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How do older age, gender and risk groups affect protective behaviours and mental health in the COVID-19 pandemic?

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Abstract

Background: COVID-19 infection is severe in the presence of older age, male gender and risk factors. The aim of this study was to examine the relationship between the level of anxiety created by immensely spreading COVID-19-related information and age, gender and the presence of risk factors.

Material and Methods: The data used in this study were obtained by collecting a 25-question questionnaire created through Google forms with various communication tools.

Results: The data of 929 people who answered the questionnaire were used. The level of anxiety increased with age significantly, upon hearing that a person from their age group was harmed by the virus ($P < .001$). The feelings of being depressed and hopeless significantly increased as the age increased ($P < .001$). There was no significant difference between the genders in terms of feeling depressed and feeling of lack of joy in life ($P = .066$, $P = .308$, respectively). Participants with chronic diseases stated that they felt more depressed and hopeless and a lack of joy in life more frequently ($P < .001$).

Conclusion: Our results indicated that individuals with older age and having risk factors were more vulnerable to the stress caused by the pandemic. It is necessary for healthcare providers to identify high-risk groups by considering these situations, in order to make early psychological interventions.

What's known

- COVID-19 disease is severe in the presence of advanced age, male gender and risk factors.
- COVID-19 disease can negatively affect people both physically and psychologically.

What's new

- This study draws attention to the fact that people with chronic diseases and older age show more protective behaviour.
- The situation of being adversely affected by the COVID-19 pandemic can be as variable as the disease itself.
- Clinicians should guide their patients with older age and risk factors and consider all kinds of variables about this new disease.

1 | INTRODUCTION

When major life events that affect human health occur, the scientists endeavour to draw a road map by examining the experiences of humanity in similar situations and the reflections of these experiences on health. The COVID-19 pandemic, which the World Health Organization defined as a worldwide epidemic, in January 2020, came into our lives much faster and with more variable parameters than its precedents.[1] During the pandemic process, which involved the whole world simultaneously, people have begun to display unaccustomed behavioural patterns against this new virus. During the long lockdown period, information about health regarding the pandemic spread at a dizzying amount and pace, especially in the electronic environment.[2] All health matters about the COVID-19 virus have attracted the attention of people of all ages and social backgrounds, as well as healthcare professionals. Morbidity and mortality-related factors of patients who got sick with COVID-19 virus have become traceable in all media channels and communication networks.[3] It was stated that there was suspicion about the accuracy and reliability of the information shared by these communication networks, but the effects of this information on people have not been discussed.[4] Individuals, who constantly have been worrying about their health and feeling overwhelmed during the lockdown period, followed information about personal precautions to be taken against the virus and supplements that can be used to prevent and treat the disease, carefully. The most commonly followed news was about the origin of the virus, its effects on humans and ways to reduce these effects.[5] One of the most controversial issues about the virus that cause extra anxiety on individuals is the varying effects of the disease according to age, gender and the presence of comorbidities. The earliest studies in the literature reported that the course of the disease was more severe and mortal in elderly patients, males and in those with comorbidities or immunodeficiency.[6,7] Although an effective treatment and vaccine are not yet available, protection measures against coronavirus have been announced by both official sources and various communication networks, frequently. How seriously these warnings are taken and the impacts of them on individuals have been discussed in the literature.

Since the beginning of the COVID-19 pandemic, many studies have been published to investigate the impacts and the level of anxiety caused by the disease and protective behaviours practiced by individuals. In general, the information given in the literature seem to include general approaches. However, the relationships between the negative impacts and age, gender and presence of chronic diseases have not been studied, thoroughly. The aim of this study was to examine the relationship between the attitudes of individuals towards the protection measures, sources of information about the disease and the level of anxiety created by immensely spreading information and age, gender and the presence of chronic diseases.

2 | MATERIALS AND METHODS

The study was planned as cross-sectional. A stratified sample selection was planned according to age, gender, education level and occupation groups in order to represent the study data sociodemographically the general population. Being over the age of 18 and being literate were determined as the inclusion criteria. Exclusion criteria were defined as having a psychiatric illness and using antidepressants. A questionnaire was planned send to a total of 2550 people meeting the specified criteria. The data were collected from participants via remote access because of the quarantine situation, within the scope of coronavirus protection measures. Collecting data via remote access in research has become a common method even before the pandemic. However, during the pandemic period, when face-to-face communication is reduced and social distance has to be maintained, collecting data via various communication networks has become the most frequently used method of data collection.[8]

After the data collection method was defined, a questionnaire including sociodemographic data as well as questions regarding the presence of additional diseases and attitude towards the warnings about general protection measures and social distancing was created by Google forms. In addition, the state of being affected by news of death and bad prognosis and the level of anxiety were also questioned.

Two of the questions in the questionnaire were asked to determine the level of the impact of the pandemic and to investigate the significance according to some variables. These questions were answered on a 5-point Likert scale.

These questions were;

1. Which option is right for you regarding the level of anxiety you feel when you hear that a patient from your age group has been harmed by the virus? 1. I have no anxiety, at all. 2. I have little anxiety. 3. I have moderate anxiety 4. I have too much anxiety. 5. I have more anxiety than I can control.
2. Which option is right for you regarding the level of anxiety you feel when you hear that a patient of your own gender has been harmed by the virus? 1. I have no anxiety, at all. 2. I have little anxiety. 3. I have moderate anxiety 4. I have too much anxiety. 5. I have more anxiety than I can control.

In addition, two short questions were asked to measure the depressive mood of the participants in the last two weeks; answered by "yes" or "no." These questions were:

1. Have you ever felt depressed or hopeless almost every day, in the past two weeks?
2. Have you had complaints such as loss of interest or not being able to enjoy life, in the last two weeks?

Short questions were preferred instead of long questions, for rapid screening of depression and anxiety, since longer questions

would not be preferred to be answered by the participants. Studies show that short questions are as effective as long questions in screening depression and anxiety disorders.[9,10] The questionnaire was first sent to 30 individuals and after the feedback and suggestions were evaluated, the questions that were not appropriate for the purposes of the study and those difficult to answer were excluded. The final questionnaire included 25 questions.

2.1 | Statistical analysis

Independent samples t test, One-Way ANOVA, post hoc LSD and Tukey tests were used to compare the continuous variables. In the analysis of categorical data, Pearson chi-square or Fisher-Freeman-Halton test was used depending on the expected value rule. Descriptive statistics are expressed by mean ± standard deviation for continuous variables, frequency and percentage for categorical variables. Statistical analyses were made by the SPSS v.22 package programme and a level of $P < .05$ was accepted statistically significant.

3 | RESULTS

The questionnaire created by Google forms was sent to 2550 people and the data of 929 people who answered the questionnaire and sent back were used. The rate of return of the answer forms was % 36.4, the average age of the participants was 39.41 ± 13.61 and 54.4% (n = 505) of them were females and 45.6% (n = 424) were males. In the study, 73.5% (n = 683) of the participants stated that they care about using the protection materials and try to use most of them, 24.0% (n = 223) used it irregularly or incompletely and 2.5% (n = 23) stated that they did not use any protective material. While 59.7% (n = 555) of the participants stated that they applied the social distance rule carefully, 34.1% (n = 317) did not apply it well and 6.1% (n = 57) stated that they did not apply the social distance rule, at all. We found that 37.5% (n = 348) of the participants were negatively affected by mostly the number of deaths, 22.4% (n = 208) by the number of newly diagnosed cases, 8.7% (n = 81) by the number of hospitalised patients and 20.6% (n = 191) by the fact that the patients who died had comorbid diseases (Table 1).

The first question "Have you ever felt depressed or hopeless almost every day, in the last two weeks?", which was asked to determine the level of depression of the participants was answered as "Yes" by 44.1% (n = 410) of the participants and "No" by 55.9% (n = 519) of the participants. The second question "Have you had complaints such as loss of interest or not enjoying life in the last two weeks?" was answered as "Yes" by 47.6% (n = 442) and "No" by 52.4% (n = 487) of the participants.

According to the results of our study, there was no significant relationship between age and the use of protective material, whereas social distancing was applied significantly more carefully as the age of the participants increased ($P = .290$, $P < .001$). It was determined

TABLE 1 Sociodemographic characteristics, chronic diseases, use of protective equipment and social distance practice status of the participants

	n	%
Gender		
Male	424	45.6
Female	505	54.4
Education		
Primary school	142	15.2
High school	282	30.4
University	505	54.4
Occupation		
Housewife	72	7.8
Self employed	137	14.7
Worker	116	12.5
Officer	297	32.0
Student	152	16.3
Unemployed	33	3.6
Retired	122	13.1
Presence of chronic diseases		
Yes	238	25.6
No	691	74.4
Use of protective material		
Using intensively	683	73.5
Using rarely	223	24.0
Not using	23	2.5
Social distancing		
Applying carefully	555	59.8
Applying rarely	317	34.1
Not applying	57	6.1

that as the age of the participants increased, they followed the pandemic-related health news more frequently ($P < .001$). In addition, it was observed that the older participants preferred the news channels on TV as a source of information, whereas younger participants preferred social media more in order to obtain information about the pandemic process ($P < .001$).

It was found that the negative impact of the news about the number of cases treated in the intensive care unit and the number of deaths significantly increased as the age of the participants increased. In addition, the rate of the use of supplements and vitamins for protection against virus significantly increased as the age increased ($P < .001$). The level of anxiety increased with age significantly, upon hearing that a person from their age group was harmed by the virus ($P < .001$). In addition, the feelings of being depressed and hopeless significantly increased as the age increased ($P < .001$). The rate of the feelings of a lack of joy in life did not differ according to age ($P = .786$, Table 2).

In the study, it was found that the rate of the use of protective material was significantly higher in females to males ($P < .001$). No

TABLE 2 Relationships between age and the other variables

	N	Mean age	P
Use of protective materials	683	39.82	
Using intensively			
Using rarely	223	38.37	.290
Not using	23	37.30	
Social distancing rule			
Applying meticulously	555	40.27*	
Applying less well	317	39.11*	<.001
Not applying	56	32.20**	
Following pandemic news			
I follow pandemic news strictly	848	40.24	<.001
I follow pandemic news rarely	81	30.74	
Preferred Source of News			
News channels	371	41.40*	
Social media news	234	34.57**	<.001
I do not prefer a specific news source	42	32.64**	
I follow all news sources	282	41.82*	
News causing anxiety			
I am not affected by the news	101	33.54*	
Number of deaths	348	41.41**	<.001
Number of new cases	208	34.21*	
Number of patients in the ICU	272	42.75**	
Use of supplementary products			
I use supplementary products for protection against the virus	239	45.96	<.001
I do not use supplementary products	690	37.14	
Feeling depressed and hopeless			
Yes	410	41.08	<.001
No	519	38.09	
Lack of joy in life			
Yes	442	39.28	,786
No	487	39.53	

Abbreviation: ICU, ıntensive care unit.
Significant difference between '*' and '**' determined.
Significance values are made bold.

significant differences were found between the genders in terms of following the news and the type of news that cause anxiety (P = .240, P = .061, respectively), whereas women significantly more frequently preferred social media as a source of news about the pandemic compared with men(P < .001). The number of women stating that they feel more anxious when they learned that a patient of their own gender was harmed by the disease was significantly higher than men (P < .001). The use of supplements and vitamins for protection against the virus was found to be significantly higher in women compared with men (P < .001). There was no significant difference between the genders in terms of feeling depressed and hopeless and feeling of lack of joy in life (P = .066, P = .308, respectively, Table 3).

We found that participants with a chronic disease used protective materials, applied social distance and followed pandemic news significantly more compared with those without a chronic disease (P = .007, P = .006, P < .001, respectively). In addition participants with chronic diseases were using supplementary products for protection against the virus significantly more frequently (P < .001). We also found that participants with chronic diseases felt significantly more anxious about news about the number of deaths and the number of intensive care patients (P < .001). Participants with chronic diseases stated that they felt more depressed and hopeless and a lack of joy in life more frequently than patients without a chronic disease (P < .001, Table 4).

4 | DISCUSSION

The clinical conditions of the patients affected by the new coronavirus and the relationships between these conditions and age, gender and the concomitant diseases have been discussed in many studies.[11,12] The results of the study conducted by Ozdin et al show that the groups most psychologically affected by the COVID-19 pandemic are women and individuals with chronic diseases.[13] In a study conducted in Mexico, female gender, advanced age were associated with more psychological distress and higher levels of stress, anxiety and depression, amongst other factors.[14] In the study, it has been determined that the rate of following pandemic-related health news increased with the increasing age of the participants. In addition, it was determined that as the age of the participants increased, the impact of the news regarding the number of cases treated in the hospital, the number of deaths and the effects of comorbidities. This may be attributed to the fact that higher mortality and morbidity rates have been reported in elderly patients of COVID-19.[15] The important finding of this study, which should be emphasised, is that elderly participants feel more depressed and hopeless compared with younger individuals. Feeling depressed and hopeless negatively affects the immune system.[16] However, individual immunity and resistance are the most important factors that protect the individuals in major life events that they cannot manage, such as natural disasters.[17] In this context, we suggest that especially healthcare workers who practice preventive medicine should provide psychological support to elderly individuals, in order to protect immunity and relieve the feelings of depression and hopelessness. One of the results of the study is that older people obey more social distance rules. The fact that older people isolate themselves more than young people

TABLE 3 Relationships between gender and the other variables

	Male	Female	P value
Use of protective materials			
Using intensively	258 (60.8)*	425 (84.2)**	
Using rarely	151 (35.6)*	72 (14.3)**	<.001
Not using	15 (3.5)*	8 (1.6)*	
Social distancing rule			
Applying meticulously	215 (50.8)*	340 (67.3)**	
Applying less well	164 (38.8)*	153 (30.3)**	<.001
Not applying	44 (10.4)*	12 (2.4)**	
Following pandemic news			
I follow pandemic news strictly	382 (90.1)	466 (92.3)	.240
I follow pandemic news rarely	42 (9.9)	39 (7.7)	
Preferred source of news			
News channels	171 (40.3)*	200 (39.6)*	
Social media new	85 (20.0)*	149 (29.5)**	<.001
I do not prefer a specific news source	27 (6.4)*	15 (3.0)**	
I follow all news sources	141 (33.3)*	141 (27.9)*	
News causing anxiety			
I am not affected by the news	53 (12.5)	48 (9.5)	
Number of deaths	153 (36.1)	195 (38.6)	
Number of new cases	96 (22.6)	112 (22.2)	.061
The number of hospitalised patients	46 (10.8)	35 (6.9)	
Number of patients in the ICU	76 (17.9)	115 (22.8)	
How do you feel when you hear someone of your gender was harmed by the disease?			
I have no anxiety, at all	59 (13.9)*	33 (6.5)**	
I have little anxiety	92 (21.7)*	72 (14.3)**	
I have moderate anxiety	146 (34.4)*	203 (40.2)*	<.001

(Continues)

TABLE 3 (Continued)

	Male	Female	P value
I have too much anxiety	122 (28.8)*	189 (37.4)**	
I have more anxiety than I can control	5 (1.2)*	8 (1.6)*	
Use of supplementary products			
Yes	94 (22.2)*	145 (28.7)**	.023
No	330 (77.8)*	360 (71.3)**	
Feeling depressed and hopeless			
Yes	201 (47.4)	209 (41.4)	.066
No	223 (52.6)	296 (58.6)	
Lack of joy in life			
Yes	194 (45.8)	248 (49.1)	.308
No	230 (54.2)	257 (50.9)	

Abbreviation: ICU, intensive care unit.
A significant difference between '*' and '**' determined.
Significance values are made bold.

and show protection behaviour is also supported by studies reflected in the literature.[18] If this situation is read backwards, we face the fact that young people do not pay much attention to the social distance rule. It seems that there is a need for research investigating the thoughts and behaviours of young people on social distance and protective measures.

In this study, it was found that female participants were significantly more meticulous compared with males in terms of using protective materials and applying the social distance rule. To the best of our knowledge, there is no other study examining the relationship between gender and social isolation and social distancing in the COVID-19 pandemic conditions. It may be attributed that women participants are more sensitive about general hygiene rules. We also found that the level of anxiety felt was significantly higher in women than in men when they learned that a patient of their gender was harmed by the virus. Similarly, studies indicate that women are more affected by the psychological stress caused by the pandemic.[13,14,19] In our study, we also found that the rate of using supplementary products and vitamins was significantly higher in women compared with men; which again can be attributed to fact that women were more affected by the psychological stress caused by the pandemic. One of our study hypothesis was that male sexes may develop anxiety more than females due to the knowledge of that males are affected worsely in pandemic. However, in contrast to what we expected, we found that female patients had more anxiety. The knowledge of outcomes that are out of predictions continues to surprise us like the pandemic. In order to deal with the pandemic, we must present all the information for discussion.

TABLE 4 Relationship between the presence of a chronic disease and the other variables

	With a chronic disease (n = 238) n (%)	Without a chronic disease (n = 691) n (%)	P value
Use of protective materials			
Using intensively	155 (65.1)*	47 (6.8)**	
Using rarely	78 (32.8)*	180 (26.0)**	.007
Not using	5 (2.1)*	464 (67.1)*	
Social distancing rule			
Applying meticulously	156 (65.5)*	399 (57.8)**	
Applying less well	77 (32.4)*	240 (34.8)**	.006
Not applying	5 (2.1)*	51 (7.4)**	
Following pandemic news			
I follow pandemic news strictly	232 (97.5)*	616 (89.1)**	<.001
I follow pandemic news rarely	6 (2.5)*	75 (10.9)**	
News causing anxiety			
I am not affected by the news	7(2.9)*	94 (13.6)**	
Number of deaths	103 (43.3)*	245 (35.5)**	
Number of new cases	23 (9.7)*	185 (26.8)**	<.001
The number of hospitalised patients	20 (8.4)*	61 (8.8)**	
Number of patients in the ICU	85 (35.7)*	106 (15.3)**	
Use of supplementary products			
Yes	106 (44.5)*	133 (9.2)**	<.001
No	132 (55.5)*	558 (80.8)**	
Feeling depressed and hopeless			
Yes	148 (62.2)*	262 (37.9)**	<.001
No	90 (37.8)*	429 (62.1)**	
Lack of joy in life			
Yes	138 (58.0)*	304 (44.0)**	<.001
No	100 (42.0)*	387 (56.0)**	

Abbreviation: ICU, ıntensive care unit.

Significant difference between '*' and '**' determined.

Significance values are made bold.

Since the beginning of the pandemic, many clinical studies have been conducted on mortality and contributing conditions. In our study, we found that participants with a chronic disease felt more anxious when they hear the news about the number of deaths and patients in the intensive care compared with those without. Studies support that the effects of the COVID-19 virus are more severe in the presence of underlying chronic diseases such as diabetes mellitus, cardiac diseases and immune system diseases.[20-22] An explanation for our finding may be that this information is shared on all kinds of information channels[23] and participants with a chronic disease follow pandemic health news more frequently. As a result, the addition of the high level of anxiety on already available risk factors may cause patients with chronic diseases to be more vulnerable to the virus. We suggest that preventive health interventions are needed to reduce the psychological effects of the disease on individuals with chronic diseases.

It was found that participants with a chronic disease used protective materials significantly more frequently and applied social distancing rule more meticulously compared with those without comorbidities. In our study, this sensitivity about applying the social distancing rule and the use of protective materials can be perceived as a positive attitude. However, excessive use of protective materials that contain many chemical ingredients may cause secondary health problems.[24,25] In this context, preventive measures should be taken regarding the psychological health of individuals who are at higher risk in the pandemic process including those with chronic diseases and elderly patients.

4.1 | Limitations

This study has some limitations. First, cross-sectional studies limit our ability to make inferences about causal relationships between independent and dependent variables. Future research should use empirical methods or use longitudinal research designs to understand causal relationships.

5 | CONCLUSION

During the pandemic process, some individuals may become more vulnerable because of their age, gender and medical conditions. Uncontrollably growing flow of information related to COVID-19 disease, thanks to the digital technology available today and the limitations to admit healthcare institutions within the scope of pandemic protection measures may contribute to their vulnerability. Our results indicated that individuals with advanced age and chronic diseases were more vulnerable to the anxiety and stress caused by the pandemic. It is necessary for healthcare providers to identify high-risk groups by considering the sociodemographic characteristics of individuals, in order to make early psychological interventions.

AUTHOR CONTRIBUTIONS

Zerrin Gamsızkan; Study design, data collection, manuscript writing. Mehmet Ali Sungur; Study concept, data analysis, Manuscript editing. Gökhan Erdemir; Data collection, data input, literatüre research.

DISCLOSURE

The authors declare no conflict of interest.

ETHICAL APPROVAL

Ethical approval for the study was obtained from the Düzce University Ethics Committee. (Approval No: 2020/79).

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