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Research Article

The impact of perception and fear on the adoption of protective measures against covid-19: A mediation analysis

Ali Kılınç[1], Alaettin Ünsal[2], Didem Arslantaş[3]

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Abstract

Objective: COVID-19 has had physical, mental, and social impacts worldwide, yet uptake of protective behaviors varied. We aimed to assess how COVID-19 disease perception and fear relate to adoption of precautions among adults in Türkiye.

Methods: After ethics approval, we conducted a cross-sectional online survey in Türkiye (March 1–April 1, 2021) using researcher networks for recruitment. Measures included the COVID-19 Disease Perception Scale (dangerousness and contagiousness) and the Fear of COVID-19 Scale. Adherence to COVID-19 precautions (ACP) was self-reported and scored as the number of preventive measures adopted (0–11).

Results: Of 4,477 responses, 4,011 participants were included after removing duplicates and incomplete entries (56.4% female; n=2,261). Mean (SD) ACP score was 5.99 (2.25) (median 6.0). Adherence was higher among females; those with a university degree; married participants; those not living in a separated/divorced family structure; those reporting good income; participants with chronic disease; non-smokers and non-drinkers; and those reporting a COVID-19 related death in their family or close social circle. Higher perceived contagiousness was associated with greater adoption of preventive measures, with perceived dangerousness and fear mediating this relationship.

Conclusion: Public health efforts that strengthen accurate perceptions of infectious disease dangerousness and contagiousness, and address related fear, may increase use of protective measures and help reduce transmission in future pandemics.

Keywords: COVID-19, Risk Perception, Fear, Adults, Türkiye

[1] Uşak University, Faculty of Medicine, Department of Public Health, Uşak, Türkiye
Email: a.kilinc@usak.edu.tr
ORCID iD: 0000-0002-0577-8570

[2]Eskişehir Osmangazi University, Faculty of Medicine, Department of Public Health, Eskişehir, Türkiye
Email: alaattin@ogu.edu.tr
ORCID iD: 0000-0001-8353-1605

[3]Eskişehir Osmangazi University, Faculty of Medicine, Department of Public Health, Eskişehir, Türkiye
Email: adidem@ogu.edu.tr
ORCID iD: 0000-0002-5263-3710

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INTRODUCTION

Since its emergence in late 2019, the COVID-19 pandemic has profoundly impacted global public health, resulting in over 7 million deaths worldwide (1). In the absence of widespread vaccination during the earlier phases of the crisis, non-pharmaceutical interventions and public health measures served as the primary strategies to mitigate viral transmission (2). However, the efficacy of these public health initiatives relies heavily on public compliance. Prior literature indicates that adherence to preventive behaviors is influenced by socio-demographic characteristics such as sex, education level, and employment status as well as individual cognitive appraisals, most notably the perception of the disease itself (3,4).

Disease perception is closely linked to epidemiological severity indicators, including transmission rates and lethality. During the specific pandemic phase of this study in early 2021, Türkiye had recorded substantial disease metrics, contributing to a global landscape where case fatality rates fluctuated widely between 0.95% and 14.10% depending on variant dynamics and localized healthcare capacities (5). While the objective threat of COVID-19 was severe, individual subjective interpretations of the virus varied markedly. Extant research demonstrates that individuals who appraise a disease as highly contagious and severe are significantly more likely to adhere to health recommendations (6,7).

In addition to cognitive risk appraisals, emotional responses, particularly health-related fear, represent a critical determinant of behavioral compliance (8). Driven by continuous media exposure, economic instability, and the localized impact of mortality within communities, public anxiety and fear regarding viral transmission escalated rapidly during the initial waves of the pandemic (9,10). While standard preventative indices often focus exclusively on clinical behaviors (such as masking and hand hygiene), public health compliance during prolonged crises frequently encompasses a broader spectrum of health-protective adjustments, including lifestyle modifications like regular sleep and physical exercise to preserve immune health. To date, several investigations have explored individual compliance with pandemic regulations (11,12). However, the specific pathways linking cognitive disease appraisals, emotional fear responses, and holistic protective behaviors during critical phases of the pandemic require further clarification. Crucially, given the cross-sectional nature of current behavioral data, these relationships are best understood as complex statistical associations rather than strict causal chains.

With this in mind, this study examined the statistical indirect associations among disease perception, fear, and behavioral adherence. We hypothesized that higher perceived contagiousness would be positively associated with an index of precaution adherence, and that this relationship would be sequentially mediated by perceived dangerousness and fear of the virus. Consequently, the objective of this study was to evaluate the socio-demographic and perceptual factors associated with compliance

with preventive measures within a sample of adults in Türkiye.

METHOD

This cross-sectional study was conducted in Türkiye between March 1 and April 1, 2021. Ethical approval was obtained from the Non-Interventional Clinical Research Ethics Committee of Eskişehir Osmangazi University University (Approval Number: 25403353; Date: 09.02.2021).

Data collection was executed using an online questionnaire hosted on Google Forms. Due to pandemic-related restrictions during this specific phase, participants were recruited via non-probability convenience and snowball sampling methods through digital platforms. Consequently, the sample is not fully representative of the general Turkish population and primarily reflects an online-accessible demographic. A total of 4477 responses were received. After excluding 466 duplicate or incomplete submissions, the final sample consisted of 4011 adults (aged 18 years and over) residing across 78 of the 81 provinces in Türkiye.

A structured questionnaire was compiled based on existing literature (13,14), encompassing socio-demographic characteristics, cognitive disease perceptions, emotional fear responses, and preventive behaviors.

COVID-19 Disease Perception Scale, developed by Genis et al. (15), is a 5-point Likert-type scale that measures two distinct sub-dimensions: Dangerousness (3 items; evaluating personal risk perception) and Contagiousness (4 items; evaluating transmission risk). Sub-dimension scores are calculated by averaging item responses, yielding scores from 1 to 5. Higher scores indicate heightened risk perceptions.

COVID-19 Fear Scale was developed by Ahorsu et al. (16) and adapted into Turkish by Satici et al. (17) in 2020. This 7-item, 5-point Likert-type scale measures the fear of COVID-19. Items are summated to create a total score ranging from 7 to 35, where higher values reflect greater fear.

To evaluate behavioral compliance, an 11-item Adherence to COVID-19 Precautions (ACP) Index was compiled from recommendations issued by the Turkish Ministry of Health and available literature (18,19). Cultivating a holistic perspective on pandemic mitigation, the index sums public clinical safety measures (such as hand hygiene, mask use, and physical distancing) alongside health-protective lifestyle modifications (such as sanitizing packages, maintaining regular sleep, exercise, and balanced nutrition). Affirmative behaviors were scored as 1 and non-adoption as 0, yielding a bounded count score from 0 to 11. Combining these heterogeneous items into a singular index provides a comprehensive indicator of overall health-protective compliance during prolonged crisis contexts. In this sample, the 11-item index demonstrated acceptable internal consistency, with a Cronbach alpha coefficient of .77.

Family income status was subjectively classified by participants as either good or bad. Smoking status was defined as smoking at least one cigarette per day, and alcohol consumption was defined as drinking at least once per week. Participants

raised by a single parent due to parental divorce, separation, or death were categorized under a separated/divorced family structure.

Statistical Analysis

Data were exported from Google Forms and analyzed using IBM SPSS statistical package program. For univariate analyses, independent-samples t-tests and one-way Analysis of Variance (ANOVA) with Tukey HSD post-hoc tests were used to examine differences in raw ACP scores across groups. Because the ACP Index is a bounded count outcome exhibiting significant positive skewness, standard linear regression assumptions were initially violated. To address this distribution constraint and satisfy parametric prerequisites, the ACP Index scores were transformed using a base-10 logarithm. A multiple linear regression analysis via the Enter method was then executed to identify independent predictors of the log-transformed ACP Index, controlling for essential socio-demographic confounders (age, sex, education, income, family structure, chronic disease history, smoking, and alcohol use).

To examine the underlying mechanisms without implying longitudinal causality, a cross-sectional serial mediation analysis was performed using Hayes PROCESS macro Model 6 (20). This model evaluated the statistical indirect associations of Contagiousness (X) on Adherence (Y) sequentially through Dangerousness (M1) and Fear (M2). Standardized coefficients, standard errors, and total, direct, and indirect pathways were computed. Significance was evaluated using 5000 bootstrap resamples to construct 95 percent percentile bootstrap confidence intervals (CI), where an interval excluding zero denoted statistical significance. The alpha level for all tests was established at p less than or equal to .05. In accordance with standard reporting guidelines, exact p-values are reported, with values recorded by SPSS as .000 corrected to p less than .001.

RESULTS

Among the final analyzed sample (N = 4011), 56.4 percent (n = 2261) were female and 43.6 percent (n = 1750) were male. Participant ages spanned from 18 to 85 years, with a young sample bias reflected in a mean age of 26.22 years (SD = 10.59). Consistent with the online convenience sampling method utilized, the sample was also predominantly composed of highly educated individuals and those reporting good subjective family income.

The raw ACP Index scores ranged from 0 to 11, with a mean score of 5.99 (SD = 2.25) and a median score of 6.0. **Table 1** presents the full distribution of the socio-demographic characteristics and their univariate associations with the ACP Index.

Overall, 99.2 percent of the participants reported practicing at least one protective behavior against COVID-19. The most prevalent precautions adopted were mask usage (96.1 %), hand hygiene (93.9 %), and physical distancing (89.0 %). **Table 2** displays the distribution of these health-protective behaviors alongside corresponding scores for disease perception and fear.

A small subset of the sample (n = 39) reported receiving no information regarding COVID-19. Among those who did, the primary sources of

Table 1. The distribution of the ACP index scores according to sociodemographic characteristics and related variables

Sociodemographic Characteristics and Related Variables	n	%	Mean scores from the ACP Index ± SD	Test statistic (t/F)	p-Value
Sex					
Female	2261	56.4	6.25 ± 2.09	**8.068**	**<0.001**
Male	1750	43.6	5.66 ± 2.41		
Age Groups (years)					
25 and below	2738	68.3	6.02± 2.25	0.685	0.504
26-35	577	14.4	5.90± 2.17		
36 and above	696	17.4	5.97 ± 2.32		
Education Status					
High School and Below	1348	33.6	5.87 ± 2.31	**2.475**	**0.013**
University and Above	2663	66.4	6.06 ± 2.22		
Working Status					
Working	1309	32.6	6.07 ± 2.38	1.410	0.159
Not Working	2702	67.4	5.96 ± 2.18		
Marital Status					
Married	1006	25.1	6.26 ± 2.13	**4.380**	**<0.001**
Not Married	3005	74.9	5.90 ± 2.28		
Family Type					
Nuclear Family [a]	3387	84.4	6.05 ± 2.24	**7.627**	**<0.001**
Extended Family [b]	416	10.4	5.70 ± 2.27		
Separated/divorced family structure[b]	208	5.2	5.62 ± 2.30		
Family Income Status					
Bad	215	5.4	5.52 ± 2.37	**3.163**	**0.002**
Good	3796	94.6	6.02 ± 2.24		
Presence of a Healthcare Worker in the Family					
Not Present	3141	78.3	5.94 ± 2.24	**3.031**	**0.003**
Present	870	21.7	6.20 ± 2.26		
The Place of Residence					
City Center	2064	51.5	6.01 ± 2.20	1.742	0.175
County	1603	40.0	6.02 ± 2.27		
Village	344	8.5	5.78 ± 2.42		
Chronic Disease History Requiring Continuous Medication					
Not Present	3606	89.9	5.95 ± 2.27	**3.233**	**0.001**
Present	405	10.1	6.34 ± 1.99		
Smoking Status					
Non-smoker	2815	70.2	6.11 ± 2.21	**5.155**	**<0.001**
Smoker	1196	29.8	5.71 ± 2.31		
Alcohol Consumption Status					
Non-consumer	3658	91.2	6.05 ± 2.21	**5.066**	**<0.001**
Consumer	353	8.8	5.35 ± 2.50		
History of COVID-19					
Not Present	3397	84.7	5.99 ± 2.26	0.249	0.804
Present	614	15.3	6.01 ± 2.21		
History of COVID-19 in Family Members					
Not Present	2827	70.5	5.98 ± 2.29	0.495	0.621
Present	1184	29.5	6.02 ± 2.16		
History of Death Due to COVID-19 in Family and Close Circle					
Not Present	2795	69.7	5.95 ± 2.32	**2.038**	**0.042**
Present	1216	30.3	6.10 ± 2.07		
Total	4011	100.0	5.99 ± 2.25		

Table 2. The Distribution of Precautions Taken Against COVID-19 In The Study Group

Protective Measures	n	%
Hand hygiene	3768	93.9
Cleaning house	2561	63.8
Ventilating the living space frequently	3077	76.7
Mask use	3854	96.1
Physical distancing	3570	89.0
Wearing gloves	1128	28.1
Healthy eating	2030	50.6
Regularly sleeping	1288	32.1
Doing exercises	1019	25.4
Keeping packages outside the home for a while	1721	42.9
Other	21	0.5
None	33	0.8
Total	4011	100.0

Table 3. The Distribution of Information Sources Regarding COVID-19 In The Study Group

Information Sources	n	%
Television	3391	84.5
Book/Newspaper/Magazine/Brochure	1337	33.3
Social Media	3390	84.5
Healthcare Workers	2097	52.3
Scientific Publications	1510	37.7
Training/Education	951	23.7
Close circle/Friends/Relatives	2239	55.8
None	39	1.0
Total	4011	100.0

information were television, social media, and immediate social circles (friends, relatives), respectively. The complete breakdown of pandemic information sources is presented in **Table 3**.

Total scores on the COVID-19 Fear Scale ranged from 7 to 35, with a mean score of 17.57 (SD = 6.21, median = 17). For the COVID-19 Disease Perception Scale, the mean score for the dangerousness sub-dimension was 3.91 (SD = 0.01, median = 4.0), and the mean score for the contagiousness sub-dimension was 3.78 (SD = 0.01, median = 4.0). The statistical relationships among cognitive disease perceptions, emotional fear, and the raw ACP Index are shown in (**Table 4)**. Although the correlations between these perception variables and the ACP Index reached statistical significance due to the high statistical power afforded by the large sample size, the absolute correlation coefficients were weak.

To identify the independent socio-demographic and health factors predicting the log-transformed ACP Index, a multiple linear regression analysis was conducted. The multivariable model significantly predicted the outcome, with an F-value of 13.42, a p-value less than .001, and an R-squared value of .036. The individual coefficients, standard errors, and confidence intervals for each predictor are detailed in (**Table 5)**. According to the model, sex, education level, marital status, extended family type, chronic disease history, and alcohol consumption were significant independent predictors of the ACP Index, with p-values less than .05 for each.

The cross-sectional serial mediation analysis (Hayes PROCESS Model 6) evaluated the indirect pathways linking contagiousness perception (X) and adherence (Y) through dangerousness perception (M1) and fear (M2). As presented in (**Table 6)**, all direct pathways within the path model were statistically significant (p less

Table 4. The relationship between scores obtained from COVID-19 Disease Perception Scale, COVID-19 Fear Scale and Adherence to COVID-19 precautions index

	COVID-19 Contagiousness Perception	COVID-19 Dangerousness Perception	Fear of COVID-19	Adherence to COVID-19 Precautions
COVID-19 Contagiousness Perception	1	0.438	0.319	0.155
COVID-19 Dangerousness Perception	0.438	1	0.312	0.155
Fear of COVID-19	0.319	0.312	1	0.172
Adherence to COVID-19 Precautions	0.155	0.180	0.172	1
p values are less than 0.001 for each.				

Table 5. Multiple Linear Regression Analysis Predicting ACP Index

Predictor	B	SE	β	t	p	95% CI
(Constant)	0.815	0.041		19.995	< 0.001	[0.735, 0.895]
Sex (Reference: Male)	-0.043	0.007	-0.103	-6.280	< 0.001	[-0.057, -0.030]
Age	0.000	0.000	-0.011	-0.691	0.489	[-0.001, 0.000]
Education Level (Reference: High School and Below)	0.025	0.007	0.057	3.465	0.001	[0.011, 0.039]
Marital Status (Reference: Married)	-0.036	0.008	-0.075	-4.516	< 0.001	[-0.051, -0.020]
Extended Family Type (Reference: Nuclear Family)	-0.031	0.011	-0.046	-2.904	0.004	[-0.052, -0.010]
Separated/divorced family structure (Reference: Nuclear Family)	-0.027	0.015	-0.029	-1.835	0.067	[-0.057, 0.002]
Income Status (Reference: Low Income)	0.028	0.015	0.030	1.889	0.059	[-0.001, 0.056]
Healthcare Worker in Family (Reference: Present)	< 0.001	0.000	0.019	1.225	0.221	[0.000, 0.000]
Chronic Disease History (Reference: Not Present)	0.027	0.011	0.039	2.425	0.015	[0.005, 0.048]
Smoking (Reference: Smoker)	-0.008	0.008	-0.019	-1.107	0.268	[-0.023, 0.007]
Alcohol (Reference: Drinker)	-0.048	0.012	-0.065	-3.928	<0.001	[-0.072, -0.024]
Model fit statistics: R = .189, R Square = .036, Adjusted R Square = .033, F(11, 3966) = 13.42, p < .001, Durbin-Watson = 0.98.						

Table 6. Model Pathways, Direct, and Indirect Effects for the Serial Mediation Mode

Model Pathways & Effects	Unstandardized Coefficient (B)	Standard Error (SE)	t / Z	p-value	95% CI	Standardized Coefficient (β)
Direct Pathways						
Contagiousness (X) → Dangerousness (M1)	.328	.011	30.821	< .001	[.307, .349]	.438
Contagiousness (X) → Fear (M2)	1.296	.094	13.836	< .001	[1.112, 1.479]	.226
Dangerousness (M1) → Fear (M2)	1.637	.125	13.109	< .001	[1.392, 1.882]	.214
Contagiousness (X) → Adaptation (Y) (Direct Effect)	.143	.036	3.928	< .001	[.072, .215]	.069
Danger (M1) → Adaptation (Y)	.318	.049	6.548	< .001	[.222, .412]	.115
Fear (M2) → Adaptation (Y)	.041	.006	6.867	< .001	[.029, .053]	.114
Total & Indirect System Effects						
Total Effect (X→Y)	.323	.032	9.952	< .001	[.259, .387]	.155
Total Indirect Effect	.180	.019	—	—	[.143, .218]	.086
*** Indirect Path 1: X→M1→Y**	.104	.017	—	—	[.071, .138]	.050
*** Indirect Path 2: X→M2→Y**	.053	.009	—	—	[.036, .072]	.026
*** Indirect Path 3 (Serial): X→M1→M2→Y**	.022	.004	—	—	[.015, .030]	.011

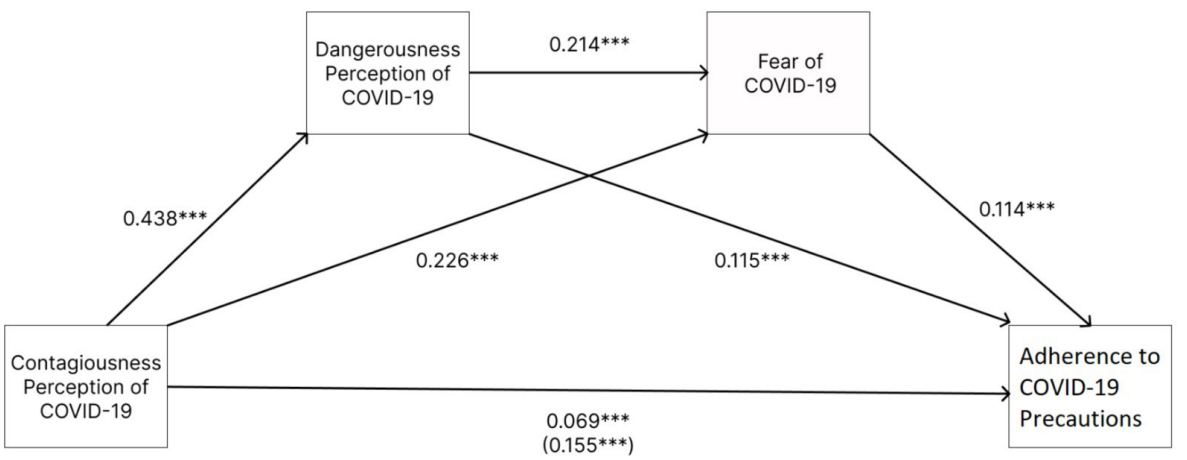

Figure 1. The serial mediation model of Contagiousness perception of COVID-19 through the dangerousness perception of COVID-19 and fear of COVID-19 on adherence to COVID-19 precautions with standardized regression coefficients (p<0.001 for each path). Total effect of contagiousness perception on adherence to precautions were given in parenthesis

than .001). The total effect of contagiousness perception on precaution adherence was statistically significant (B = .323, SE = .032, p less than .001). When controlling for both mediators, the direct effect of contagiousness perception on adherence remained significant (B = .143, SE = .036, p less than .001), indicating a pattern of partial mediation.

Crucially, the total indirect effect was significant (B = .180, BootSE = .019, 95 percent bootstrap CI [.143, .218]). The hypothesized serial mediation chain (X to M1 to M2 to Y) was fully supported, showing a significant indirect association (B = .022, BootSE = .004, 95 percent bootstrap CI [.015, .030]). This confirms that higher perceived contagiousness is associated with an elevated perception of dangerousness, which sequentially relates to heightened fear and, ultimately, greater precaution adherence. The complete model with standardized regression coefficients is visually diagrammed in (**Figure 1)**.

DISCUSSION

The COVID-19 pandemic caused profound global disruptions, severely impacting populations through high morbidity, mortality, strict quarantine protocols, and sudden socio-economic adjustments. During prolonged public health crises, widespread compliance with non-pharmaceutical interventions such as hand hygiene, facial masks, and physical distancing serves as the primary line of defense against community transmission. However, individual adherence to these guidelines is heavily dictated by cognitive disease perceptions and emotional risk responses. Understanding these underlying behavioral mechanisms provides public health professionals with crucial data to design effective intervention strategies for future respiratory pandemics (6).

In the present study, the most frequently adopted preventive behaviors were mask usage, hand hygiene, and physical distancing, respectively. This widespread adoption reflects the robust visibility of public health campaigns initiated by the Turkish Ministry of Health (18). In comparison, international literature demonstrates variations in specific behavioral priorities. For instance, Narayana et al. identified hand hygiene, respiratory etiquette (sneezing into the elbow), and mask compliance as the primary actions in their sample, while Sulistyawati et al. reported high rates of respiratory etiquette, private vehicle usage, and mask wearing (21,22). These cross-cultural variations highlight how differing national information channels, governmental mandates, and socio-cultural contexts shape public compliance patterns.

Socio-demographic factors also emerged as important independent predictors of adherence. In this sample, females exhibited significantly higher compliance with precautions than males, which aligns with international patterns reported by Clark et al. and Recio-Vivas et al. (23,24) While some researchers, such as Yan et al., observed no distinct gender differences in adherence, a broad consensus suggests that women generally display higher risk-aversion and greater compliance with health guidelines (25). Interestingly, univariate analysis revealed no significant variations across age groups, contrasting with evidence from Recio-Vivas et al. indicating enhanced compliance among older adults (24). Given that males and older populations face a heightened clinical risk for severe COVID-19 pathology, their lower or

static adherence rates emphasize the need to target these demographics with tailored health communications.

Educational attainment and socio-economic positioning further influenced compliance. Higher education levels significantly predicted increased adherence to precautions, a finding echoed in prior studies(27,28). Higher education is often tied to enhanced health literacy and critical thinking skills, enabling individuals to process complex epidemiological data and comprehend the long-term utility of preventive measures. Similarly, participants who evaluated their family income status as good demonstrated superior adherence compared to those reporting poor financial status. This reinforces evidence from Zaildo et al. and Lee et al., who highlighted that financial insecurity acts as a structural barrier to compliance(28, 29). Individuals from lower-income backgrounds often lack the financial flexibility to purchase personal protective equipment or alter their daily routines, forcing them to prioritize immediate economic survival over health-protective adherence.

Furthermore, household and lifestyle factors played a distinct role in behavioral compliance. Participants living within nuclear or extended family structures reported higher adherence than those from separated or divorced family structures. Co-residence with family members likely fosters a sense of collective responsibility, where individuals adhere to safety protocols to shield vulnerable relatives from infection, a dynamic supported by Li and Xu (30). Conversely, health-compromising behaviors like smoking and alcohol consumption were associated with reduced adherence to precautions. Substance use often co-occurs with elevated impulsivity and a generalized tolerance for behavioral risk(31). Our findings mirror those of Monnig et al., who identified lower compliance among regular alcohol consumers, and Mendoza-Jimenez et al., who noted that lifestyle risk factors correlate with poor adherence to basic hygienic measures(32,33).

Beyond descriptive demographics, this study illuminated the psychological pathways that drive protective behaviors. Prior research in diverse cultural settings has consistently linked risk perceptions to compliance. For example, Yan et al. (25,34)v demonstrated that high compliance rates in Hong Kong were driven by perceived benefits and self-efficacy, while Roberts and David found that fear of the virus significantly prompted health-seeking behaviors and precaution adoption among American college students. Additionally, Recio-Vivas et al. (24) vestablished that elevated infection risk perception directly catalyzed preventive action in Spain.

The results of our cross-sectional serial mediation analysis expand on these findings by mapping the statistical indirect pathways among these cognitive and emotional variables. In our model, higher contagiousness perception was associated with an increased perception of disease dangerousness, which sequentially related to heightened fear, ultimately predicting greater adherence to precautions. It is critical to note that due to the very large sample size of this study, the bivariate correlations between these psychometric scores and the final adherence index were weak in absolute magnitude. Nevertheless, the multivariable and mediation models show that cognitive appraisal of transmission risk (contagiousness) acts as an initial trigger that amplifies personal vulnerability assessments (dangerousness). This cognitive evaluation feeds

into an emotional response (fear), which serves as a proximal motivator for health-protective compliance. This underscores the psychological reality that facts alone (contagiousness) are often filtered through subjective risk and emotional salience before translating into protective behavioral actions.

Limitations of the Study

Several limitations must be acknowledged when interpreting these findings. First, due to the strict quarantine and mobility restrictions enforced during the pandemic, data collection relied entirely on an online questionnaire distributed via convenience and snowball sampling. Because the data were collected during a brief period between March and April 2021, the results are only reflective of that specific timeframe. Consequently, the sample is heavily skewed toward younger, highly educated, and internet-accessible demographics, meaning these findings cannot be generalized to the broader, non-digital population of Türkiye. Second, because this study utilized a cross-sectional design, all measures were collected simultaneously. Therefore, the paths identified in the serial mediation model represent statistical associations and indirect patterns within a single timepoint; they cannot be used to infer true longitudinal causality or temporal precedence. Third, all behavioral data were collected via self-report measures, which are susceptible to social desirability bias and memory recall errors, potentially leading to an overestimation of compliance rates. Finally, while the 11-item Adherence to COVID-19 Precautions Index demonstrated acceptable internal consistency in this sample, it grouped clinical prevention items alongside general healthy lifestyle habits, which may capture broad self-care tendencies rather than pandemic-specific compliance.

CONCLUSION

In conclusion, this study demonstrates that adherence to COVID-19 precautions was moderate to high, driven by elevated perceptions of disease dangerousness and contagiousness, alongside moderate levels of fear. Increased compliance was independently predicted by female sex, higher educational attainment, stable family structures, higher subjective income, and a history of chronic disease, whereas smoking and alcohol consumption predicted lower compliance. Crucially, the cross-sectional mediation analysis supported the hypothesis that the association between transmission risk perception and behavioral compliance is partially mediated through dangerousness perception and emotional fear.

These findings offer practical insights for public health governance. To optimize compliance during future infectious disease outbreaks, public health campaigns should move beyond merely broadcasting transmission rates. Instead, interventions should focus on clearly communicating the clinical dangerousness of the pathogen while providing transparent, actionable guidelines to build public self-efficacy. Because psychological risk pathways vary across demographics, future communication frameworks must prioritize vulnerable, low-adherence sub-groups—specifically males, lower-income populations, and individuals exhibiting generalized risk-taking behaviors—to ensure equitable protection across society. Finally, future research should utilize longitudinal designs and representative, probability-based sampling methods to track how these cognitive-emotional pathways evolve over the course of an extended public health crisis.

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The authors declare that they have no conflict of interests regarding content of this article.

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Ethical Declaration

Ethical permission was obtained from the Eskişehir Osmangazi University, Medical Faculty Clinical / Human Research Ethics Committee for this study with date 09.02.2021 and number 25403353,v and Helsinki Declaration rules were followed to conduct this study.

Previous Presentation

Some part of this study was presented as oral presentation at "Union of Thrace Universities IV. International Health Sciences Congress" held in Kırklareli city, entitled as "Assessment of COVID-19 Perception and Fear in Adults".

Author Contributions

Concept: AK, AÜ, DA, Design: AK, AÜ, DA, Supervising: AK, AÜ, DA, Financing and equipment: AK, AÜ, DA, Data collection and entry: AK, AÜ, DA, Analysis and interpretation: AK, AÜ, DA, Literature search: AK, AÜ, DA, Writing: AK, AÜ, DA, Critical review: AK, AÜ, DA

Corresponding Author

Ali Kılınç: Uşak University, Faculty of Medicine, Department of Public Health, Uşak, Türkiye

Email: a.kilinc@usak.edu.tr

ORCID iD: 0000-0002-0577-8570

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