between the abbreviated and the complete form was r = .9084, (N = 86, p < 0.01) (Vázquez-Morejón & Jiménez-García, 1994).

b) *Perceived Stress Scale PES14* (Cohen, Kamarck & Mermelstein, 1983), adapted to Spanish (Larzabal-Fernandez & Ramos-Noboa, 2019). The scale proposes 14 items to measure perceived stress in the last month, with polytomous responses of 5 points: Never (0), Almost never (1), Occasionally (3), Often (4) and Very often (5). A higher score corresponds to a higher level of perceived stress. The Exploratory Factor Analysis (EFA) recommended two factors, explaining 41.94% of the total variance. The general reliability of the PES-14 obtained an Alpha = .617, and Alphas oscillating

between .805 and .811 for each of the two proposed dimensions (coping with stressors and perception of stress).

c) *Scale for Generalized Anxiety Disorder (GAD-7)* (Spitzer, Kroenke, Williams & Löwe, 2006), adapted to Spanish (García-Campayo, et al. 2010). The scale has good reliability values (Cronbach's Alpha = 0.936). Likewise, all items showed inter-item correlations greater than 0.68, a test-retest correlation of 0.844 and an intra-class correlation of 0.926 (95% confidence: 0.881-0.958).

d) *Brief Resilient Coping Scale* (Sinclair & Wallston, 2004) adapted to Spanish (Limonero et al, 2012). The Spanish version of BRCS has four items to assess stress in a highly adaptive environment. The scale has a format of five response options, from 1 ("it does not describe you at all) to 5 (it describes you very well). The total score of the test ranges between 4 and 20, with higher scores denoting greater adaptability. The original BRCS presented a reliability by internal consistency, (Cronbach's Alpha = .68 and test-retest correlation = .71). The scale showed significant correlations with other measures of personal coping, with good results (Sinclair & Wallston, 2004). Furthermore, the Spanish form of the BRCS was obtained by using a translation / back-translation procedure, as recommended by the Scientific Advisory Committee "Medical Outcomes Trust" (2002). The authors performed a Confirmatory Factor Analysis (CFA) of the BRCS items to ratify the assumption that a single latent factor (resilient coping) was responsible for the variance and covariance between the four items. The values of the fit indices obtained were: $\chi 2 = 3.04$ with 2 *gl* ($p =. 21$); the CFI = .99; GFI = .99; the NNFI = .98; SRMR = .01 and RMSEA = .04. [90 % CI = (.00 - .11)]. All indices are in the recommended range, which indicates a good fit of the measurement model.

e) *Generalized Self-Efficacy Scale (GSS*). The GSS originally developed by Jerusalem and Schwarzer (1992), studied comparatively in five countries (Costa Rica, Germany, Poland, Turkey and the United States, by Luszczynska & Gutiérrez-Doña, (2005), includes 10 items with a Likert-type scaling of 4 points, generating total scores between 10 and 40 points. The authors reported acceptable reliability coefficients. According to the original structure characteristics of the scale, the GSS was expected to be related to the constructs described in personality theories related to self-regulatory beliefs. Optimism, self-regulation, self-esteem, and orientation towards the future were positively related to GSS. The coefficients were moderate to low. The relationship between GSS and self-regulation was significant, positive and strong. The GSS was negatively related to the results obtained with the inventories that evaluate anxiety, depression, anger, and negative affect. Quality of life was positively correlated with self-efficacy. The relationships between GSS, affect, and quality of life were all significant with low to moderate coefficients.

Procedure

Study variables. The investigation began by identifying the conditions associated with quarantine that could generate the greatest psychological impact on the population. Social isolation, loneliness, anxiety, uncertainty, stress, and depression were the variables most clearly associated with forced confinement, imposed to control the pandemic. At the same time, two additional variables were identified that the theory pointed out as factors of protection and promotion of personal well-being: resilience and self-efficacy. All variables (loneliness, anxiety and stress, as independent variables, depression as dependent variable, and resilience and self-efficacy as moderator variables), were measured through the instruments described above.

Once the battery of adequate tests to study the identified variables had been established, it was adjusted to the Google Forms format to be self-administered online, through this platform. The application of the tests was carried out over approximately 10 days, during the initial period of the health emergency in Bolivia (in rigid quarantine). After debugging the dataset, it was analyzed with the help of the SPSS statistical program, to produce the results that will be described below.

Analysis decisions. Data exploration showed, for the main variables, a relatively normal distribution with slight positive and negative skewness and kurtosis (skew values between .313 and .842, and kurtosis values between .086 and 1.081). Likewise, the central tendency estimators always showed acceptable values, as did those of the Kolmogorov-Smirnoff normality tests. These results allowed the adoption of robust parametric statistical tests, assuming homoscedasticity.

RESULTS

The results description in the present investigation will follow the order of questions addressed in the problem statement section.

Relationships between perceived loneliness imposed by quarantine and depression, anxiety, and stress. Because the present investigation sought to establish the consequences of quarantine confinement on certain behavioral alterations, in the first instance, the degree and strength of the relationship between these variables was established.

Table 1. Bivariate correlations between the variables of the present study

	1	2	3	4	5	6
1 Stress	1					

2 Resilience	-.544**	1				
3 Self-efficacy	-.596**	.484**	1			
4 Anxiety	.694**	-.424**	-.395**	1		
5 Loneliness	.482**	-.319**	-.242**	.414**	1	
6 Depression	.727**	-.443**	-.376**	.762**	.472*	1

** The correlation is significant at the 0.01 level (bilateral)

As shown in Table 1, loneliness perceived by the sample is positively and significantly related to stress and depression. Table 1 also informs us about the relationship between the resilience and self-efficacy and other variables, considered to mitigate psychological suffering, and perceived loneliness, stress, anxiety, and depression. Resilience is strongly but negatively related to perceived loneliness, with stress, anxiety, and depression. Similarly, self-efficacy is negatively related to perceived loneliness, stress, anxiety, and depression. All correlations were highly significant ($p < .001$). These results confirm that while the values of resilience and self-efficacy increase, those corresponding to stress, anxiety and depression decrease significantly and consistently.

Groups comparisons. The influences of the present and absent values of loneliness, stress and anxiety on depression were analyzed, using the t test for independent samples. Table 2 shows the results of the comparisons between the three pairs of means.

Table 2. Difference of depression means in three groups of participants who reported and did not report loneliness, stress and anxiety.

	n	*M* Dep.	*SD*	*t*	*p*	*d* Cohen

No loneliness	324	15.1605	6.6058			
Yes loneliness	272	19.7279	4.9472	- 9.402	.000	0.810
No stress	321	13.8131	3.7760			
Yes stress	275	21.2509	6.0592	-17.633	.000	1.499
No anxiety	330	13.8000	3.7871			
Yes anxiety	266	21.5187	5.9311	-18.413	.000	1.588

The results in Table 2 significantly suggest that the conditions of loneliness imposed by the quarantine, the stress suffered during the period of forced isolation and the presence of associated anxiety, seem to have an appreciable effect on the manifestations of depression reported by the participants of the present investigation. Likewise, greater expressions of stress, anxiety and depression were confirmed when the groups that reported and did not report loneliness were compared. Note in Table 3, that the comparison of the ranges through the student's *t* test shows highly significant differences always in favor of the group reporting perceived loneliness. The effect sizes in all three cases are acceptable.

Table 3. Comparisons between groups reporting and not reporting loneliness during quarantine in relation to states of stress, anxiety, and depression.

Loneliness	Stress				Anxiety				Depression			
	n	*M*	*t*	*p*	*d*	*M*	*t*	*p*	*d*	*M*	*t*	*p*	*d*
Yes report	272	42.540				17.485				19.727			
No report	324	36.151	9.836	.000	0.827	14.095	-8.245	.000	0.685	15.160	-9.402	.000	0.792

Predictive analysis. Modeling of a multiple linear regression was carried out to test the predictive potential of these variables with respect to depression as a criterion variable. Thus, using the "introduce" method, we got a significant model ($F_{6/589}$ = 199.003, p = .000) and an adjusted R^2 = .666, (which explains in an acceptable way, 66.6 % of the variance) with the following variables:

Table 4. Standardized Beta Coefficients and Collinearity Values

Predictor variables	*Beta*	*p*	Tolerance	VIF
Loneliness	.101	.000	.747	1.339
Stress	.370	.000	.343	2.919
Anxiety	.474	.000	.505	1.980
Resilience	-.047	.108	.654	1.529
Self-efficacy	.079	.010	.594	1.683

Dependent variable: Depression

As can be seen in Table 4, four of the five modeled variables (loneliness, stress, anxiety, and self-efficacy) constitute good predictors of depression. Table 4 also tells us that the model is not invalidated by multicollinearity.

Analysis of Variance. Next, with the help of the two-way ANOVA, it was sought to establish whether the joint influence of perception of loneliness and stress; and the perception of loneliness and anxiety, both experienced during quarantine confinement, posed relevant influences on depression. Results are shown on Figure 1A-B.

In the case of the joint action loneliness-stress, stress was shown to influence depression ($F_{\text{Stress } 1/593} = 242.20$, $p < .001$). Note that when participants reported higher levels of stress, depression was also experienced with greater intensity. Something similar occurs in the case of loneliness: the recognition of having suffered loneliness, determined a greater depressive response in participants ($F_{\text{loneliness } 1/593} = 25.570$, $p < .001$).

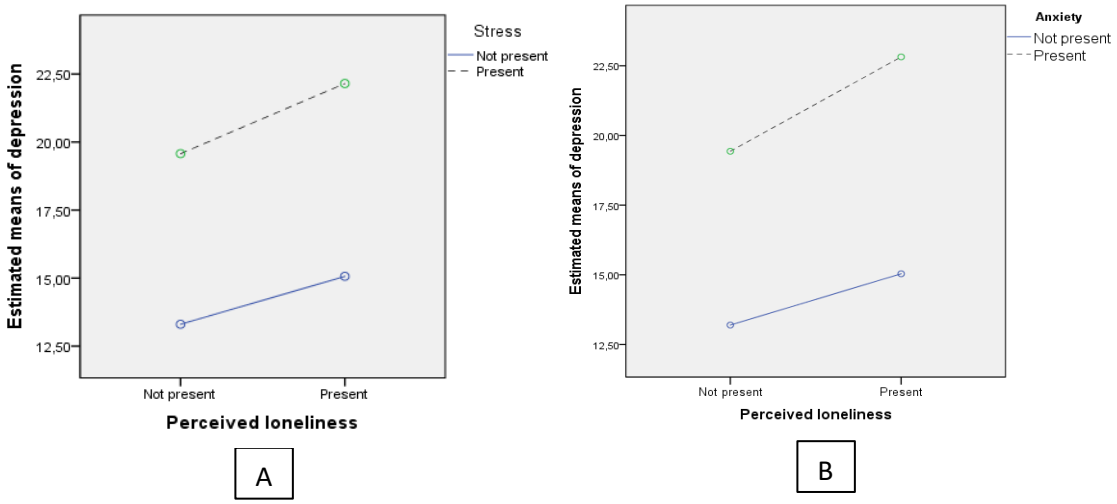


Figure 1A and B. Effects of the influence of the perception of loneliness and stress; and the perception of loneliness and anxiety, obtained with two-way analysis of variances.

However, the ANOVA did not show relevant interaction results between both factors. Figure 1-A provides visual access to these outcomes. In the case of loneliness-anxiety combination, the results were remarkably similar: the anxious experience seemed to accentuate the depression ($F_{\text{Anxiety } 1/593} = 299.722$, $p < .001$), as well as the perception of loneliness ($F_{\text{loneliness } 1/593} = 41.662$, $p < .001$). However, as in the previous case, both factors do not interact to produce a joint effect on depression (Figure 1-B).

Moderation analysis. The present investigation also explored the moderating role of the variables "resilience" and "self-efficacy" on the predicted anxiety-depression and perceived

loneliness-depression relationship. In other words, given the predictive influence of anxiety and loneliness with respect to depression, it was necessary to verify whether both resilience and self-efficacy could moderate these relationships, confirming the attenuating effect of these variables. The predicted models could assume the characteristics suggested in Figure 2:

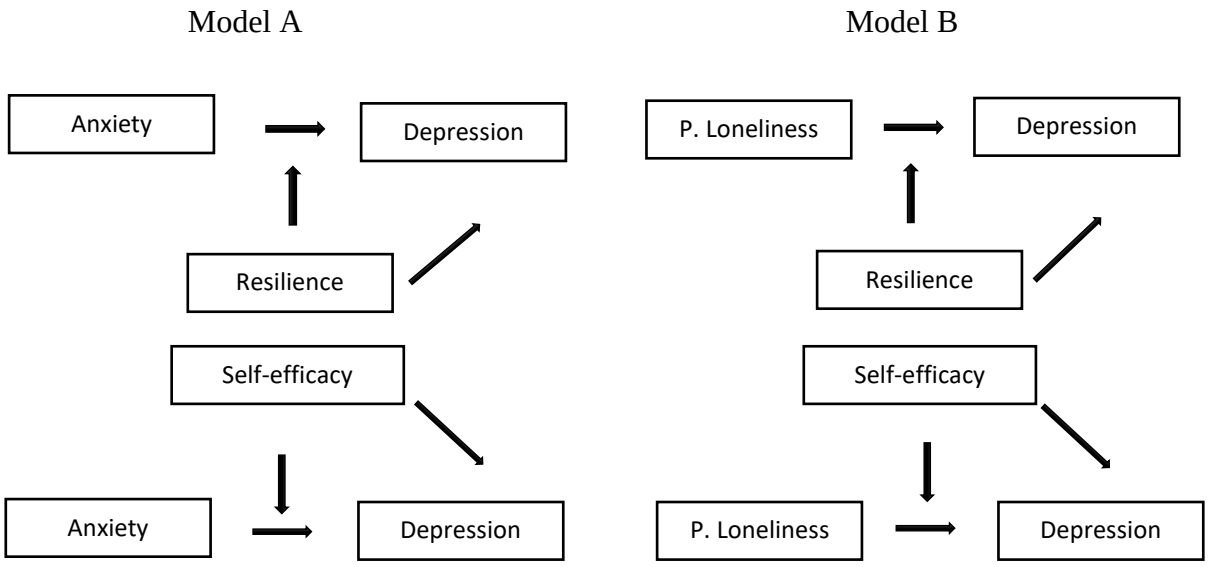


Figure 2 Models representing the moderating influences (by attenuation) of resilience and self-efficacy, on the anxiety-depression and perceived loneliness-depression relationships.

The moderating capacity of the resilience and self-efficacy variables was studied based on four models: a) the first of them investigated the attenuation of resilience on the anxiety-depression relationship; b) the second model analyzed the attenuating capacity of self-efficacy on the anxiety-depression relationship; c) the third, modeled the attenuating function of resilience on the perception of loneliness-depression relationship; d) finally the fourth model verified the effect of attenuation of self-efficacy on the loneliness-depression relationship.

A multiple linear regression moderation model (MRLM) was proposed to evaluate the effect of resilience on the demonstrated prediction of the anxiety-on-depression variable (β = .474, p < .000).

Table 5. Summary of the regression model exploring change in R^2 values because of moderating variables, resilience and self-efficacy, on the anxiety-depression prediction.

Moderator	Model	R^2 adjusted	Changed R^2	F	p changed F
Resilience	1_a	.597	.598	441.34	.000
	2_b	.602	.005	8.12	.005
Self-efficacy	1_c	.586	.587	421.80	.000
	2_d	.595	.009	13.90	.000

a. Predictors: (Constant), Z score: Resilience, Z score: Anxiety

b. Predictors: (Constant), Z score: Resilience, Z score: Anxiety, Resilience Moderation

c. Predictors: (Constant), Z score: Self-efficacy, Z score: Anxiety

d. Predictors: (Constant), Z score: Self-efficacy, Z score: Anxiety, Self-efficacy Moderator

Table 5 presents changes in R^2 for the second model, both for resilience and for self-efficacy. Small changes although significant, confirm in both cases, a modification in the percentage of variance explained for the moderating effects of resilience and self-efficacy (β resilience = -.075, p < .005, and β self-efficacy = -.098, respectively). It is also important to note that both variables, in addition to operating as moderators of the anxiety-depression relationship, significantly predict the dependent variable (β resilience = -. 136, p <.000; β self-efficacy = -. 090, p <.002). Figure 3 presents graphically the moderating effect of resilience (A) and self-efficacy (B).

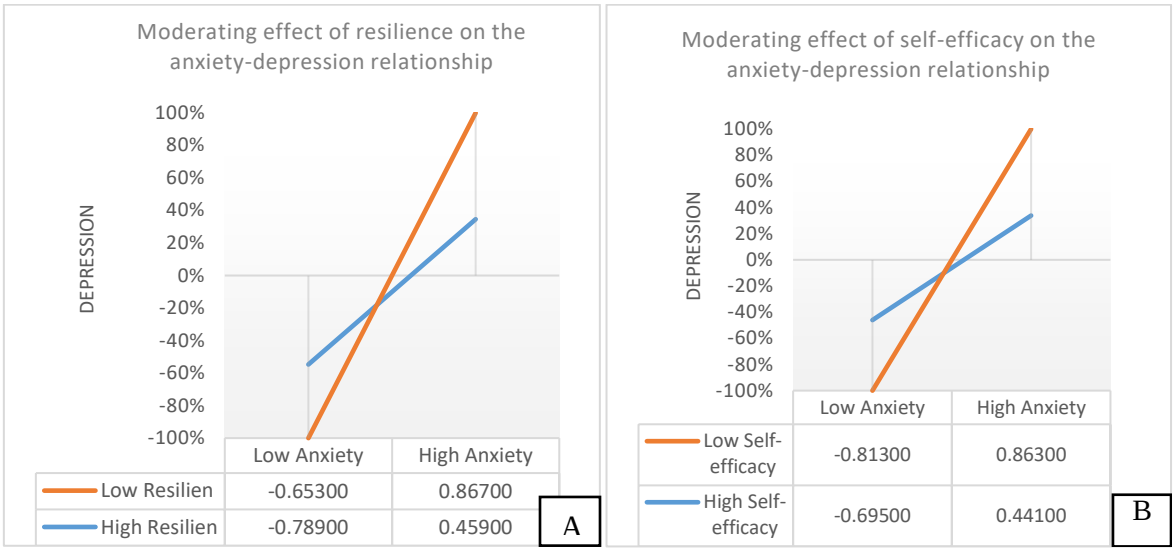


Figure 3A-B. Moderating effect of resilience and self-efficacy on the proven anxiety-depression relationship, expressed in standardized values.

As can be seen in Figure 3A-B both variables act as moderators by attenuating the influence of anxiety, on depression. This result suggests that those who suffer from anxiety due to prolonged social confinement could reduce their depression reactions if they show resilience and / or self-efficacy. Both personal competencies act as protective variables, reducing the psychological vulnerability generated by prolonged quarantine.

Table 6 Summary of the regression model exploring the change in R^2 values because of both moderating variables on prediction of perceived loneliness –depression.

Moderator	Model	R^2 adjusted	Change R^2	F	p change F
Resilience	1[a]	.316	.318	138.292	.000
	2[b]	.321	.006	5.584	.018
Self-efficacy	1[c]	.293	.295	124.310	.000
	2[d]	.302	.010	8.760	.003

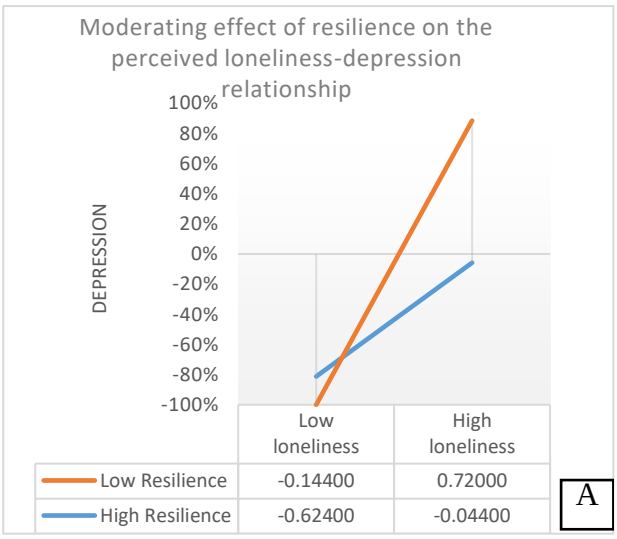
a. Predictors: (Constant), Z score: Resilience, Z score: Loneliness

b. Predictors: (Constant), Z score: Resilience, Z score: Loneliness, Moderating Resilience -Loneliness

c. Predictors: (Constant), Z score: Self-efficacy, Z score: Loneliness

d. Predictors: (Constant), Z score: Self-efficacy, Z score: Loneliness, Moderating Self-efficacy – Loneliness

Table 6 presents the results of the moderation process of both variables, for the perceived loneliness-depression relationship. These values are similar to those reported for the case of the anxiety-depression relationship. The changes observed in R^2 are also small, but statistically significant, confirming modifications in the variance explained by the moderating effect of resilience and self-efficacy, respectively (β resilience = -.082, $p < .018$; β self- efficacy = -, 102, $p < .003$). The results also show that both variables significantly predict depression (β resilience = -.311, p <.000; β Self-efficacy = -.276, p <.000). Figure 4A-B allows visual inspection of the moderation process results.



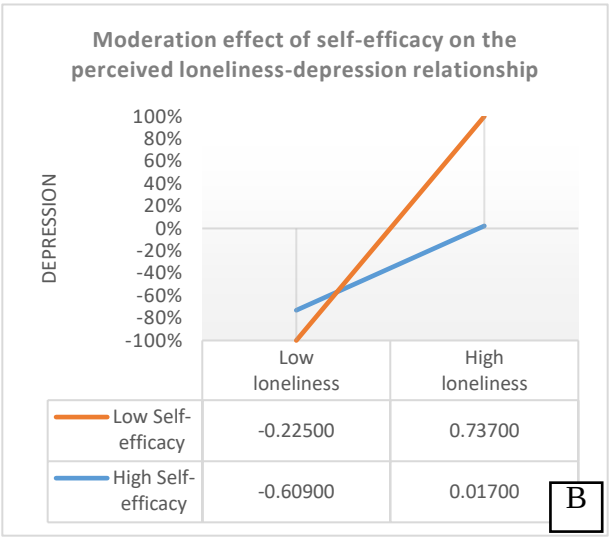


Figure 4A-B Moderation effect of resilience and self-efficacy on the perceived loneliness - depression relationship, expressed in standardized values.

Figure 4A-B shows for both variables, their attenuation effects of the impact of perceived loneliness on depression, fulfilling a protective function of the crisis produced by forced isolation during quarantine for COVID 19 prevention.

DISCUSSION

This research explored the psychological effects of social confinement during rigid quarantine on stress, anxiety, and depression. According to Waal (2007), the relevance of the study is clearly established, in the next citation:

> A good example of the fully social nature of our species is that, after the death penalty, the most extreme punishment we can conceive of is solitary confinement. And this is so, without a doubt, because we were not born for loners. Our bodies and our minds are not designed to live in the absence of others. We get depressed without social support: our health deteriorates. In a recent experiment, healthy volunteers who were deliberately exposed to a cold and flu virus became ill more easily if they had few friends and family around them (Cohen et al., 1997). Although women naturally understand the primacy of connection with others - perhaps because for 180 million years, mammalian females with tendencies that prioritize caring for others have reproduced more than those without such tendencies - the same can be applied to men. In modern society there is no more effective way for men to extend their life horizons than

> to marry and stay married: it increases their life expectancy beyond 65 by between 65 and 90% (Taylor, 2002) (De Waal, 2007, p 28).

Therefore, it was considered to verify the disturbing effects of perceived loneliness, experienced, to varying degrees, on the psychological state of a sample of Bolivian adults. The strong and positive correlation between the studied variables was confirmed: high values of perceived loneliness covariate with high values of stress, anxiety and depression in individuals exposed to social confinement. Significant differences could be identified in the reporting of signs of stress, anxiety, and depression, according to the degree of loneliness reported by the sample.

The confirmation of these relationships allowed the rejection of our first null hypothesis that denied that the high values of perception of loneliness caused by forced confinement contribute to an increase in affective or emotional alterations of those who suffer it. Likewise, it was clear that loneliness, anxiety and stress are reliable predictors of depression in conditions of forced isolation, which led us to reject the second null hypothesis formulated. Finally, it was confirmed that both personal resilience and self-efficacy operate as modulators that attenuate the already demonstrated effect of loneliness and anxiety, on depression, with which we were also able to reject the third null hypothesis.

These results are in line with the studies reported about the influence of anxiety on depression in older and younger adults (Rahman, Bairagi, Dey & Nahar, 2017), and the withdrawal from the family nucleus on different emotional states in circumstances of isolation due to the pandemic (Huarcaya-Victoria, 2020; Ramirez-Ortiz, et al, 2020).

The results obtained in the present investigation also replicate other recently released ones. For example, Gerino, Rolle, Sechi & Brustia, (2017) and Poole, Dobson, & Pusch (2017), found that resilience improved the psychological disposition to face loneliness and

depression. Similar results were reported in the attenuation of anxiety, stress and depression in circumstances of the onslaught of COVID 19 (Havnen et al, 2020; Barzilay et al, 2020; Cao, Fang, Hou, Han, Xu, Dong, & Zheng, 2020) and loneliness accompanied by sleep disorders (Grossman et al, 2020), or its effect on the sense of life of university students (Smedema & Franco-Módenes, 2018).

Self-efficacy, like resilience, was confirmed to have a moderating effect on the anxiety-depression relationship, as well as loneliness-depression. In both cases, the function was attenuation; that is, both resilience and self-efficacy, when they are competencies exercised by the individual, reduce the magnitude of the harmful effects of loneliness and anxiety, facilitating protection against depression. Therefore, the present study shares with other similar ones the importance of self-efficacy in regulating the relationship between loneliness / anxiety and depression (Tonga, Eilertsen, Solem, Arnevik, Korsnes, & Ulstein, 2020; Al-Khatib, 2012; Tu & Zhang, 2015). Confirmation of these results would allow a series of preliminary recommendations to be formulated to counteract the harmful effects of the emotional concomitants of prolonged isolation and their consequences on potential depressive states. Furthermore, having knowledge about the mitigating effects of resilience and self-efficacy should allow us to explore some procedures to install these competencies in people who are vulnerable to depression. For example, the development of clinical care protocols for the care of people with these conditions could be facilitated. However, it will be necessary before, to deepen the study of the relationships studied in the present investigation and to amend the deficiencies that could induce error due to the limitations experienced during the data collection through virtual procedures: a) online sampling may have biased the sample towards groups with easy access to these resources and those with a higher degree of digital literacy; b) there was insufficient control over the degree of objective

isolation of the sample; c) the instruments used to collect information (self-reports) do not replace the diagnostic detection procedures of the alterations studied, and their reliability and validity should be studied in greater detail. For these reasons, the reported results should be viewed with caution.

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DISCLOSURE OF CONFLICTS OF INTEREST

The authors declare that this research was carried out in the absence of any commercial and / or financial relationship that could be considered as a potential conflict of interest.

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