

# THE PREDICTIVE CONTRIBUTION OF PATIENT CHARACTERISTICS TO THE NON-USE OF HEALTH SERVICES DURING THE COVID-19 PANDEMIC

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## SUMMARY

**Background:** The avoidance of medical examinations by patients with chronic diseases during the COVID-19 pandemic has been well-documented in previous research. However, a notable shortcoming in existing studies is the neglect of psychological characteristics' influence on the postponement of medical examinations.

**Objective:** This study aimed to address the observed decline in patient response at Clinical Hospital Center Zagreb to diagnostic and control medical examinations during the COVID-19 pandemic. The research sought to examine the predictive contribution of anxiety, depression, stress, and coping strategies to the postponement of examinations, while controlling for demographic variables.

**Methods:** Utilizing a survey design, the researchers collected data by distributing a battery of questionnaires. A sample of 190 patients with chronic diseases from the Department of internal medicine in Clinical Hospital Center Zagreb was selected through a convenient non-probability sample technique.

**Results:** Statistical analysis showed a significant gender-based difference in postponing health examinations, with women exhibiting a higher tendency to delay examinations compared to men. The research also indicated a notable correlation between the postponement of health examinations and anxiety, depression and stress. Furthermore, data revealed that anxiety, depression, stress and coping strategies were found to contribute substantially to explaining the variance in the postponement of health examinations, while gender emerged as the sole significant independent predictor.

**Conclusion:** The research findings pinpoint specific groups within the population requiring special attention from the healthcare system during crises like pandemics. The results showed that there is a significant difference in postponing health check-ups according to gender, whereby women are more inclined to neglect health care. Also, it was shown that demographic characteristics, stress, anxiety, depression and coping strategies are significant predictors of postponing medical examinations, with gender being the only significant independent predictor. The discussion delves into the limitations and implications of these findings.

**Key words:** pandemic; anxiety; depression; stress; coping strategies

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## INTRODUCTION

At the end of December 2019, China reported the appearance of a new virus (SARS-CoV-2) to the WHO and during March 2020 it spread rapidly around the world (Adhanom 2022). Restrictive measures during the COVID-19 pandemic affected mental health and lifestyle habits, which is evident from previous research (Gonzalez et al. 2022). Feelings of functional impairment, worry, fear, frustration, and anger significantly increased. Restrictive measures have created a scenario dominated by anxiety and uncertainty (Hugelius et al. 2021). Although physiological fear is

an adaptive mechanism guiding people while confronting certain hazards, it triggers defense mechanisms in others. In clinical practice, these precautions were predominantly avoiding diagnostic and control examinations. In early 2020, restrictions were implemented on health services impacting access, especially for chronic disease patients. Despite recognition of risks, a persistent trend of delaying medical examinations emerged post-lockdown (Eccleston et al. 2020). Fear of SARS-CoV-2 exposure affected vulnerable groups, particularly the elderly. According to research, 50% of chronic patients avoided healthcare during the pandemic, with gender disparities noted (Gonzalez

et al. 2022, Sims et al. 2021). Women, as a vulnerable group, were a focus (Sims et al. 2021). Sociodemographic characteristics, including age, income and residence, influenced healthcare avoidance. Financial concerns were considered a predictor as well. Anxiety and stress rose during the pandemic, impacting health-seeking behavior (Arnetz et al. 2022). Furthermore, research found that women, the elderly, individuals with lower incomes, poorer health status, living in cities (more affected areas) and those with the perception of a higher risk of disease, were prone to avoiding healthcare services during the pandemic. Fear for financial stability could also be considered a predictor of avoiding doctor visits during the pandemic. Therefore, this study examined the predictive contribution of employment to health care during the pandemic. Additionally, financial loss, psychological stress, unpaid debts, job loss, poverty, lack of family support and food shortages significantly impacted population well-being during the pandemic. Subsequently, this confirmed the latter factors as significant health-care avoidance predictors (Lu et al. 2021). Notably, certain research omitted psychological factors. Considering the prevalence of anxiety and depressive disorders affecting healthcare use, this study explored situational anxiety, depression and stress as predictors. Coping strategies, distinguished as problem-focused, emotion-focused, and avoidance-focused, were investigated due to their impact on health concerns (Main et al. 2011). Likewise, previous research has discovered a prevalence of major depressive disorder and chronic diseases (Megari 2013). Due to the reduced visits to the interventional gastroenterology department during the COVID-19 pandemic, we aimed to explore factors affecting examination postponement or non-attendance. We considered previous research findings and patient statements on healthcare avoidance. This research aims to aid healthcare professionals in preventing health-care delays, particularly among seriously ill individuals during the pandemic. Due to limited previous research on this topic in Croatia and its significance for population health, this study assessed anxiety, depression, stress, and coping strategies as predictors for delaying medical examinations, while controlling for demographic variables.

## SUBJECTS AND METHODS

### Ethical Considerations

The research draft was previously approved by the Ethics Committee of UHC Zagreb (study approval number 02/013 AG). Participants were given informed consent before the distribution of the survey questionnaire and after that received instructions in detail: they were asked to fill in the questionnaire honestly and were informed about research anonymity. It was explained that the data was analyzed at a group level, and used exclusively for this research. The datasets used and analyzed during the current

study are available from the corresponding author upon reasonable request.

### Participants

The research was conducted on a convenient non-probabilistic sample. The study population was comprised of 194 patients with chronic disease in the departments of University Hospital Center Zagreb. Due to the incompleteness of the survey questionnaire, four participants were excluded from further analysis. 44.7% of men and 55.3% of women participated in the research. 56.8% of participants were under 60 years of age, while 43.2% of participants were over 60 years of age. 93.7% of participants had no psychiatric comorbidity, while 6.3% had psychiatric comorbidity. 44.7% of the participants were employed, and 55.3% were unemployed. 68.9% of participants lived in a city, while 31.1% lived in a country/suburb. The research was conducted in the fall of 2022. Demographic data can be seen in Table 1.

**Table 1.** Descriptive statistics of demographic characteristics and postponement of health examinations

Variable	Percentage
Gender	
<i>Male</i>	44,7 %
<i>Female</i>	55,3 %
Age	
> 60 years of age	43,2 %
< 60 years of age	56,8%
Residence	
<i>City</i>	68,9 %
<i>Country/suburbs</i>	31,1 %
Work status	
<i>Employed</i>	44,7 %
<i>Unemployed</i>	55,3 %
Psychiatric comorbidity	
<i>Yes</i>	6,3 %
<i>No</i>	93,7 %

### Measuring instruments

#### Questionnaire on demographic characteristics and basic data

The questionnaire constructed for this research consisted of a set of questions related to the participant's age, gender, employment, and residence. Age was measured as a response "< 35 years old", "between 35 and 60 years old",

"> 60 years", and participants under 35 years of age were not included in the further analysis. Gender was measured in response to a dichotomous variable: "man" or "woman". Employment was measured as a response: "employed" or "unemployed", and residence as the answer "city" or "country/suburb". The criterion variable of postponing the examination was measured in response to the item: "In the last two years, I have postponed a diagnostic or control examination". Responses were recorded on a five-point scale, with 1 indicating "never" and 5 "always".

### Anxiety, depression, and stress scale - DASS-21

The anxiety, depression, and stress scale measures the frequency and intensity of negative affective states in the past seven days and can be applied to the clinical or general population (Lovibond et al. 1995). The instructions in the instrument can be changed to suit the research question, but it must be interpreted with care when comparing the results with previous studies that used different instructions.

positional (i.e. situational) coping questionnaire containing three general factors of coping: problem-focused, emotion-focused, and avoidant coping. Participants express on a five-point scale how much each statement applies to them (1 indicates "I never act like that" and 5 "I always act like that"). The result on individual subscales is calculated as the sum of the estimates of the particles belonging to the subscale. In this research, a shortened version of the questionnaire was used, which consists of 15 items as a situational coping questionnaire (Hudek-Knežević et al. 2006). Certain authors in their research obtained Cronbach  $\alpha$  internal consistency coefficients for the subscales:  $\alpha=.71$  for problem-focused coping,  $\alpha=.72$  for emotion-focused coping, and  $\alpha=.63$  for avoidant coping (Vuletić 2013).

### Procedure

The data was collected using the paper-pencil method. The condition for participation was that people suffered from a chronic disease and that they were being treated at

**Table 2.** Results of the t-test of postponing examination regarding gender

	Levene test of equality of variances		Independent samples	t-test	
	F	Sig.	t	df	Sig. (2-tailed)
Postponing examination	2,480	,117	-2,368	188	,019

Thus, in this research, situational anxiety, depression, and stress were examined in the period of the past year, considering that such a period was considered more suitable for the research question. In this research, a shortened version of the original 42-item scale was used, and it contained 21 items. The abbreviated DASS-21 scale includes three sub-scales: anxiety, depression, and stress. Each subscale consists of 7 items and the participant's task was to indicate what was related to them on a four-point scale (0 indicated "it wasn't about me at all" and 3 "almost completely or most of the time"). The score was calculated as the sum of the responses obtained on seven items within a certain subscale and for each subscale. The score ranges from 0 to 21. Previous research found high reliability of internal consistency for each subscale, thus for anxiety  $\alpha=.90$ , for depression  $\alpha=.82$  and stress  $\alpha=.93$  (Henry et al. 2005). High reliability of internal consistency was also obtained in the Croatian sample:  $\alpha=.82$  for anxiety,  $\alpha=.88$  for depression, and  $\alpha=.86$  for stress.

### Questionnaire of coping strategies with stress - COPE

The stress coping strategies questionnaire is an adapted version of the COPE questionnaire used to examine the way people think, cope and behave when exposed to stress (Hudek-Knežević et al. 1993). It was convenient as a dis-

University Hospital Center Zagreb. The survey questionnaires were distributed to the participants by department doctors when they arrived for control or diagnostic examinations. Participants initially completed the Demographic Data Questionnaire, then the DASS-21 and COPE. Filling out the questionnaire took approximately 15 minutes.

## RESULTS

The data was analyzed using IBM-SPSS version 23. To inspect the difference in postponing examination by gender, a t-test on independent samples was performed. To analyze the correlation between used variables, Pearson's correlation coefficient was examined. Finally, to analyze the predictive contribution of variables to postponing the examination, hierarchical regression analysis was performed.

### Gender differences in postponing examination

The results of the research indicate that the participants (N=190) on average never or rarely postponed health examinations in the last two years (M=1.86, SD= 1.18), but the conclusion was that men and women significantly differ statistically in taking care of their health, i.e. postponing health examinations  $t=2.37$  (df=188;  $p<0.05$ ), whereby

men (M=1.64, SD= 1.07) postpone health examinations to a lesser extent than women ( M= 2.04, SD= 1.24). The results can be seen in Table 2.

symptomatology. Furthermore, it was concluded that there is a significant positive correlation between anxiety and emotion-focused coping (r=0.21), as well as a positive

**Table 3.** Descriptive values of all continuous variables used in the research (N=190)

	M	SD	Min	Max	Skewness	Kurtosis
Postponing examination	1,86	1,18	1	5	1,33	,84
Stress	6,07	5,49	0	21	,89	,03
Anxiety	4,55	4,93	0	21	1,34	1,36
Depression	4,62	5,33	0	21	1,47	1,55
Problem-focused coping	17,65	4,23	6	24	-,73	,43
Emotion-focused coping	7,81	2,47	3	12	-,04	-,64
Avoidance coping	11,91	3,49	6	24	,51	,48

Also, the participants are on average less stressed (M=6.07, SD=5.49), on average less anxious (M=4.55, SD=4.93), and have less depressive symptoms (M=4.62, SD=5.33), on average use problem-focused coping to the greatest extent (M=17.65, SD=4.23), followed by avoidance coping (M=11.91, SD=3.49) and emotion-focused coping (M=7.81, SD=2.47). The described results can be seen in Table 3.

### Correlation of variables used in research

To verify the connection between the variables included in the research, Pearson's correlation coefficient was performed. The results of the analysis show a significant positive correlation between anxiety and postponing the examination (r=0.26), depression and postponing the examination (r=0.29), as well as stress and postponing the examination (r=0.29).

correlation between anxiety and avoidance coping (r=0.29). More anxious people tend to use emotion-focused coping and avoidance coping strategies. A significant positive correlation between depression and emotion-focused coping (r=0.19) and avoidance coping was concluded. People more prone to depressive symptoms tend to use emotion-focused coping strategies and avoidance coping. Stress was also positively related to emotion-focused coping (r=0.25) and avoidant coping (r=0.26). The research results indicate a significant positive correlation between problem-focused coping and emotion-focused coping (r=0.47) and avoid-ance coping (r=0.39). People more inclined to use prob-lem-focused coping strategies tend to use emotion-focused coping and avoidant coping. Finally, a significant positive correlation was found between avoidance coping and emotion-focused coping (r=0.33). People who are more in-cluded to use emotion-focused coping strategies tend to use avoidance strategies. The associations expressed by the

**Table 4.** Correlations of the variables used in the research (Pearson r)

	1	2	3	4	5	6	7
• Postponing examination	1						
• Anxiety	,26**	1					
• Depression	,29**	,86**	1				
• Stress	,29**	,85**	,88**	1			
• Problem-focused coping	-,03	,04	-,02	,03	1		
• Emotion-focused coping	,11	,21**	,19**	,25**	,47**	1	
• Avoidance coping	,08	,29**	,22**	,26**	,39**	,33**	1

Therefore, people who are more inclined to anxiety, depressive symptoms, and stress are more likely to postpone health examinations. The results of the analysis show a significant positive correlation between depression and anxiety (r=0.86). The more anxiety symptoms are present, the more depressive symptoms are present. Likewise, there is an extremely high positive correlation of stress with anxiety (r=0.85) and depression (r=0.88), which could indicate that in this context these three constructs measure the same

Pearson correlation coefficient can be seen in Table 4.

### Predictive contribution of anxiety, depression, stress, and coping strategies to postponing examination

To examine the overall and separate contribution of anxiety, depression, stress, and coping strategies to the

explanation of the variance of health care, i.e. postponing medical examinations, a three-step hierarchical regression analysis was conducted. In the first step of the hierarchical regression analysis, the variables age, gender, place of residence, and work status were included with the aim of

2021). In the second step, the predictor variables anxiety, depression, and stress were included, since they weren't observed together as predictors of health care, but were shown to be significantly related or predictors in previous research (Gonzalez et al. 2022). Stress coping strategy

**Table 5.** Results of a hierarchical regression analysis with postponement of examinations as a criterion

Predictors	B	SE	$\beta$	Sr
1. step				
Gender	,34	,17	,15*	,14
Age	-,42	,22	-,18	-,14
Work status	,28	,22	,12	,09
Residence	-,17	,18	-,07	-,07
$R^2 = 0,052$ ; $F(4, 185) = 2,56^*$				
2. step				
Gender	,23	,17	,09	,09
Age	-,39	,21	-,17	-,13
Work status	,19	,21	,08	,06
Residence	-,21	,18	-,08	-,08
Stress	,02	,03	,08	,04
Anxiety	-,01	,04	-,04	-,02
Depression	,05	,04	,24	,10
$R^2 = 0,079$ ; $F(3, 182) = 5,48^{**}$				
3. step				
Gender	,22	,18	,09	,09
Age	-,39	,21	-,16	-,13
Work status	,18	,22	,08	,06
Residence	-,21	,18	-,08	-,08
Stress	,02	,04	,07	,03
Anxiety	-,01	,04	-,04	-,02
Depression	,05	,04	,24	,09
Problem-focused coping	-,02	,02	-,06	-,05
Emotion-focused coping	,03	,04	,05	,04
Avoidance coping	,01	,03	,02	,02
$R^2 = 0,003$ ; $F(3, 179) = 0,21$				
$\Delta R^2 = 0,134$ ; $F(10, 179) = 2,77^{**}$				

Note: \* $p < 0,05$ ; \*\* $p < 0,01$ ; Sr= semi-partial correlation

control, given that previous research found these variables significantly associated with or predictors of caring for one's health (Sims et al. 2021, Arnetz et al. 2022, Lu et al.

variables were included in the third step of the analysis to test for their additional contribution to the explanation of postponing examination over and above the variables from

the first and the second step. The results of the hierarchical regression analysis can be seen in Table 5. The obtained results of the hierarchical regression analysis show that the described model of predictor variables can explain 13.4% of the total variance of the criterion variable of postponement of health examinations. From Table 5 can be seen that in the first step, the control variables explain 5.2% of the variance in postponing medical examinations, with gender proving to be the only significant independent predictor ( $\beta = 0,15$ ;  $p < 0,05$ ). By further introducing the variables in the second step the total explained variance of postponing health examinations significantly increased by 7.9%, while the variables of coping strategies, introduced in the third step, further increased variance explained by 0.3%, although not significantly, which makes up the already mentioned 13.4% of the explained criterion variable in these three steps. In conclusion, gender, age, place of residence, work status, stress, anxiety, depression, and coping strategies significantly contributed to the explanation of the variance of postponing health examinations, and gender lost its independent predictor contribution with the introduction of new predictors.

## DISCUSSION

This research aimed to check the predictive contribution of anxiety, depression, stress, and coping strategies to postpone medical examination while controlling for demographic variables.

### Gender differences in healthcare

The results of the research confirm a statistically significant difference in health care between men and women. Women are more inclined to postpone health examinations than men. These results are in line with previous research, where it was found that women are a vulnerable group, due to avoiding using the health system during the pandemic (Arnetz et al. 2022), to which we need to pay extra attention during the pandemic (Sims et al. 2021).

### Correlation of predictors with postponing examination

The second hypothesis about the expected connection between anxiety, depression, stress, and coping strategies with postponing medical examinations was partially confirmed, considering that there was no significant connection between coping strategies and postponing examinations. The positive association between anxiety, depression, stress and postponement of examinations is following research (Gonzalez et al. 2022), which stated that respondents with anxiety and depressive disorders were significantly more likely to avoid or delay the use of health services. It is important to emphasize that it is not possible to establish cause-and-effect relationships between the constructs through correlational analysis. Also, we are not able to as-

sume with certainty whether the obtained levels of stress, anxiety, and depressive symptoms are conditioned by the pandemic or other situational characteristics such as suffering from chronic diseases, considering that the disease very often leads to changes in the psychological state of the individual (Vuletić 2013), because of which depression, anxiety, etc. can occur. Furthermore, the extremely significant positive association between depression and anxiety show an overlap in the phenomenology of these two conditions (Hettema 2008). Although anxiety and depression are considered two classes of disorders, they often occur in comorbidity (Kessler et al. 1996). Some authors argue that, although anxiety and depression have separate symptoms, many symptoms are common to both (Coplan et al. 1990, Keller et al. 1995, Clayton et al. 1991, American Psychiatric Association 2013). Furthermore, an extremely high positive correlation of stress with anxiety and depression was obtained, which indicates that these three constructs measure the same symptomatology. Namely, the stress scale measures a syndrome that is factorially different from anxiety and depression and is characterized as nervous tension, difficulty relaxing, and irritability and forms a construct very similar to the DSM-V diagnosis of generalized anxiety disorder. Although the stress scale differs from depression and anxiety in factor analysis, it is important to emphasize that the three syndromes are intercorrelated (Lovibond et al. 1995). In addition, anxiety and depression can be seen as different manifestations of symptoms of the same condition of emotional dysregulation (Ben-Zur 2009). Taking this into account, it is necessary to interpret the obtained findings with caution. Moreover, a significant positive association between anxiety and emotion-oriented coping was concluded, as well as a positive association between anxiety and avoidance coping. Therefore, people who are more anxious use emotion-oriented coping strategies and avoid coping strategies to a greater extent. Also, the significant positive association of stress and depression with emotion-focused coping and avoidance coping is consistent with the results of research (Main et al. 2011). Like-wise, anxious and depressive symptoms were positively correlated with emotion-focused and avoidant coping, and the use of emotion-focused strategies increased frustration and stress levels in individuals (Mariani et al. 2020). The research results indicate a significant positive association between problem-focused coping and emotion-focused coping and avoidance coping. People more inclined to use problem-focused coping strategies are more likely to also use emotion-focused coping and avoidant coping. Given that the participants in this research stated that they use problem-focused coping to the greatest extent on average, it is possible that in addition to primary coping strategies, they use many strategies that would belong to the group of coping strategies focused on emotions or avoidance, although to a lesser but significant extent. Also, it is possible that the restrictions during the lockdown caused the perception of the use of avoidance strategies in the population.

For example, some argue that coping strategies during the COVID-19 pandemic were influenced by rules from rulers or governments, the media, and expert advice (Mariani et al. 2020). But, in certain research, problem-focused coping was shown to be a moderator of avoidance coping strategies, which indicates the interaction of coping strategies when dealing with stressful situations (Ben-Zur 2009). In the end, a significant positive correlation between avoidance coping and emotion-focused coping was found. People who are more inclined to use emotion-focused coping strategies tend to use avoidance strategies. Such findings are consistent with studies (Lazarus 1984), which state that problem-focused coping is strongly associated with positive psychological outcomes and is considered effective and adaptive coping. As well as, emotion-focused coping and avoidant coping are associated with poorer mental health and considered ineffective coping strategies (Kara-deniz et al. 2015).

### **Predictive contribution of demographic characteristics, stress, anxiety, depression, and coping strategies to postponing examination**

The research results confirm the hypothesis that the psychological characteristics of patients suffering from chronic diseases such as situational stress, anxiety, or depression and their usual coping strategies will significantly predict postponing medical examinations. Given that the mentioned model explains a relatively small percentage of the variance of postponing examinations, future research should consider other potentially significant predictors of delaying health examinations. For example, in studies such as Cao et al. (Cao et al. 2020), during the COVID-19 pandemic, a higher level of perceived social support served as a protective factor, and the study by Xiao et al (Xiao et al. 2020), showed that different levels of social support are significantly related to self-efficacy and sleep quality, and negatively correlated with the level of anxiety and stress. It would also be desirable to check whether chronically ill patients differ in their general sensitivity to stress depending on characteristics such as personality traits or type of illness. The results further show that gender is the only significant independent predictor of postponing medical examinations, which is in line with previous research. According to the results, coping strategies did not significantly contribute to the explanation of the variance of postponement of medical examinations. Some argue people may alternate between using various coping strategies depending on the demands of the situation (Ben-Zur 2009, Krohne 1993). Also, people who use problem-focused coping and avoidance strategies may use both depending on the situation, for example, a person diagnosed with cancer may use avoidance strategies in relation to the threatening significance of the disease, and problem-focused coping to take the necessary steps in the treatment of the disease (Ben-Zur 2009).

### **Advantages**

One of the advantages of this research is the inclusion of psychological factors in the analysis of avoiding the use of the health system during the pandemic, which was highlighted as a drawback in previous research (Arnetz et al. 2022). Also, the research obtained the data from a sample of people suffering from chronic diseases, who were shown to be a risk group in earlier research (Gonzalez et al. 2022, Lu et al. 2021). This research could contribute to a better understanding of the risk factors of people who tend to neglect health care, which would help health professionals to act motivating and supportive of particularly vulnerable people during crises such as a pandemic.

### **Limitations**

The research has several methodological limitations that may have influenced the obtained results and drawing of conclusions. Given the small sample size in this study, the obtained results should be viewed with caution. In future research, it would be desirable to include a larger proportion of the population of people suffering from chronic diseases. Another limitation is that no conclusion can be made about the cause-and-effect relationship between the variables, given that it is a correlational study (Milas 2005). Also, it is not possible to determine whether the levels of stress, anxiety, and depression are the result of chronic diseases or the current COVID-19 pandemic. In addition, the obtained multicollinearity among the variables of stress, anxiety, and depression indicates the need to use a more sensitive instrument, which will more clearly distinguish between these three constructs. Furthermore, only one particle was used as a measure of caring for one's health, so it would be desirable to check the construct with another already existing questionnaire. All variables in the research were checked with self-assessment questionnaires, including the criterion of caring for health, and it would be useful to have insight into the data from the records on postponing health examinations. Also, there could be a tendency for socially desirable responses from patients to whom the questionnaires were distributed by healthcare workers. Furthermore, the patients who answered the questionnaires may not be a representative sample of all patients, given that they responded to the examinations at that time, while those who did not answer the examination at that time did not answer the questionnaire. Very few participants with psychiatric comorbidity took part in the study, and therefore it was not possible to perform a statistical analysis to compare groups with and without comorbidity, which would be interesting to study in future research. Namely, the probability that a person neglects health care increased with the increase in the number of chronic diseases he has, and people who, in addition to a physiological illness, also have a diagnosis of a mental disorder, neglected health care to a greater extent (Gonzalez et al. 2022).

## CONCLUSION

Given the small number and shortcomings of previous research in Croatia and the importance of research for the well-being of the population, the goal of this research was to check the predictor contribution of anxiety, depression, stress, and coping strategies to care for one's health, while controlling for demographic variables. The results showed that there is a significant difference in postponing health check-ups according to gender, whereby women are more inclined to neglect health care. Also, it was shown that demographic characteristics, stress, anxiety, depression and coping strategies are significant predictors of postponing medical examinations, with gender being the only significant independent predictor. In conclusion, there is a need for a complete and comprehensive multidisciplinary approach that includes the cooperation of doctors and psychologists in the prevention of postponement of medical examinations. This research could help experts within the healthcare system to prevent the postponement of the use of health services by focusing on particularly high-risk groups of patients.

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The authors declare no conflict of interest.

## Contribution of individual authors:

NR and MŽ designed the study. MR, AS, DH and DJ prepared the study, collected and analyzed the data. MM wrote the manuscript. All of us supported the development of

the questionnaire. AS reviewed and edited the manuscript. All authors contributed to the article and approved the submitted version.

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