Investigación empírica y análisis teórico

Avoidant Coping as Moderator of Risk Percetion and Anxiety in Pandemic Context

El Afrontamiento Evitante como Moderador de la Percepción de Riesgo y la Ansiedad en el Contexto de Pandemia

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Abstract:

Risk perception plays a crucial role in predicting both anxiety and protective behaviors amidst uncertainty. Drawing from Lazarus and Folkman's transactional theory, maladaptive coping strategies are suggested to moderate the relationship between risk perception and anxiety. This study aimed to examine the moderating effect of avoidant coping strategies on anxiety levels predicted by risk perception during the Covid-19 pandemic. A sample of 395 individuals with potential Covid-19 comorbidities, averaging 37.5 years, participated in non-experimental assessments using psychometric scales to measure anxiety, Covid-19 risk perception, avoidant coping, and protective behaviors. Comparative analyses by age and gender were conducted alongside structural modeling employing partial least squares to explore the moderating role of avoidant coping. Results revealed a significant positive effect of avoidant coping strategies on increasing anxiety predicted by risk perception. These findings underscore the importance of fostering healthier coping mechanisms in future public health initiatives to mitigate the adverse impacts of risk communication regarding disease threats.

Keywords: *Risk perception, Avoidant Coping, Covid-19, Comorbidity, Protective Behavior.*

Resúmen:

La percepción de riesgo es clave para predecir la ansiedad y las conductas protectoras en contextos de incertidumbre. Basándose en la teoría transaccional de Lazarus y Folkman, se propone que estrategias de afrontamiento desadaptativas moderan la relación entre percepción de riesgo y ansiedad. Este estudio investigó el efecto moderador de estrategias de afrontamiento evitativo sobre los niveles de ansiedad durante la pandemia de Covid-19. Participaron 395 personas con posibles comorbilidades para Covid-19, con promedio de edad de 37.5 años. Se utilizaron escalas psicométricas para evaluar la ansiedad, la percepción de riesgo, el afrontamiento evitativo y las conductas protectoras. Se realizaron análisis comparativos por edad y género, y modelos estructurales basados en mínimos cuadrados parciales para explorar el rol moderador del afrontamiento evitativo. Los resultados mostraron un efecto positivo significativo del afrontamiento evitativo en el aumento de la ansiedad predicha por la percepción de riesgo. Estos hallazgos resaltan la importancia de fomentar mecanismos de afrontamiento más saludables en futuras iniciativas de salud pública para mitigar los impactos negativos de la comunicación del riesgo sobre amenazas patogénicas.

Palabras clave: *Percepción de riesgo, Afrontamiento evitativo, Covid-19, Comorbilidad, Comportamiento protector.*

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At the beginning of 2020 the SARS-COV2 virus was recognized as a pandemic threat, which is the pathogen responsible for causing the COVID-19 disease; during this situation, various strategies were carried out to mitigate the health consequences that this disease represented, some of these strategies were prevention campaigns, mobility limitation and quarantine periods for general population.

Given the declaration of COVID-19 as a pandemic by the World Health Organization in 2020, the elderly people were initially recognized as the main vulnerable population (WHO, 2020), subsequently the health authorities identified the high risk of mortality that have people with comorbidities such as obesity, asthma, hypertension and any other autoimmune disease (Kammar-García, et al., 2020; Russell, et al., 2023), being consequently identified as a vulnerable population also.

On the other hand, and in addition to the consequences on physical health that this situation has represented, the psychological affectations in the population are also recognized due to the context of a health emergency caused by COVID-19 (Boshra, et al., 2020; Cao, et al., 2020; Huang and Zhao, 2020; WHO, 2022). The impact of the psychosocial risk of large-scale health emergencies is associated with the fear of contagion, this manifestation may exceed the handling capacity of the affected population; for which an increase in the incidence of mental disorders and emotional manifestations can be estimated, according to the magnitude of the epidemic and the degree of vulnerability of the population.

The role of risk perception as a factor that precedes anxiety and stress in threatening situations has previously been pointed out, being widely reviewed and verified, both due to threats from pathological agents and pollu-tants (Jones & Salathé, 2009; Winters, et al., 2020; Takebayashi, et al., 2017; Liu, et al., 2020). However, the role of risk perception is also essential for protective behaviors, specifically in the context of the Covid-19 pandemic (Cipolletta, et al., 2022), particularly it has been found that risk perception in a population with comorbidity was associated with the intention to vaccinate (Roberts, et al., 2023).

From risk perception theories, it is understood that all those situations in which a person considers risks end up leading to an evaluation of the situation, this evaluation has been called 'risk perception' or 'danger perception' and it is assumed is based on a cognitive process of estimating the probability and severity of a possible threatening event (Finn & Brag, 1986). Although it is possible to assume that there is always an objective risk, in daily experience people do not objectively assume risk, but rather in how they understand and experience it (Rundmo, 2000).

However, from the transactional model of Lazarus and Folkman (1984), it is suggested that within the anxious response scenarios there are two evaluative axes that explain the degree of anxiety experienced, the first is due to the evaluation of threats, the risk perception component in which, as mentioned above, individuals assess the degree of vulnerability to current threats; And a second evaluation that corresponds to the framework of response to a threat, in which the coping strategies that people use to respond to these evaluated threats are focused (Monat & Lazarus, 1985).

Coping strategies are adaptive capacities that individuals have to face threatening situations, categorized into two main styles: active coping styles that focus on solving the problem; and avoidant, related to denial, cognitive detachment and repression of emotions (Carver, et al., 1989; Lazarus & Launier,

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1978). Folkman and Lazarus (1986) warn that anxiety problems occur when coping strategies are maladaptive and fail to regulate the anxiety that occurs as an emotional response to threats.

Studies have been reported in the literature that prove what Lazarus proposed, identifying that the type of coping strategies used by individuals is associated with the level of anxiety experienced (Villada, et al., 2014), in addition to that, coping strategies can be significant determinants of risk or protective behaviors in viral health emergency scenarios (Cui, et al., 2019).

In the context of the Covid-19 pandemic, it has been identified that avoidant coping styles are associated with higher levels of anxiety, depression and low quality of life (Shamblaw, et al., 2021), although there is evidence that this relationship it is not always manifested, Li and Miller (2017) found that avoidant strategies were not predictive of anxiety in older adults, however, when distinguishing by sex, it was predictive for males.

It has also been identified that risk perception is related to coping styles (Hagan, et al., 2022). However, this relationship between risk perception, coping styles and anxiety have not been fully clarified.

There is evidence of the direct effect that risk perception has on anxiety and protective behaviors, there is also evidence that suggests that avoidant coping predicts increased anxiety and decreased protective behaviors; From the proposal of the transactional model of Lazarus and Folkman (1984), it is possible to suggest that this type of coping can be a moderator of the effect that the perception of risk has on anxiety, for this reason the following hypotheses are suggested:

H1: Risk perception positively predicts anxiety

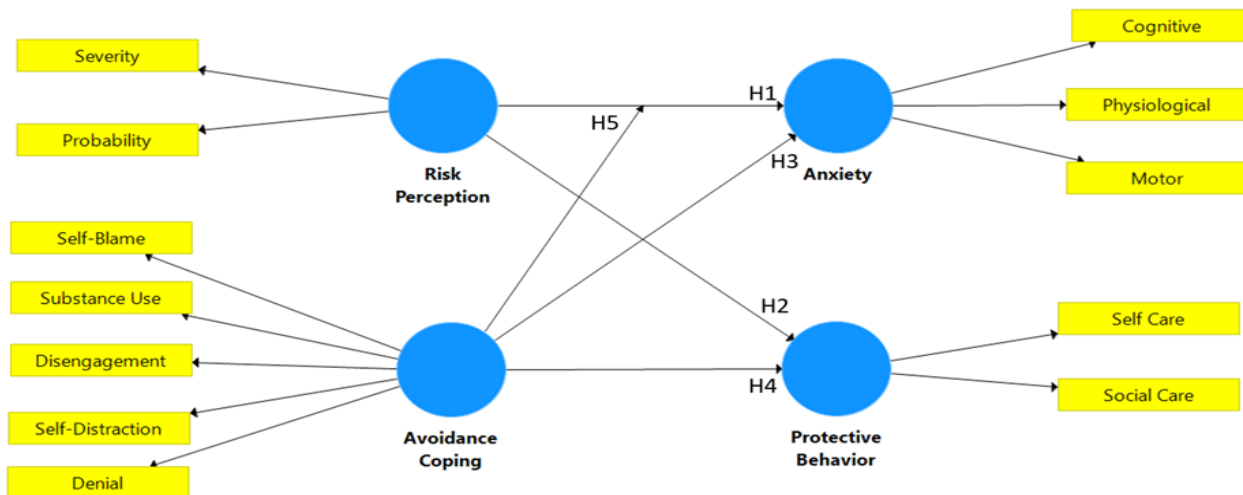H2: Risk perception positively predicts protective behaviors towards Covid-19.

H3: Avoidant coping positively predicts anxiety

H4: Avoidant coping is inversely associated with adopting protective behaviors against Covid-19.

H5: Avoidant coping moderates risk perception as a predictor of anxiety.

Due to the above, it is proposed to test a model that allows establishing the moderating role of avoidant coping styles between risk perception and anxiety, likewise, to identify the predictive capacity of risk perception and avoidant coping to protective behaviors of vulnerable population towards Covid-19 (Figure 1).

Figure 1. Theoretical model of Avoidant Coping as moderator between Risk

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Method

The objective of this study is to analyze the moderate influence of perceptual risk factors and the use of an avoidant coping style towards anxiety and protective behaviors under the context of a pandemic, therefore it is intended to address the phenomenon from a quantitative approach and a non-experimental design, due to the absence of manipulation of the variables; Likewise, the study is cross-sectional since the data were collected at a single moment (Hernández, et al., 2014; Hernández-Sampieri & Mendoza, 2020).

Participants

A representative and non-probabilistic sample of 395 people residing in northwestern Mexico was chosen, with a mean age of 37.55 (SD=14.3), of which 66.6% were women. As inclusion criteria for the sample, it was considered to be over 18 years old and present some disease or condition of vulnerability to COVID-19, of which 10.9% reported suffering from diabetes, 60.5% obesity, 22.3% hypertension, 22.3% asthma and 6.3 % some autoimmune disease (HIV, Cancer, Lupus, etc.).

Procedure

The research protocol was submitted to the ethics commission of the Technological Institute of Sonora, obtaining its approval for its implementation. The application of the instruments was carried out during the health contingency by COVID-19, from April 2020 to February 2021, the survey was conducted virtually using the 'Google Forms' service, promoted through social networks like 'WhatsApp' and 'Facebook'.

The data were captured in the statistical package SPSS v.24 to obtain descriptive statistics, distribution analyses were conducted to assess the normality of the data, likewise, comparison tests by gender and age were carried out.

As part of the control of the survey, it was ensured that the items were conditioned to ensure complete response, as well as to ensure that the inclusion criteria were met, since by not responding affirmatively to the inclusion options for the sample, the survey could not be concluded.

To assess a moderation analysis, we use the Partial least squares (PLS) method for structural equation modeling, a variance-based method (Ramayah et al., 2018), which is a pertinent technique in cases of analyzing the moderating effects in structural models, been more easily to specify interaction terms than covariance-based structural modeling (Hair, et al., 2013). Other reason to use PLS it's the absence of normality criteria for data distribution, been a convenient method in social science where these criteria isn't common to achieve.

For validity of structural equation model by PLS standard factor loading for each variable must reach a 0.70 loading, also, Composite Reliability (CR) and Cronbach's alpha must be at less 0.70; Average Variance Extracted (AVE) values must be higher than .50, and CR must be higher than AVE (Hair, et al., 2021; Kline, 2013).

A first structural model of direct effect was developed through bootstraping technique with 5000 subsamples, using the software SmartPLS version 3.2; coefficients of determination were obtained (r2), predictive relevance (Q^2), effect size (f^2) path coefficient (β) and t statistics (Hair, et al., 2013).

Subsequently, a structural model of moderator effect was carried out in order to compare the change in the explained variance of the anxiety dependent variable, also identifying the effect size (f^2) of the change between both coefficients of determination and t statics of the relationship between the moderator variable and anxiety.

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Measures

To measure various attributive properties of the population, a self-report questionnaire was utilized. It included multiple response options related to sociodemographic variables such as age and sex. Additionally, participants were asked about diseases associated with comorbidity in COVID-19 mortality, including hypertension, diabetes, obesity, asthma, and autoimmune diseases.

Anxiety

To measure the anxiety variable, the Reduced Anxiety Scale (E.R.A) was used, which has a Cronbach's alpha of .90. It consists of 17 items proposed on a Likert-type scale, which are divided into three dimensions: Cognitive responses, Physiological responses, and Motor responses (Martínez, et al., 1995).

Risk Perception towards Covid-19

The Covid-19 risk perception scale of Mirón-Juárez, et al. (2022) was used, which is a self-report questionary that measures a subjective estimation of probability of infection and an estimation of severity, both constructs are measured with 21 items using a 5-point Likert scale, ten of the items focused on measuring the estimation of the probability of contagion and eleven more towards the estimation of the severity of the consequences of contagion. The scale showed optimum reliability and validity rates for the Mexican population, the authors used the Rash Model Analysis to assed the reliability of the items, finding internal and external fit statistics within the acceptable range of 1.5 to 0.5, likewise, the items demonstrated a minimum discrimination of .74. Likewise, the authors showed structural validity through Confirmatory Factor Analysis, obtaining measurement models with acceptable adjustment.

Avoidant Coping

Regarding coping styles, the Brief COPE (Coping Orientation to Problems Experienced) Inventory (Carver, et al., 1989) was used in its Spanish version (Morán, et al., 2010). The Brief COPE is a self-report psychological measure designed to assess how people cope with stress and problems in their lives. It is a multidimensional scale that evaluates different coping strategies that people can use, such as social support, finding solutions, humor, denial, among others. For this research, the subscale of avoidant coping is used, which have five constructs, self-blame, substance use, disengagement, self-distraction and denial, this subscale have been reported with good reliability index (α=.75) (Radoš, et al., 2018).

Protective Behavior towards Covid-19

The Behavioral Self-Assessment Scale is a self-report questionary utilized to gauge individuals' adherence to protective measures against COVID-19. Developed by Arias (2020), this psychological measure assesses the frequency of two types of care behaviors related to COVID-19. Six items pertain to the frequency of self-care behaviors, while another six focus on behaviors aimed at protecting others. The scale employs a five-point Likert scale ranging from 1='Never' to 5='Always'. Acceptable reliability has been reported for the Latin American population (α=.84).

Results

Measures of central tendency, distribution, and dispersion were obtained for each of the variables, the highest means being for the probability and risk severity estimation variables, as well as cognitive anxiety and self-distraction. Skewness and kurtosis statistics showed values greater than 1 in physiological

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and motor anxiety, as well as in substance use. Likewise, the Kolgomorov-Smirnov theoretical test showed significant differences for a normal distribution in each of the variables, which suggests that the data had a free distribution (Table 1).

Due to the distribution characteristics of the variables data, the Mann-Whitney U nonparametric comparative test was carried in order to identify the effect of gender on each of the variables (Table 2). The effect size was established through the contrast r, where values less than .10 are considered a small effect size, .30 a medium effect size, and .5 a large effect size (Rosnow & Rosenthal, 2009).

Significant effects were found for the probability estimate, with women reporting a higher estimate with a small effect size, likewise, women reported greater cognitive anxiety with a small effect size. Regarding avoidant strategies, significant differences were only found in self-distraction and substance use, where women reported more self-distraction and men greater substance use, both effects being small.

For protective behaviors towards Covid -19, women reported more self-care behaviors and care towards others, this difference being significant and with a small effect size.

Regarding the age groups, the variables were compared using the Kruskal-Wallis H test, also estimating the effect size with the Epsilon-Squared statistic (Tomczak & Tomczak, 2014). It was identified that estimation of severity was significantly different between the groups, with the group of over 50 years old reporting the lowest estimate and with a low effect size. For anxiety, significant differences with a small effect were found in the three types of manifestations, with the group from 18 to 30 years old reporting the highest anxiety (Table 3).

Table 1. *Descriptive statistics and normality test for risk perception, anxiety and coping avoidant strategies.*

Variables	M	Md	S.D.	Skewness	Kurtosis	Kolgomorov-Smirnov Sig.
Probability	3.9314	4.0000	.76456	-.786	.227	.000
Severity	3.9650	3.9091	.44431	-.302	.299	.000
Cognitive Anxiety	2.3641	2.0000	1.02300	.848	-.014	.000
Physiological Anxiety	1.5804	1.3750	.70555	2.163	5.260	.000
Motor Anxiety	1.5215	1.2500	.77651	2.396	6.292	.000
Self-Distraction	2.7481	3.0000	1.17740	.091	-.946	.000
Denial	1.6570	1.0000	1.00477	1.554	1.556	.000
Use of Substance	1.3823	1.0000	.84041	2.341	4.709	.000
Disengagement	1.8165	1.5000	1.06029	1.172	.357	.000
Self-Blame	1.9241	1.5000	1.15238	1.094	.185	.000
Self-Care	5.8278	6.1667	.91289	-1.471	1.738	.000
Social Care	4.1981	4.5000	.77793	-1.138	1.152	.000

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Table 2. *Comparison of risk perception, anxiety, avoidant coping and protective behaviors by gender.*

	Gender	M	Md	Z	U	Sig	r Contrast
Probability	Mujer	3.9928	4.100	-2.568	14612.00	.010	-0.12921010
	Hombre	3.8091	3.900				
Severity	Mujer	3.9820	4.000	-1.505	15751.50	.132	-0.07572476
	Hombre	3.9311	3.901				
Cognitive Anxiety	Mujer	2.4624	2.200	-2.872	14292.50	.004	-0.14450600
	Hombre	2.1682	1.800				
Physiological Anxiety	Mujer	1.5889	1.375	-1.714	15537.50	.087	-0.08624069
	Hombre	1.5634	1.250				
Motor Anxiety	Mujer	1.5485	1.250	-1.476	15838.50	.140	-0.07426562
	Hombre	1.4678	1.250				
Self-Distraction	Mujer	2.8650	3.000	-2.820	14369.00	.005	-0.14188959
	Hombre	2.5152	2.500				
Denial	Mujer	1.6293	1.000	-.560	16823.00	.576	-0.02817665
	Hombre	1.7121	1.000				
Use of Substances	Mujer	1.2567	1.000	-3.905	14263.50	.000	-0.19648187
	Hombre	1.6326	1.000				
Disengagement	Mujer	1.7643	1.500	-.686	16670.00	.492	-0.03451640
	Hombre	1.9205	1.250				
Self-Blame	Mujer	1.9202	1.500	-.250	17105.50	.803	-0.01257886
	Hombre	1.9318	1.500				
Self-Care	Mujer	5.9943	6.333	-5.067	11967.00	.000	-0.25495
	Hombre	5.4962	5.833				
Social Care	Mujer	4.3270	4.500	-4.385	12719.50	.000	-0.22063
	Hombre	3.9413	4.000				

Table 3. *Comparison of risk perception, anxiety, avoidant and protective behaviors by age group.*

Variable	Age	M	Md	H Kruskal-Wallis	Sig.	Epsilon-Squared
Probability	18-30	3.8955	4.000			
	31-50	4.0230	4.200	3.671	.160	0.0093
	>50	3.8364	4.000			

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Table 3. *Comparison of risk perception, anxiety, avoidant and protective behaviors by age group. (Continuation)*

Severity	18-30	4.0328	4.000			
	31-50	4.0072	4.000	18.948	.000	0.0480
	>50	3.7727	3.818			
Cognitive Anxiety	18-30	2.6748	2.400			
	31-50	2.3224	2.000	35.181	.000	0.0892
	>50	1.8886	1.800			
Physiological Anxiety	18-30	1.7718	1.500			
	31-50	1.5847	1.375	43.956	.000	0.1115
	>50	1.2358	1.125			
Motor Anxiety	18-30	1.7548	1.500			
	31-50	1.4803	1.250	35.201	.000	0.0893
	>50	1.1818	1.000			
Self-Distraction	18-30	2.8000	3.000			
	31-50	2.9605	3.000	19.156	.000	0.0486
	>50	2.2898	2.000			
Denial	18-30	1.8516	1.000			
	31-50	1.5493	1.000	8.531	.014	0.0216
	>50	1.5000	1.000			
Use of Substances	18-30	1.5935	1.000			
	31-50	1.3289	1.000	18.634	.000	0.0472
	>50	1.1023	1.000			
Disengagement	18-30	2.1839	2.000			
	31-50	1.7138	1.000	45.752	.000	0.1161
	>50	1.3466	1.000			
Self-Blame	18-30	2.4194	2.500			
	31-50	1.7533	1.000	56.842	.000	0.1442
	>50	1.3466	1.000			
Self-Care	18-30	5.4194	5.833			
	31-50	6.0362	6.333	52.849	.000	0.1249
	>50	6.1875	6.333			
Social Care	18-30	3.9952	4.250			
	31-50	4.2961	4.500	17.074	.000	0.0334
	>50	4.3864	4.500			

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In the variable of avoidant coping strategies, the groups showed significant differences and low effect in all strategies, observing that the group from 18 to 30 years old showed higher frequency in almost all of them. For protective behaviors, the group older than 50 years reported a significantly higher frequency.

In the structural model (inner model), the direct effect hypothesis is shown by using bootstrap technique with 5000 subsamples (Hair, et al., 2016), path coefficients and p values for risk perception and avoidant coping show significant effect for anxiety and protective behavior (Figure. 2).

To assesst validity for the model, AVE values, CR and Cronbach's Alpha were obtained, observing acceptable values for every criteria (Kline, 2013; Hair, et al., 2013), in respect for the outer model it was observed that all the standard factor loading of each variable reach a minimum load of .70, except for Self-Distraction (Table 4).

Risk perception show a positive determination for Anxiety ($\beta=0.159$) and Protective Behavior ($\beta=0.164$); and for Avoidant Coping the results shows a negative predictive path coefficient for Protective Behavior ($\beta=-0.366$) and positive for Anxiety ($\beta=0.614$). For the purpose of this research, the first four hypotheses were demonstrated by observing significant values in all the direct effect proposed (Table 4). However, it is noted that the predictive regression indices regarding the Risk Perception towards Anxiety and Protective Behavior proved to be low, hence the predictive capacity for these variables, while significant, should be considered cautiously.

A secund model were obtained by stablishing a new variable as a moderation of risk perception by avoidant coping (Figure. 3). Significant effect of Avoidant Coping was demonstrated (Table 5), the effect of avoidant coping on the relationship of risk perception and anxiety is significant at .05 confidence level; accepting the H5 hypothesis. Figure 4 shows the simple slope analysis from the SmartPLS software, which graphically shows the moderating effect.

To compare both determinations coefficients of Anxiety for model with moderator included and model without moderator (Table 6), we use the f^2 coefficient (Figure 5), obtaining a score of $f^2=0.034$, which can be interpreted as a small effect size (Cohen, 1988). In the moderating model Risk Perception, avoidant coping and the moderating effect explained the 45% of anxiety in people with comorbidity vulnerability at covid-19, also, risk perception and avoidant coping explained the 14% of the protective behavior, been risk perception a positive predictor and avoidant coping a negative one.

Figure 2. Model of direct effect of risk perception and avoidant coping as predictors of anxiety and protective behavior.
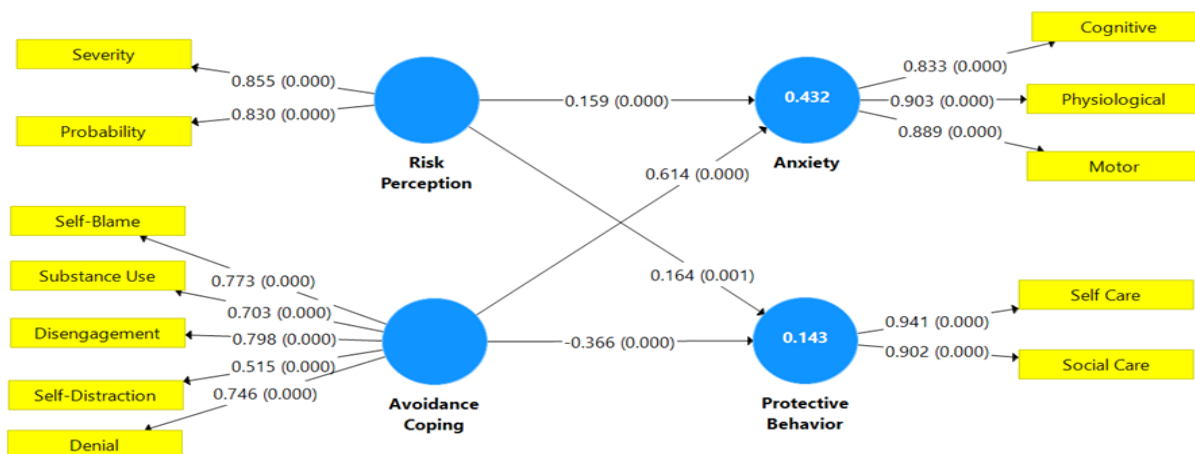
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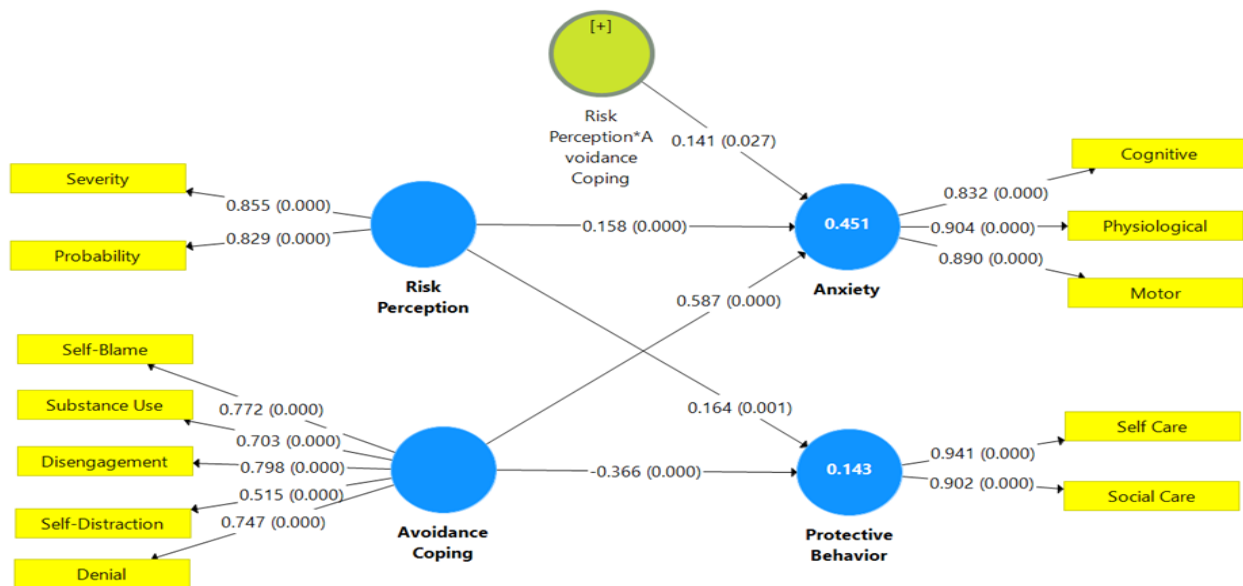*Figure 3.* Model of Avoidant Coping as moderator for Risk perception and Anxiety.

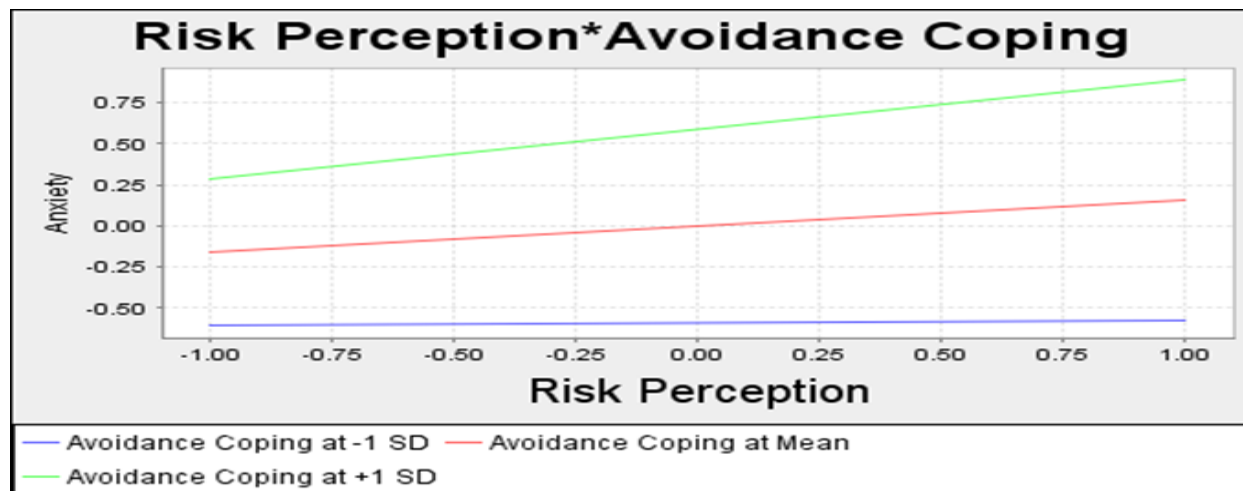*Figure 4.* Simple slope analysis for Avoidant Coping as moderator.

Figure 5. Equation for size effect calculation f² (Ramayah, et al, 2018)

$$f^2 = \frac{R^2 \text{ included moderator} - R^2 \text{ excluded moderator}}{1 - R^2 \text{ included moderator}}$$

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Table 4. *Outer model validity values for Anxiety, Avoidance Coping, Risk Perception and Protective Behavior.*

	Loading Factor	AVE	Composite Reliability	Cronbach A	R^2
Anxiety		.767*	.908*	0.848	.432*
Cognitive	0.833				
Motor	0.889				
Physiological	0.903				
Avoidance Coping		.510*	.836*	0.755	
Denial	0.746				
Disengagement	0.798				
Self-Blame	0.773				
Self-Distraction	0.515				
Substance Use	0.703				
Risk Perception		.710*	.827*	0.689	
Probability	0.830				
Severity	0.855				
Protective Behavior		.850*	.919*	0.826	.143*
Self Care	0.941				
Social Care	0.902				

Note: AVE=Average Variance Extracted,*=significance at .01.

Table 5. *Hypotheses testing of direct effect of risk perception and avoidant coping.*

	Hyphoteses Path	β Value	Sample Mean	Std. Dev.	T-values	P-values	Results
H1	Risk Perception -> Anxiety	0.159	0.16	0.037	4.235	0.000	Significant
H2	Risk Perception -> Protective Behavior	0.164	0.166	0.051	3.194	0.001	Significant
H3	Avoidant Coping -> Anxiety	0.614	0.616	0.039	15.648	0.000	Significant
H4	Avoidant Coping -> Protective Behavior	-0.366	-0.368	0.053	6.845	0.000	Significant

Table 6. *Hypotheses testing of moderating effect of Avoidant coping.*

	Hyphoteses Path	β Value	Sample Mean	Std. Dev.	t -values	P-values	Results
H5	Risk Perception*Avoidant Coping -> Anxiety	0.141	0.163	0.073	1.928	0.027	Significant

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Discussion

Among the findings to be discussed, the comparative tests by gender are highlighted, where women perceived a higher probability of contagion than men, but not severity, likewise, greater anxiety on the part of women was only partially identified, since significant differences were only observed in the manifestation of cognitive anxiety; the results coincide with previous studies in the general population, where it is identified that women perceived greater risk towards covid-19 and report more anxiety (Rodriguez-Besteiro, et al., 2021; Martelletti, et al., 2022). Hitchcock (2001) has previously suggested that differences between men and women regarding risk perception should be contextually assessed and that there are cultural and demographic factors that will influence these differences; such as, for example, an overexposure to preventive campaigns, events or close cases of mortality from covid-19, etc. Likewise, it is highlighted that women reported greater protective behaviors, which could be due to a greater risk perception.

Regarding age, it was identified that the younger group reported significantly more anxiety than the elderly adults; This type of finding has already been reported previously (Nwachukwu, et al., 2020; Ozamiz-Etxebarria, et al., 2020) and although it is considered a curious result, since in the context of the Covid-19 pandemic, elderly adults have been initially identified as the most vulnerable group; It has been assumed as a possible explanation of elderly adults reporting less anxiety is because they have less social mobility and possibly having already had more threatening experiences in their life, been less susceptible to the stressor effect; This could also explain why a higher incidence of protective behaviors was observed in elderly adults compared to the group of young adults.

Literature has suggested the relationship between risk perception for both anxiety and protective behaviors in threat scenarios; this dichotomy can be considered unfortunate when identifying that most preventive strategies are based on this perceptual principle. However, from the transactional theory of Lazarus and Folkman (1984) an alternative is proposed by recognizing that the risk perception is only a first evaluative state when people find themselves in a threat situation and the increase in anxiety will depend on a second process, which is associated to coping strategies that individuals have as a resource for dealing with the perceived threat (Lazarus & Folkman, 1984).

The results of the verified moderator model suggest that this moderating capacity exists, although it would be considered with a small effect size due to the value of f squared; Chin, et al. (2003) warn that even when having small effect sizes, these should not be dismissed, instead it should be taken into account since these changes can be important in certain circumstances, especially when the determination coefficients are significant, which is the case of this study.

Conclusion

This study corroborates the moderating role of avoidant coping in the relationship between risk perception and anxiety, likewise confirms the direct relationship between risk perception and avoidant coping with anxiety and protective behaviors. However, it is important to recognize as limitation of the study the non-probabilistic sampling that was used because of the health emergency conditions, therefore it was not possible to ensure a greater representativeness of the study subjects. It is also recognized the need of extending the analysis to other coping strategies that

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could have a positive effect on moderating the relationship between risk perception and anxiety.

Also, it is possible to corroborate that women tend to perceive greater risk, which means that the male population may be of greater relevance for health prevention programs, by perceiving less risk they may be more vulnerable at not addressing health threats. In the same sense, elderly adults reported less anxiety than young adults and a higher incidence of protective behaviors, showing that that elderly adults are more prepared or adapted to address the health threat posed by the Covid-19 disease.

It is also recognized that risk perception is an important factor for the promotion of protective behaviors (Cipolletta, et al., 2022; Roberts, Deml & Attwell, 2023), but it also has impact on the increase of anxiety for the general population (Jalloh, et al., 2018; Takebayashi, et al., 2017; Liu, et al., 2020). This represents a challenge for prevention health campaigns, however, based on the findings of this study, it is suggested that, in order to promote protective behaviors without signifying an impact on emotional and cognitive stability that anxiety disorders represent, future health campaigns consider warning about the negative effect of using avoidant coping strategies; thus, promoting better coping strategies that are more adaptive and functional.

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