Explaining Corona Anxiety based on Intolerance of Uncertainty, Psychological Hardiness, and Social Support with the Mediation of Rumination

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A R T I C L E I N F O:

A B S T R A C T :

The aim of this study investigation to the mediating function of rumination in the relationship between social support, psychological hardiness, and intolerance of indecision with corona anxiety. The present study was a descriptive correlation with equation structural analysis. The sample of that choose in Ardabil city, in which 300 people participated in the research online and through virtual networks. Questionnaires of rumination, uncertainty intolerance, corona anxiety, social support and psychological hardiness were used to gather data.. Analysis were performed using equation structural modeling and SPSS. The results indicate that direction routes of social support, psychological hardiness, and intolerance to corona anxiety were significant ($p < 0.05$). The study of indirection relationships that rumination mediates between social support, psychological stubbornness, and intolerance of uncertainty with corona anxiety. The method of present study in the research has a good fit. So that intolerance of uncertainty negatively, psychological hardiness, and social support positively affected corona anxiety mediated by rumination. These results by identifying the factors effective corona anxiety can be useful strategies for professionals to intervene and reduce anxiety period of corona disease.

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Introduction:

Since December 2019, the new coronavirus (Covid-19) has spread from Wuhan to other cities in China and around the world and is an emerging zoological factor (Bonilla-, Dhama,Rodriguez 2020, Wang, et al 2020). On March 11, 2020, the World Health Organization (WHO) descriptive the COVID-19. Totally number of people infected with this disease as of April 17, 2021, 140,652,074 positive cases and the hugs of people are diet، 102 numbers of people were recorded and also the totally number of recoveries was 119,477,372. Also, the numbers of people infected with this disease in Iran as of 28 April 1400, 2,215,445 positive cases have been reported, the comprehensive number of deaths in Iran is 66,327 and the number of recovered is 1,772,688. Most people infected with the COVID-19 virus experience mild to moderate respiratory illness and recover without special treatment. Adults with heart problems such as cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more harm to expand seriously illness (WHO, 2020).

Additionally to the risk of death, this epidemiology has had unbearable psychological stress on people of the world (Xiaoyun & Fenglan, 2020). There are reports of psychological effects of the disease on the general, patients, medical staff, children, and the elderly (Chen & Qian,2018). Psychological factors play an important role in the effectiveness of public health strategies in the management of epidemics (Taylor, 2019). Wang, Yen et al. (2019) in their study aimed at examining the psychological effects of corona heart disease concluded that 52.8% of respondents rated the psychological effects of the disease as moderation or severe. 16.5% reported depressive symptoms, 28.8% reported anxiety symptoms, and 8.1% reported stress (Wang, et al 2020). The study of Cao, Fang, Hu et al. (2020) to investigate the psychological effects of coronavirus on Chinese university students, the results showed that the economic effective on daily life as well as delays in academic activities with positive anxiety symptoms Accompanied (Cao, W., et al, 2020).

One of the variable that has an important function in people's health and have a direction effect on the quality of life and reduce a mental and physical illness (Razavi, 2015). Social support mentioned that perceptions of people can assistance and support them and it cause decrease their stress situations through friends and others,

and this help acts as a social shield against stressors and reduces their effects (Hosseini, Beyrami & Hashemi, 2012). Social support can come from a variety of sources such as family, friends, community ties, and co-workers (Taylor,2011) and can serve as a coping strategy (Kiecolt-Glaser& Newton, 2001) and a direct factor in enhancing the well-being and health of individuals (Qorbanpoorlafmejani,Yaghouti & Rezaei, 2019). Social support through social interaction can reduce psychological anxiety and increase social adjustment and well-being (Razavi,2015). Poured, Momeni, and Karami (2019), in their research concluded that perceived social support has a negative relationship with death anxiety in the elderly (Poordad, Momeni &Karami, 2019).

Other variables that can be associated with corona anxiety are psychological stubbornness. The more stubborn people are, the better they cope with the anxious situation (Falah, Mihandoost & Mami,2020). Stubbornness is a personality trait that arises in interaction with the world around us and affects a person's ability to manage and respond to stressful events (Maddi,2004). Stubborn people are more committed to what they do in life, they have more internal control over life situations, and they see life changes as a challenge rather than a stressor (Bartone,2000). These people have more control over events and solve problems better. Also, stubborn people tend to react to stressors using social support networks (Sheard & Golby,2007, Maddi, 2002). Psychological toughness can effectively deal with the factors that cause anxiety; people with higher psychological toughness are better able to withstand anxiety (Pourakbari, Khajevand & Asadi, 2014). Besides, psychological stubbornness can predict psychological well-being by reducing anxiety (Skomorovsky & Sudom, 2011 ,Asghari & Mamizade ,2018).

Another variable that can be associated with anxiety is intolerance of uncertainty. Uncertainty intolerance is a personality trait that consists of a set of negative beliefs about uncertainty (Mansor, et al., 2015), which leads to cognitive, behavioral, and emotional maladaptive reactions that describe the symptoms of many anxiety disorders (Ladouceur, Gosselin & Dugas, 2000). Intolerance is one of the main components of anxiety disorders (Fischerauer, et al, 2018, Khani & Dadashi, 2017), which is strongly associated with anxiety (Dugas, Buhr & Ladouceur, 2004). People with high levels of intolerance find vague future events threatening, upsetting, and undesirable, and often have a negative

attitude toward their ability to cope. They use the limit of information, avoidance, or impulsive decision making (Buhr & Dugas,2002, Pawluk & Koerner, 2013). Thus, people with high uncertainty intolerance believe that they lack effective problem-solving skills in ambiguous situations; As a result, future events are interpreted negatively and with more threats, and this process causes more anxiety for these people by intensifying the level of anxiety (Mansor, et al, 2015). Osmanooglu et al. (2018), in their research aimed at investigating indecision intolerance, anxiety, and worry in adolescents, stated that there is a significant relationship between intolerance and anxiety and worry in adolescents (Osmanagaoglu, Creswell & Dodd, 2018). Dejang, Beck, & Ride (2009) found in their study that people with higher uncertainty intolerance were more likely to worry and rumble; In other words, intolerance of uncertainty, worry, and rumination have a causal relationship (de Jong-Meyer, Beck & Riede, 2009).

Ruminant as a mediating variable in the present study is a set of passive thoughts that have a repetitive aspect and prevent problem-solving in an adaptive manner and lead to an increase in negative emotion (Liverant, et al., 2011). Anxiety, obsession, and rumination are interconnected cognitive structures that affect the symptoms of depression and anxiety and exacerbate and perpetuate generalized anxiety disorder, obsessive-compulsive disorder, and major depressive disorder. The results of Abdolpour, Nasiri, et al. (2015) showed that intolerance of uncertainty indirectly affects depression through rumination and also has a direct and indirect effect on generalized anxiety disorder (Abdolpour, et al,2019). Social support can also help to regulate people's anxiety by helping to regulate people's emotions and increase effective thoughts and reduce dysfunctional thoughts (Hosseini, Beyrami & Hashemi, 2012) and the more personality traits such as stubbornness and psychological strength are strengthened in people, the more people with more internal control, Better deal with unwanted thoughts such as rumination due to fear and anxiety (Sheard,&Golby,2007). Because anxiety can poor immolation system and make people vulnerable to diseases such as corona heart disease (Alipour,et al.,2020), examining issues related to corona anxiety is one of the key factors in preventing and reducing the incidence of the disease. With the rapid prevalence of this disease and the lack of research literature in this field, it seems that research to help diagnose this disease, especially anxiety, and strategies due to anxiety is essential and can help improve the quality of life and public health. . Therefore, in this regard, the present study aimed to fit the model of explaining corona anxiety based on intolerance of uncertainty, psychological hardiness and social support mediated by rumination.
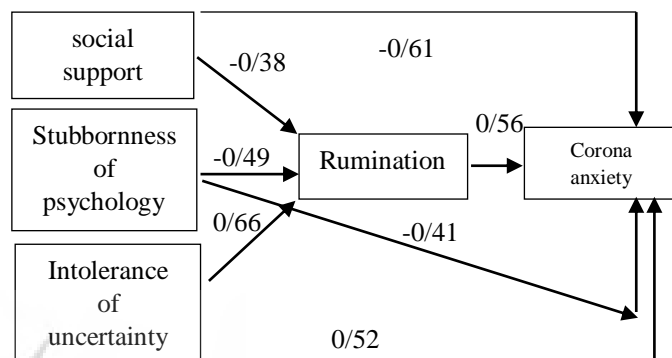

Figure 1: Conceptual model of research

Materials and Methods:

The present study is a descriptive correlation in terms of applied purpose and data collection. The equation structural method was used to test the proposed conceptual model and data analysis. The statistical sample of the study was all citizens from 18 to 65 years in Ardabil. Since the methodology of structural equation modeling is very similar to some aspects of multivariate regression, the principles of sample size determination in multivariate regression analysis can be used to determine the sample size in equation structural modeling. Also because, despite many researchers, the minimum sample need in structural models is 200 Sample of the present study 300 people (163 females and 137 males) of citizens who participated in the research by available sampling method and online method, through virtual networks by distributing the link of an online questionnaire. This method was chosen due to traffic restrictions when the danger of corona in Iran becomes serious. After expressing their willingness to cooperate with the initial explanations about the purpose of the study, the participants completed the following questionnaires, which were designed online and published through social networks (Telegram, WhatsApp, and Instagram).

The present study is taken from a research project approved at Ardabil University of Medical Sciences, which has been approved by the Research Ethics Committee with the ethics ID IR.ARUNS.REC.1399.045. The following tools were used to collect data:

Ruminant Questionnaire: The Ruminant Questionnaire is a self-report questionnaire developed in 1991 by Hoxma and Murrow. This self-report scale contains 22 statements that respondents are asked to select whichever applies to them on a Likert scale from 1 (never) to 4 (always). Trinor et al. (2003) obtained the retest validity of this scale as 0.67 and the alpha coefficient of this scale as 0.90 (Treynor,Gonzalez & Nolen-Hoeksema, 2003). Also in laminate research, the retest correlation was 0.67, and Cronbach's alpha coefficient was between 0.88 to 0.92 (Luminet, 2004). In internal research, the reliability of Cronbach's alpha method obtained from the Iranian sample has been reported to be 0.90 (Mansouri, et al, 2010). In the present study, the reliability of Cronbach's alpha method was estimated to be 0.91.

Uncertainty Intolerance Questionnaire: This scale was designed by Preston et al. (1994) to measure the degree of the patience of individuals in the face of uncertain situations. This scale consists of 27 items that respondents are asked to choose one of the 5-point scales (by no means: 1 to very high: 5). The validity of the test was reported as satisfactory by Freeston et al. (1994) (Freeston, M.H., et al., 1994). Bohr and Dugas reported the reliability of this questionnaire as 0.94 with Cronbach's alpha method and 0.78 with the 5-week retest method (Buhr & Dugas, 2002). In Ebrahimzadeh's (2006) research, the reliability of this test was reported to be 0.79 by the retest method. In the present study, the reliability of Cronbach's alpha method was estimated to be 0.92.

Corona Virus Anxiety Inventory: Alipour et al. Have prepared and valid of this scale to assess the level of anxiety caused by Covid-19 in 1398 in Iran. The tool consists of 18 questions and is scored on a 4-point Likert scale (from never to forever). The tool also has two subscales, psychological symptoms (questions 1 to 9) and physical symptoms (questions 10 to 18). In the study of Alipour et al., The reliability of this instrument was estimated to be 0.91 for the whole questionnaire and 0.87

and 0.86 for the components of psychological and physical symptoms, respectively, using the Cronbach's alpha method (Alipour, et al., 2020). In the present study, the reliability of the alpha method was estimated. Cronbach was estimated to be 0.94 for the whole scale.

Social Support Questionnaire: Sherborn et al. Designed this tool to measure the amount of social support received in 1991. The tool consists of 19 questions on a 5-point Likert scale (from never to forever). The tool also has 5 subscales (social support, emotional support, information support, kindness, and positive social interaction). The reliability of this scale has been estimated by Sherborn and Stewart using Cronbach's alpha method between 0.74 and 0.93 (Sherbourne & Stewart, 1991). In the present study, the reliability of Cronbach's alpha method was estimated to be 0.91.

Psychological Toughness Questionnaire: Cubasa developed this tool in 1982 to measure individuals' psychological toughness. The tool consists of 20 questions on a 4-point Likert scale (never to most of the time). This tool also has 3 components (commitment, control, and combat). Kobasa (1979) estimated the reliability of this instrument by Cronbach's alpha coefficient of 0.81 (Kobasa, 1979). This tool was reviewed per Iranian culture and society by Zare and Aminpour (2011) and on the Iranian society standardization and Cronbach's alpha coefficient for the components of struggle, commitment, and control, respectively 0.75. It was estimated 0.84, 0.82 (Zare & Aminpour,2011). In the present study, the reliability of Cronbach's alpha method for the whole scale was estimated to be 0.94.

Findings:

The statistical sample included 300 citizens of Ardabil in 1399. In terms of gender, 163 participants (0.54) were female and 137 (0.46) male, 181 (0.60) single and 119 (0.40) married, as well as 184 (61.33) 18 to 25 years old, 62 people (20.66) were 26 to 33 years old, 37 people (12.33) were 34-41 years old and 17 people (5.66) were more than 42 years old.

Table 1. Description of research variables

Variables	Mean	SD	Variance	Skewness	Kurtosis
Coronavirus anxiety	14/46	11/596	134/70	1/162	0/852
Mental symptoms	10/13	6/574	43/220	0/760	0/042
Physical symptoms	4/93	5/777	33/380	1/430	1/734
Intolerance of uncertainty	72/90	19/253	370/707	0/415	0/026
Negative behavior	39/75	11/204	125/534	0/502	-0/024
Unfair	33/16	9/057	82/028	0/276	-0/202
Psychological hardiness	31/44	14/068	197/933	-0/044	-0/708
Commitment	15/17	6/656	44/313	-0/150	-0/733
Control	10/35	5/334	28/456	0/019	-0/641
Fighting	5/89	3/645	13/290	0/097	-0/941
social support	66/74	12/740	162/310	-0/430	-0/086
Positive social interaction	2703	6/692	44/792	-0/106	-0/329
Tangible support	16/36	3/375	11/396	-0/722	-0/402
Emotional support	11/66	3/149	9/917	-0/686	-0/385
Kindness	11/56	2/460	6/052	-0/398	-0/560
Rumination	47/57	11/825	139/851	0/392	0/002

According to Table 1, descriptive results show that the mean of coronavirus anxiety research variables in the subjects is 14.46, uncertainty intolerance 72.90, psychological hardiness 31.44, social support 66.74, and rumination 47.57. On the other hand, the amount of observed for the research variables is in the range (2, 2-); That is, in terms of skew, the research variables are normal and their distribution is symmetrical. Also, the amount of their elongation is in the range (2, 2-); This indicates that the distribution of the studied variables has a normal elongation.

Table 2. Correlation matrix of research variables

| Variables	Coronavirus anxiety	intolerance of uncertainty	Psychological hardiness	Social support	Rumination
Coronavirus anxiety	1				
intolerance of uncertainty	0/438**	1			
Psychological hardiness	-0/388**	-0/515**	1		
Social support	-0/641**	-0/319*	0/451**	1	
Rumination	0/452**	0/613**	-0/595**	-0/36*	1

** P<0/01 , * P<0/05

According to the results of correlation matrix (Table 2), there is a positive and significant relationship between coronavirus anxiety with intolerance and rumination at the level of 99% (P <0.01) and with psychological hardiness and social support at the level of 99% (P <0.01), there is an inverse and significant relationship.

In the continuation of the research, using structural equations and path analysis method, the direct and indirect effects of uncertainty intolerance, social support, and psychological hardiness mediated by rumination on coronavirus anxiety are investigated.
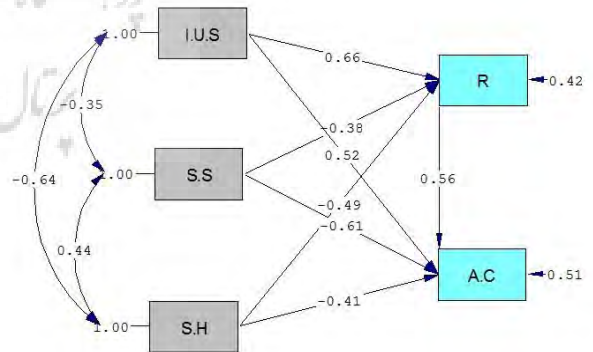
Chi-Square=1134.49, df=421, P-value=0.00000, RMSEA=0.081

Figure 2- Research model test (in standard mode)
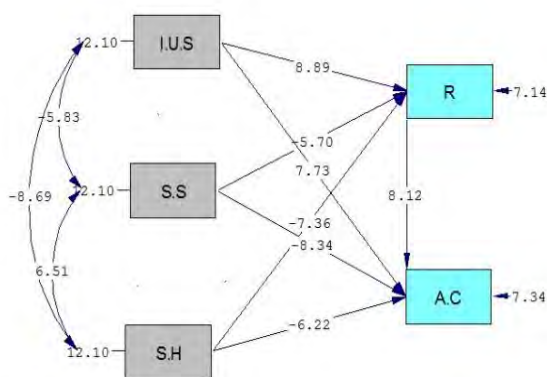
Chi-Square=1134.49, df=421, P-value=0.00000, RMSEA=0.081

Figure 3 - Research model test (in T-Value mode)

Table 3. Fitness indicators of the research model

Index name	amount	Acceptable range	Result
Chi-square ratio to degree of freedom	2/69	Less than 3	acceptable
Root index of average squares error	0/081	Good: less than 0.08 Average: 0.08 to 0.1	Average
Adaptive Fit Index	0/94	More than 0.90	acceptable
Fit Goodness Index	0/93	More than 0.90	acceptable
Modified fit goodness index	0/86	More than 0.80	acceptable

According to the obtained results, it can be said that the research model is approved in terms of significance and fit indicators.

Table 4. Structural equations of direct paths of research model

Variables		Path coefficients	T-Value	standard error
intolerance of uncertainty	Rumination	0/66	8/89	0/056
intolerance of uncertainty	Coronavirus anxiety	0/52	7/73	0/083
Psychological hardiness	Rumination	-0/49	-7/36	0/096
Psychological hardiness	Coronavirus anxiety	-0/41	-6/22	0/093
Social support	Rumination	-0/38	-5/70	0/110
Social support	Coronavirus anxiety	-0/61	-8/34	0/067
Rumination	Coronavirus anxiety	0/56	8/12	0/079

According to Table 4, because the value of T-statistic between the variables of intolerance, coronavirus anxiety, and rumination is out of range (1.96 & -1 / 96), so the direct effect of variable intolerance on coronavirus anxiety and rumination is significant. Dar and considering the path coefficients for this effect is positive and significant. Also, by considering the values of T-statistic and path coefficients, the direct effect of psychological variability of stubbornness and social support on coronavirus anxiety and rumination was significant and inverse; Finally, the direct effect of rumination variable on coronavirus anxiety is significant and direct.

To investigate the indirection effects of uncertainty intolerance, social support, and psychological hardiness on coronavirus anxiety mediated by rumination, the Sable test was used. The Sable test is one of the most widely used approaches in accepting or rejecting assumptions about the mediating role of a variable. The results are presented in Table 5. Also, to determine the severity of the indirect effect through a mediator, a statistic called VAF is used, which takes a value between 0 and 1; the closer of this value is to 1, the stronger the mediating effect. In fact, this value measurement the indirection effect totally.

Table 5. Results of Analysis of the Indirect Effects of Uncertainty Intolerance, Social Support, and Psychological Hardiness on Coronavirus Anxiety Mediated by Ruminant

Research Hypothesis			T-sobel	Standard path coefficient	Statistics VAF
intolerance of uncertainty	Rumination	Coronavirus anxiety	6/39	0/37	0/415
Psychological hardiness	Rumination	Coronavirus anxiety	3/46	0/21	0/258
Social support	Rumination	Coronavirus anxiety	4/22	0/27	0/401

According to the amount of indirect t-statistic (T-sub) between the variables of Table 5, it is out of range (1.96 & -1.96); Thus, the hypothesis of the indirection effect of the variables of intolerance of uncertainty, social support, and psychological hardiness on coronavirus anxiety is

accepted. Thus, the variables of intolerance of uncertainty, social support, and psychological hardiness and the direct effect also indirectly impasses' coronavirus anxiety through rumination. According to the obtained results for VAF statistics, it is observed that 41.5% of the effect of uncertainty intolerance on coronavirus anxiety, 25.8% of the effect of psychological hardiness on coronavirus anxiety, and 40.1% of the effect of social support on coronavirus anxiety through rumination explanation.

Discussion and Conclusion:

The aim of this study was investigation the relationship between corona anxiety، intolerance, psychological disorders, social expert, and rumination mediation. The results indicate proposed model has a good fit to explain the relationship. To show the details of direction and unsuited relations, the results and explanations related to each route are given below. Findings showed that intolerance of uncertainty has a positive and significant relationship with corona anxiety, which was consistent with the findings of Allan et al, (2018) and Chen et al, (2018), and Akbari (2018) .Osman-Oglu et al. (2018) in their research concluded that there is a strong relationship between intolerance of uncertainty and anxiety and worry in young people. To explain how uncertainty intolerance affects corona anxiety, we can point to its effect on generalized anxiety disorder. In generalized anxiety disorder, the uncertainty intolerance model suggests that these people find uncertainty disturbing. Leads to anxiety in the face of ambiguous and uncertain situations. In general, these people believe that worry can be helpful, then this belief leads to threatening and engaging with disturbing thoughts, which in turn leads to anxiety (McEvoy& Mahoney, 2011). Given that uncertainty intolerance is a hallmark of a negative cognitive, behavioral, and emotional response to uncertain situations such as corona heart disease in a world with an uncertain future, this feature in itself contributes to the onset of anxiety.

Another result of this study showed that psychological disorders has a negative and significant relationship with corona anxiety. This result with the findings of Abadi et al. (2019); Kowalski and Schermer (2019); Potard et al. (2017); And Nasiri et al. (2016) are consistent .For instance, Thomasine et al. (2018) in their research

showed that psychological stubbornness effects post-traumatic stress syndrome in a way that acts as a resilient factor against the onset of symptoms .Explaining this result, it can be said that people with higher stubbornness have less anxiety and anxiety compared to people with low stubbornness, the higher the stubbornness, the higher the feeling of control over stressful and anxious events (Abdullah, et al.,2018). Stubbornness is a set of personality traits introduced by Cubase (1979) and acts as a source of resistance to stressful life events and protects a person against external and internal pressures. Slowly. People with highest levels of psychological stubbornness find these events more controllable in the stressful and stressful context of the coronation outbreak, and because of their positive outlook and commitment to their lives and family. Circumstances in which everyone is exposed to corona anxiety are adequately resisted and treated as challenging situations.

The results showed that social support has a significant negative relationship with corona anxiety. This result was consistent with the findings of Henry et al. (2019), and Baldachin et al. (1396). According to the research of Feng et al. (2018), social support and self-esteem have a direct protective effect against psychological distress (stress, anxiety, and depression).Discovering of this study indicate that social refers to the emotional expert , tools, and information that people receive from others to deal with stressful life events and is significantly related to mental health (Koelmel, et al, 2017, Bruchon-Schweitzer & Boujut, 2016). Adequate social support leads to higher psychological adjustment to problems and reduces the risk of developing mental disorders (Müller, et al., 2015). As a result, it can be said that people by expanding their communication network and receiving support from family and friends, and sharing their worries and fears about getting the disease and the side effects that this disease has had in people's lives, By receiving the attention and help of those around you, peace of mind is reached and their stress and anxiety are reduced.

The study of rumination mediation in the path of intolerance of indecision to anxiety-Corona showed that this mediation was significant and was in line with the results of Abdolpour et al. (2015). The findings of this study showed that intolerance of indecision Indirectly, affects depression through rumination and also, directly

and indirectly, affects generalized anxiety disorder. Dechang, Beck, & Ride (2009) showed that people with higher levels of intolerance were more likely to have anxiety and rumination; Similar results have been obtained in other studies (Yook, et al.,2010). People who are confused by the ambiguity of the situation turn to rumination to endure this ambiguity. In these situations, rumination with the mental conflict that it creates for the person makes the situation more stressful (Yook, et al.,2010).

Considering the significance of rumination mediation in the path of stubbornness-psychological to corona anxiety, it can be expected that in addition to its direction effect on corona anxiety, using ruminant mediation also has an indirect effect on corona anxiety. Be. As the results show, increasing psycho-cognitive stubbornness has a negative relationship with the two variables of rumination and corona anxiety. The metacognitive perspective on emotional disorders considers rumination to be one of the main factors in the onset and continuation of anxiety and mood disorders (Yook, et al, 2010). According to this view, it can be explained that the higher the rumination in people, the lower the ratio of the effect of hardiness-psychological on corona anxiety, and consequently will increase corona anxiety. Also, the stronger the stubbornness-psychological trait in people, the more effectively it copes with unwanted thoughts caused by fear and anxiety of Corona heart disease, and as a result, the anxiety caused by this disease will have fewer effects on people's thoughts and behavior.

Also, considering the significance of rumination mediation in the path of social support to corona anxiety, it can be expected that social support, in addition to the direct effect, also has an indirect effect on corona anxiety through rumination. Ruminants, with their negative impact on information processing, lead the person to the past and present to the processing of the past, which in turn exacerbates anxiety and mood disorders (Wong & Moulds, 2009). In corona anxiety disorder, individuals experience a vicious cycle of dysfunctional thoughts about past content due to the negative evaluation and repetition of disturbing thoughts with the content of past psychologically and physically stressful situations and actions, and their generalization to the present situation. There will be consequences for their health, and given the high level of intellectual conflict, people will turn away from social support sources, which greatly increases anxiety and worry. Also, many studies have shown that social support plays an important role in the prevention of mental and physical disorders (Lakey & Orehek, 2011). Therefore, if people turn to social support more in the stressful context of corona heart disease, they can reduce the intensity of the emotional arousal of corona anxiety that causes rumination.

From a comprehensive prospection and in response to the research question, it can be concluded that the model presented in this research has a good fit. So that intolerance of uncertainty negatively, psychological toughness, and social exportation had a positive effect on anxiety-corona mediation through rumination. The findings of the present study can be useful from both theoretical and practical aspects. At the theoretical level, examining the direct and indirect pathways of corona anxiety helps the research human and existing knowledge in identifying the factors affecting anxiety during corona heart disease. At the practical level, the results of the present study can reduce the level of anxiety by providing educational materials on improving psychological resilience, increasing uncertainty tolerance, and increasing social support during corona heart disease. Be the time of the corona outbreak. Data collection of this study with electronic and self-Automatic measure is one of the limitations of the present study and it is suggested to use the interview method in future research. Also, fitting the model developed present study indicate there is no direction between variables affecting anxiety, and it is suggested that in future research, new models be considered and tested by considering other important variables.

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