

The relationship between the levels of knowledge about monkeypox virus among parents coming to the pediatric outpatient clinic and their anxiety and fear of contamination/infection levels

 Taner Adıgüzel*¹,  Gülsüm Kaya²,  Bahriye Semizoğlu Atasoy³,  Vefik Arıca⁴

¹Department of Child Health and Diseases, Faculty of Medicine, Yalova University, Yalova, Türkiye

²Department of Medical Microbiology, Faculty of Medicine, Yalova University, Yalova, Türkiye

³Department of Child Health and Diseases, Yalova Training and Research Hospital, Yalova, Türkiye

⁴Department of Child Health and Diseases, Prof. Dr. Cemil Taşcıoğlu City Hospital, University of Health Sciences, İstanbul, Türkiye

Cite this article as: Adıgüzel T, Kaya G, Semizoğlu Atasoy B, Arıca V. The relationship between the levels of knowledge about monkeypox virus among parents coming to the pediatric outpatient clinic and their anxiety and fear of contamination/infection levels. *J Health Sci Med.* 2026;9(1):201-207.

Received: 09.11.2025

Accepted: 28.12.2025

Published: 05.01.2026

ABSTRACT

Aims: In this study, we aimed to examine the relationship between the knowledge levels of parents who applied to the pediatric outpatient clinic about monkeypox virus and their anxiety and fear regarding contamination/infection.

Methods: The study was conducted in the pediatric outpatient clinic of Yalova Training and Research Hospital between May 15 and July 15, 2024. Necessary institutional permissions were obtained before starting the study. The research data consisted of a 19-item socio-demographic information form, Beck Anxiety Scale (BAS) and Fear of Infection/Contamination Scale (FICS) questions created by the researchers. The obtained data were analyzed in the SPSS 22.0 program.

Results: The majority of the parents participating in the study were between the ages of 30-39 (47.7%), and the majority were women (73.2%). When evaluated according to education level, 30% of the participants were high school graduates, and 29.5% had a bachelor's degree or higher. The majority were married (87.7%), and 53.6% were unemployed. 61.8% lived in the city center, 55.9% had equal incomes and expenses, the average number of people living in the house was 4.09 ± 1.12 , and the average number of children was 2.06 ± 0.98 . 93.6% of the participants stated that they had not received training on the monkeypox virus, 90.9% had heard of this virus, and 45.9% knew the ways the virus was transmitted. However, 64.5% of parents did not know whether the monkeypox virus was fatal or not, 64.5% reported that they were afraid of this virus, but 51.8% did not take any precautions. It was determined that the average BAS score of parents regarding monkeypox was at a mild anxiety level and their FICS was high. No significant correlation was found between anxiety levels and fear of contamination/infection, as assessed by the BAS and FICS scores ($r = -0.091$, $p = 0.179$).

Conclusion: In our study, it was determined that the average BAS score of families regarding monkeypox virus disease was at a mild anxiety level, and the FICS was high according to the average BAS score. It was also observed that parents did not receive education about monkeypox virus disease, did not know whether this disease was fatal or not, most of them were afraid of this disease and did not take any precautions for protection.

Keywords: Mpox (monkeypox), parental knowledge, health-related anxiety, fear of infection, risk perception, emerging infectious disease

INTRODUCTION

Monkeypox virus (mpox) is an enveloped double-stranded DNA virus belonging to the Poxviridae family within the genus Orthopoxvirus and is closely related to the vaccinia virus used in smallpox vaccination. MPXV was first identified in the late 1950s and subsequently recognized as a cause of human disease in the 1970s in what is now the Democratic Republic of the Congo (DRC).¹⁻³

The common symptoms of mpox include high fever, chills, headache, lymphadenopathy, myalgia, and a painful cutaneous eruption, which typically affects the face, genital area, and

extremities.⁴⁻⁶ The rash usually progresses from macules to papules, vesicles, pustules, and crusts.^{7,8} Not all lesions may be present simultaneously, and lesions may occur at different stages of development.⁷

Since the discontinuation of routine smallpox immunization, which also provides cross-protection against mpox, the disease has been primarily reported in Central and West Africa. The first outbreak in the Western hemisphere occurred in the United States in 2003, followed by sporadic travel-related cases in non-endemic countries.¹³⁻¹⁵ In May 2022, a global multi-

*Corresponding Author: Taner Adıgüzel, tanerdgzl@gmail.com



country outbreak involving sustained human-to-human transmission was reported, affecting thousands of individuals worldwide.^{9,10}

In April 2022, the mpox (monkeypox) virus, previously endemic to Africa, demonstrated outbreak potential for the first time in non-endemic countries outside Africa. At a time when the psychological and social impacts of the COVID-19 pandemic had not yet fully subsided, increasing global reports of mpox cases received considerable media attention in Türkiye in early 2024. News coverage frequently framed the situation with headlines questioning whether mpox could represent a new pandemic threat, thereby increasing public awareness.

Although no confirmed mpox cases were reported in Türkiye, the country's position as a transit region for international travel and migration may have contributed to a heightened perception of risk when combined with global outbreak narratives. Accordingly, the assessment of parental anxiety in this study aims to explore the psychological impact of perceived risk and indirect exposure to global health threats, rather than actual epidemiological exposure.

METHODS

Ethics

The study was conducted with the permission of the Yalova University Non-interventional Clinical Researches Ethics Committee (Date: 02.04.2024, Decision No: 2024/247). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki. All procedures followed were conducted in accordance with the ethical standards of the responsible committee (institutional and national) for human trials and/or the 1964 Helsinki Declaration and its subsequent versions. Following the administration of the questionnaire, participants were provided with accurate and up-to-date information about mpox by a physician specializing in this field. This information included details about transmission routes, the current epidemiological situation in Turkey, and preventive measures, and participants were given the opportunity to ask questions. This approach aimed to minimize potential misunderstandings and unnecessary concerns in accordance with ethical considerations.

Place and Time

The study was conducted between May 15 and July 15, 2024 at the Yalova Training and Research Hospital Pediatric Outpatient Clinic.

Study Universe and Sample

The study universe consisted of parents who applied to the Yalova Training and Research Hospital Pediatric Outpatient Clinic during the data collection period. A convenience sampling technique was used, whereby parents who were accessible at the clinic and met the inclusion criteria were invited to participate. Individuals who agreed to participate voluntarily were included in the study.

Data Collection Tools

The interview form, which was created by the researchers by reviewing the literature, consists of four sections and 64 questions: socio-demographic information, information on monkeypox virus disease, BAS and Contagion/Fear of Contagion Scale (FFCS).

1-Sociodemographic information: The sociodemographic characteristics section includes questions about the parents' age, gender, education status, employment status, place of residence, income level, number of children, presence of chronic disease and COVID 19 infection.

2-Information on monkeypox virus disease: This section includes questions about the status of receiving education about monkeypox virus, transmission routes and symptoms of the virus, and information about protection from the disease.

3-Beck Anxiety Scale (BAS): The anxiety scale developed by Beck is used to assess anxiety status and understand the cognitive aspects of anxiety. This scale is a Likert-type scale and contains 21 items. Ulusoy et al.¹⁴ conducted the first validity and reliability studies of the scale. The test-retest reliability coefficient was found to be 0.57. According to the results of this study, it was stated that the scale can be used safely in anxiety rating and treatment monitoring studies. In the Turkish validity and reliability study, the Cronbach Alpha coefficient calculated for the BAS was found to be 0.93. The BAS is a scale that individuals can answer on their own. The scale, which consists of 13 items, evaluates physiological symptoms, 5 items explain the cognitive aspect, and 3 items evaluate both somatic and cognitive symptoms. Participants are asked to mark the appropriate option for each item as "None", "Mild", "Moderate" or "Severe". Scale scores between 0 and 7 reflect normal or minimal anxiety levels, between 8 and 15 mild anxiety levels, between 16 and 25 moderate anxiety levels and between 26 and 63 severe anxiety levels. The cut-off score for the scale is determined as 15. The total score is used in the evaluation of the scale. Increasing scores indicate an increased anxiety level.¹⁴

4-Fear of Infection/Contamination Scale (FICS): Developed by Koç & Bilgehan¹⁵ to measure individuals' fears of contracting and transmitting a disease, this scale consists of 4 sub-dimensions (contact transmission, abstract transmission, social transmission, health field transmission). The scale consists of 24 items. The scale is graded as a 5-point Likert type as "Strongly agree (5), Agree (4), Undecided (3), Disagree (2), Strongly disagree (1)". There is no reverse item in the scale. The score that can be obtained from the scale varies between 24 and 120. An increase in the total score obtained from the scale is interpreted as an increase in the fear of contamination. The Cronbach alpha value, which is the internal consistency coefficient of the scale, was found to be 0.909.¹⁵ Our study, the Cronbach alpha value was found to be 0.912.

Data Collection

The study data were collected from parents who applied to the State Hospital pediatric outpatient clinic through face-to-face interviews. Before starting the study, the parents were

informed, their written and verbal consents were obtained, and they were asked to fill out the study forms.

Statistical Analysis

SPSS 22 for Windows (Statistical Package for Social Science, SPSS® Corp., Armonk, NY, USA) package program was used in the statistical analysis of the data. The display of the study data; frequency distribution (number, percentage) for categorical variables, descriptive statistics (mean, standard deviation, median, interquartile range) for numerical variables were given. The conformity of the data to normal distribution was evaluated with the Kolmogorov smirnov test ($p>0.05$). Since our data did not show normal distribution, the significance level between groups was evaluated with the Mann Whitney U test and Kruskal wallis test. Spearman Correlation Coefficient was used to determine whether there was a relationship between the variables. Cronbach's Alpha value was used for scale reliability.

RESULTS

The sociodemographic characteristics of the participants ($n:220$) are summarized in **Table 1**. The study sample predominantly consisted of female and married parents, with most participants aged between 30 and 39 years. Approximately one-third of the participants had completed high school education, and nearly one-third held a bachelor's degree or higher. More than half of the parents were unemployed and resided in the city center, with income levels generally reported as equal to expenses. The mean household size was 4.09 ± 1.12 , and the mean number of children was 2.06 ± 0.98 . The majority of participants did not report any chronic disease (85.5%). 58.2% of parents reported having had COVID-19 infection. 93.6% of participants stated that they had not received training on the monkeypox virus, while 90.9% stated that they had heard of this virus. However, 45.9% of parents stated that they knew how the monkeypox virus was transmitted, while 54.1% did not know how it was transmitted. 64.5% of participants did not know whether the monkeypox virus was fatal, 64.5% were afraid of this virus, but 51.8% did not take any precautions. The rate of parents who had previously had an infectious disease was determined as 31.4% (**Table 1**).

While 167 (75.90%) of the parents obtained information about monkeypox from the internet, social media, and television, 61 (27.72%) stated that they obtained it from doctors, nurses, and healthcare professionals, and 53 (24.09%) stated that they obtained it from friends, social circles, and work environments (**Figure**).

It was determined that the parents' mean BAS score regarding monkeypox was 11.96 ± 11.95 and that they had a low anxiety level, while the mean BAS score was 92.72 ± 18.44 and that their fear of infection/contamination was high (**Table 2**).

The BAS and FICS scores according to the sociodemographic data of the parents and variables related to monkeypox are shown in **Table 3**. While there was a statistically significant difference between the median BAS score and age, gender, education level, marital status, employment status, place of residence and having had a contagious disease before ($p<0.05$);

Table 1. Data on sociodemographic information of parents

Features	n (%) / mean ± SD	
Age distribution	<20 years	10 (4.5)
	21-29 years	43 (19.5)
	30-39 years	105 (47.7)
	40-49 years	54 (24.5)
	>50 years	8 (3.6)
Gender	Female	161 (73.2)
	Male	59 (26.8)
Education level	Primary education	52 (23.6)
	High school	66 (30.0)
	Associate degree	37 (16.8)
	Bachelor's degree/master's degree	65 (29.5)
Marital status	Married	193 (87.7)
	Single	11 (5.0)
	Divorced/separated	16 (7.3)
Working status	Yes	102 (46.4)
	No	118 (53.6)
Place of residence	City center	136 (61.8)
	District	56 (25.5)
	Village	28 (12.7)
Income level	Income is less than expense	59 (26.8)
	Income is equal to expense	123 (55.9)
	Income is more than expense	38 (17.3)
Person living in the house		4.09 ± 1.12
Number of children owned		2.06 ± 0.98
People living at home other than parents	None	188 (85.5)
	Grandmother/grandfather	20 (9.1)
	Other	12 (5.5)
Chronic disease	Yes	32 (14.5)
	No	188 (85.5)
COVID 19 infection status	Yes	128 (58.2)
	No	92 (41.8)
Monkey pox training status	Yes	14 (6.4)
	No	206 (93.6)
Have you ever heard of monkeypox virus?	Yes	200 (90.9)
	No	20 (9.1)
Knowing how monkeypox is transmitted	Yes	101 (45.9)
	No	119 (54.1)
Is monkeypox virus deadly?	Yes	54 (24.5)
	No	24 (10.9)
	I don't know	142 (64.5)
Knowing the symptoms of monkeypox virus	Yes	99 (54.0)
	No	121 (55.0)
Fear of monkeypox virus	Yes	142 (64.5)
	No	78 (35.5)
Taking precautions to avoid monkeypox virus	Yes	106 (48.2)
	No	114 (51.8)
Having had a contagious disease before	Yes	69 (31.4)
	No	151 (68.6)
Mean: Average; SD: Standard deviation		

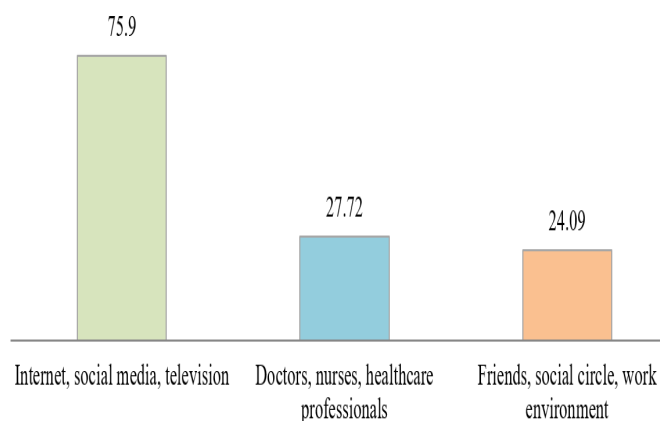


Figure. Parents' sources of information about monkeypox (%)

Table 2. Parents' total mean score on the BAS and fear of infection/contamination scale

Scales	Mean±SD (min.-max.)	Median (IQR)	Cronbach's alpha
Beck anxiety scale	11.96±11.95 (0-53.00)	10.00 (2.00-17.00)	0.934
Fear of infection/ contamination scale	92.72±18.44 (24.00-120.00)	96.00 (84.00-104.00)	0.944

SD: Standard deviation; Min: Minimum (lowest score), Max: Maximum (highest score), IQR= width between 1st and 2nd quartiles

there was no statistically significant difference between the variables of income level, living at home other than the parents, presence of chronic disease, having had COVID-19 infection, receiving monkeypox education, having heard of monkeypox virus, knowing the way monkeypox is transmitted, whether monkeypox virus is fatal or not, knowing the symptoms of monkeypox virus, being afraid of monkeypox virus and taking precautions to protect against monkeypox virus in terms of BAS score medians ($p>0.05$) (Table 3).

While there was a statistically significant difference in terms of age distribution of the participants and FICS score medians for monkeypox virus lethality ($p=0.009$, $p=0.031$), there was no statistically significant difference in terms of gender, education level, marital status, employment status, place of residence, income level, living at home other than the parents, presence of chronic disease, having COVID 19 infection, receiving monkeypox education, having heard of monkeypox virus, knowing the way monkeypox is transmitted, knowing the symptoms of monkeypox virus, being afraid of monkeypox virus and taking precautions to protect against monkeypox virus, and having had a contagious disease before ($p>0.05$).

According to the correlation analysis performed to determine the relationship between BAS and FICS, no significant relationship was found between BAS and FICS ($r=-0.091$, $p=0.179$) (Table 4).

DISCUSSION

WHO has stated that announcements regarding the re-emergence of monkeypox may lead to increased anxiety in societies.¹⁶ In the present study, participating parents exhibited low levels of anxiety. Çelik et al.¹⁷ similarly reported

low anxiety levels among healthcare workers in 2023, whereas Temsah et al.¹⁸ found higher anxiety related to monkeypox compared with COVID-19 in a large population-based study. The lower anxiety levels observed in the present study may be related to the limited public awareness of mpox and the absence of confirmed cases in Türkiye at the time of data collection.

The relatively high mean score on the parents' fear of contamination/infection scale indicates a notable level of concern regarding mpox. Close and prolonged contact with infected individuals has been identified as the primary route of transmission.¹⁹ Previous studies suggest that uncertainty or limited information about infectious diseases may be associated with heightened perceptions of contamination and transmission risk. Despite the absence of confirmed mpox cases in Türkiye, the high level of parents' fear of contracting mpox observed in our study suggests a potential mismatch between perceived risk and objective epidemiological risk. Risk perception has been shown to be shaped by dimensions such as unknownness and dread, and to be amplified or attenuated through social and communication processes.²⁰ In addition, outbreak alerts and extensive media visibility may increase anxiety and perceived threat even in low-risk settings, particularly under conditions of uncertainty.²⁰ Taken together, our findings underscore the critical importance of accurate and proportionate risk communication in reducing parents' fear of contracting mpox and mitigating the adverse effects of misinformation. In this context, access to accurate and reliable information may play a role in shaping individuals' perceptions and emotional responses to infectious diseases. However, given the cross-sectional design, these findings should be interpreted as associations, and the direction or causality of the relationships cannot be established.

A significant difference was found between the median BAS score and age in the evaluations made according to sociodemographic variables; It was determined that the anxiety scores of individuals aged 20 and under were significantly higher compared to other age groups. This suggests that young individuals are more sensitive to health-related uncertainties and that this sensitivity decreases as they age. Since the cognitive and emotional development processes of individuals aged 20 and under are ongoing, their stress coping mechanisms may not have fully matured. In this context, the observed age-related differences may reflect developmental variation in coping and emotion regulation; however, these findings should be interpreted as associations, and causal inferences cannot be made in this cross-sectional study.²¹

When the distribution of bas by gender was examined, women had significantly higher anxiety scores than men. this pattern is consistent with prior epidemiological evidence showing a higher prevalence and burden of anxiety disorders among women.^{22,23} Several psychosocial factors, including caregiving roles and heightened health-related vigilance, may contribute to this difference; however, these mechanisms were not directly measured in our study. Biological stress-response pathways, including sex-related variation in HPA axis activity, have also been discussed in the literature, but findings are

Table 3. Comparison of beck anxiety scale and fear of contamination scale scores according to sociodemographic data and variables of parents

Features		Beck anxiety scale			Fear of infection/contamination scale		
		Mean±SD	Median (IQR)	p value	Mean±SD	Median (IQR)	p value
Age distribution	<20 years	20.20±14.92	22.00 (2.75-35.00)	0.010	88.00±16.30	91.50 (78.00-98.25)	0.009
	21-29 years	11.09±11.80	11.00 (0.00-17.00)		99.06±17.32	99.00 (90.00-112.00)	
	30-39 years	10.06±11.69	6.00 (1.00-15.50)		93.46±18.02	97.00 (86.50-105.00)	
	40-49 years	15.03±11.08	13.00 (5.75-21.25)		87.64±20.23	91.00 (79.75-100.25)	
	>50 years	10.62±5.44	12.00 (5.50-15.75)		89.12±8.23	88.00 (81.50-97.50)	
Gender	Female	13.08±12.22	12.00 (3.00-18.00)	0.009	93.08±16.27	96.00 (85.00-102.50)	0.576
	Male	8.91±10.68	6.00 (0.00-16.00)		91.74±23.49	98.00 (81.00-106.00)	
Education Level	Primary education	11.11±11.34	7.00 (3.00-15.75)	0.032	95.44±18.58	98.50 (88.25-106.75)	0.937
	High School	11.21±10.64	8.50 (2.00-17.00)		94.28±20.04	98.00 (83.50-107.00)	
	Associate degree	13.78±13.52	13.00 (0.50-18.00)		84.16±22.89	92.00 (74.00-99.50)	
	Bachelor's Degree/ Master's Degree	12.38±12.85	9.00 (2.00-19.00)		93.84±11.56	95.00 (87.50-101.00)	
Marital status	Married	11.51±11.71	8.00 (2.00-17.00)	0.005	93.27±18.99	96.00 (84.50-106.00)	0.091
	Single	23.54±11.76	25.00 (15.00-35.00)		92.09±14.81	95.00 (91.00-99.00)	
	Divorced/separated	9.50±11.44	6.00 (0.25-17.00)		86.56±12.50	87.50 (80.50-97.50)	
Working status	Yes	9.00±11.54	4.00 (0.00-15.25)	0.000	92.44±20.20	96.00 (84.00-104.00)	0.551
	No	14.53±11.75	13.00 (5.00-19.25)		92.97±16.85	95.00 (83.75-104.50)	
Place of residence	City center	11.08±11.56	7.50 (2.00-15.00)	0.018	92.29±18.29	96.00 (84.00-102.00)	0.058
	District	10.87±11.03	7.00 (2.00-17.00)		95.85±18.34	96.00 (90.25-107.00)	
	Village	18.46±13.87	16.50 (8.00-29.50)		88.57±17.47	87.00 (81.25-98.25)	
Income level	Income is less than expense	13.44±13.01	12.00 (3.00-18.00)	0.202	91.91±18.98	96.00 (84.00-105.00)	0.878
	Income is equal to expense	12.08±11.74	9.00 (2.00-18.00)		92.65±18.61	96.00 (84.00-103.00)	
	Income is more than expense	9.31±10.68	6.50 (0.00-15.25)		94.23±17.40	96.00 (83.75-104.50)	
People living at home other than parents	None	11.40±11.36	9.00 (2.00-17.00)	0.452	92.97±18.65	96.00 (85.00-104.75)	0.655
	Grandmother/ Grandfather	14.80±15.79	9.00 (2.25-2.25)		93.05±13.19	96.00 (81.25-103.50)	
	Other	16.08±13.48	14.50 (3.25-26.00)		88.33±23.14	91.00 (83.00-101.25)	
Chronic disease	Yes	14.28±13.72	11.50 (2.00-23.50)	0.409	88.84±20.00	92.00 (83.00-100.00)	0.147
	No	11.57±11.62	8.50 (2.00-17.00)		93.38±18.13	96.00 (84.25-104.75)	
COVID 19 infection status	Yes	12.02±12.45	8.00 (1.25-18.00)	0.693	92.88±19.03	96.00 (87.00-103.75)	0.583
	No	11.89±11.28	10.00 (3.00-16.75)		92.51±17.69	96.00 (82.25-105.50)	
Monkey pox training status	Yes	13.71±12.65	11.00 (2.00-19.75)	0.453	91.71±23.02	89.00 (80.00-110.00)	0.871
	No	11.84±11.92	10.00 (2.00-17.00)		92.79±18.15	96.00 (85.00-103.25)	
Have you ever heard of monkeypox virus?	Yes	12.29±12.11	10.00 (2.00-18.00)	0.187	92.87±17.89	96.00 (84.00-104.00)	0.982
	No	8.70±9.90	4.50 (0.00-15.75)		91.25±23.77	96.00 (89.50-104.00)	
Knowing how monkeypox is transmitted	Yes	12.42±11.74	10.00 (3.00-18.00)	0.360	92.64±18.27	95.00 (83.00-105.50)	0.947
	No	11.57±12.16	8.00 (1.00-17.00)		92.79±18.66	96.00 (86.00-102.00)	
Is monkeypox virus deadly?	Yes	13.62±13.74	10.00 (3.00-18.50)	0.570	94.38±19.69	96.50 (84.00-107.00)	0.031
	No	14.04±14.28	10.50 (2.25-21.75)		85.62±18.05	85.50 (79.00-99.25)	
	I don't know	10.98±10.71	9.00 (1.00-17.00)		93.29±17.87	96.00 (87.00-103.25)	
Knowing the symptoms of monkeypox virus	Yes	13.38±12.38	11.00 (4.00-20.00)	0.051	91.06±18.26	94.00 (82.00-102.00)	0.138
	No	10.80±11.50	7.00 (1.00-11.50)		94.09±18.55	96.00 (87.00-105.50)	
Fear of monkeypox virus	Yes	12.30±11.72	10.00 (3.00-17.00)	0.358	92.66±19.61	96.00 (84.00-104.25)	0.780
	No	11.34±12.40	6.50 (1.00-18.00)		92.84±16.21	96.00 (83.00-104.00)	
Taking precautions to avoid monkeypox virus	Yes	12.63±12.56	11.00 (2.75-17.00)	0.462	93.03±19.95	96.50 (84.00-107.00)	0.281
	No	11.35±11.37	7.50 (1.00-18.00)		92.43±17.00	96.00 (84.75-99.00)	
Having had a contagious disease before	Yes	16.63±11.85	15.00 (7.00-22.00)	0.000	90.39±17.58	92.00 (81.50-100.00)	0.067
	No	9.83±11.41	6.00 (1.00-15.00)		93.79±18.78	96.00 (87.00-106.00)	

Table 4. Results of correlation analysis conducted to determine the relationship between beck anxiety scale and fear of infection/contamination scale

Variables	n	r	p-value*
Relationship between beck anxiety scale and fear of infection/contamination scale	220	-0.091	0.179

*Spearman's correlation coefficient test, p<0.01.

heterogeneous and should not be over-interpreted in the context of our cross-sectional data.²⁴

No significant differences were observed between mean BAS scores and sociodemographic or health-related variables, including income level, presence of chronic disease, history of COVID-19 infection, education regarding monkeypox, knowledge of the disease transmission route, and awareness of symptoms and preventive measures. These findings indicate that individuals' anxiety levels are influenced not solely by their level of knowledge, but also by a complex interplay of personal and environmental factors.

Furthermore, no significant correlation was identified between BAS and FICS scores. This suggests that anxiety levels are not directly associated with fear of infection and that these constructs may be shaped by distinct underlying mechanisms. In line with previous studies conducted during past pandemics, variable relationships between anxiety and fear of infectious diseases have been reported, with individual, cultural, and social factors playing a moderating role.²⁵

Limitations

Although this study offers original contributions, it has some limitations such as having a cross-sectional design, limited sample size, and being a single-center study.

CONCLUSION

This study provides insight into parents' knowledge levels, anxiety, and fear of infection regarding mpox in a non-endemic setting. The findings indicate that knowledge, anxiety, and fear of infection may represent related but distinct constructs, shaped by multiple individual and contextual factors. From a public health perspective, these results underscore the importance of addressing both informational needs and emotional responses when planning communication strategies for emerging infectious diseases. Future preparedness efforts may benefit from integrating accurate risk communication with approaches that consider psychological well-being, particularly among parents.

ETHICAL DECLARATIONS

Ethics Committee Approval

The study was conducted with the permission of the Yalova University Non-interventional Clinical Researches Ethics Committee (Date: 02.04.2024, Decision No: 2024/247).

Informed Consent

Written informed consent was obtained from all individual participants prior to their inclusion in the study. Participants were fully informed about the study's aims, procedures, potential risks and benefits, and their rights-including the

right to withdraw at any time without consequence. All participants voluntarily signed a written informed consent form.

Peer Review Process

This manuscript was subject to external peer review.

Conflict of Interest

The authors declare no conflicts of interest related to this study.

Financial Disclosure

The authors received no financial support for the conduct or publication of this research.

Author Contributions

Author contributions concept: T.A., G.K., B.S.A., V.A.; Design: T.A., G.K., B.S.A., V.A.; Control T.A., G.K., B.S.A., V.A.; Data collection and/or processing: T.A., B.S.A.; Analysis and/or interpretation: T.A., G.K.; Literature review: T.A., G.K., B.S.A., V.A.; Article writing: T.A., G.K., B.S.A., V.A.; Critical review: All authors

REFERENCES

- Walker PJ, Siddell SG, Lefkowitz EJ, et al. Recent changes to virus taxonomy ratified by the International Committee on Taxonomy of Viruses (2022). *Arch Virol*. 2022;167(11):2429-2440. doi: 10.1007/s00705-022-05516-5
- Magnus PV, Andersen EK, Petersen KB, et al. A pox-like disease in cynomolgus monkeys. *Acta Pathol Microbiol Scand*. 1959;46:156. doi:10.1111/j.1699-0463.1959.tb00328.x
- Parker S, Buller RM. A review of experimental and natural infections of animals with monkeypox virus between 1958 and 2012. *Future Virol*. 2013;8(2):129-157. doi:10.2217/fvl.12.130
- Nalca A, Rimo AW, Bavari S, Whitehouse CA. Reemergence of monkeypox: prevalence, diagnostics, and countermeasures. *Clin Infect Dis*. 2005;41(12):1765-1771. doi:10.1086/498155
- Schuster-Bruce C, Gal S. How do monkeypox symptoms compare to smallpox and chickenpox? Insider. 2022.
- Hagen A. Monkeypox: When to test and what to do if exposed? ASM. 2022.
- Barnes AH, Smith C, Dash A, et al. Mpox: Special considerations in patients with compromised immune systems. *Curr Treat Options Infect Dis*. 2022;14(4):1-24. doi:10.1007/s40506-022-00260-5
- Centers for Disease Control and Prevention. Clinical diagnosis: key features to identify Mpox. 2023.
- Centers for Disease Control and Prevention (CDC). Update: multistate outbreak of monkeypox--Illinois, Indiana, Kansas, Missouri, Ohio, and Wisconsin, 2003. *MMWR Morb Mortal Wkly Rep*. 2003;52(27):642-646.
- Reed KD, Melski JW, Graham MB, et al. The detection of monkeypox in humans in the Western Hemisphere. *N Engl J Med*. 2004;350(4):342-350. doi:10.1056/NEJMoa032299
- Centers for Disease Control and Prevention (CDC). Multistate outbreak of monkeypox-illinois, Indiana, and Wisconsin, 2003. *MMWR Morb Mortal Wkly Rep*. 2003;52(23):537-540.
- World Health Organization. Endemik olmayan ülkelerde çok uluslu maymun çiçeği salgını. 2022.
- Reynolds MG, McCollum AM, Nguete B, Shongo Lushima R, Petersen BW. Improving the care and treatment of monkeypox patients in low-resource settings: applying evidence from contemporary biomedical and smallpox biodefense research. *Viruses*. 2017;9(12):380. doi:10.3390/v9120380
- Ulusoy M, Şahin NH, Erkmen H. Beck Anksiyete Ölçeğinin Türkçe versiyonu: psikometrik özellikler. *J Cogn Psychother Int Q*. 1998;12(2): 163-172.
- Koç A, Bilgehan T. Bulaşma/bulaştırma korkusu ölçeği: bir ölçek geliştirme çalışması. *Türk Hem Der Derg*. 2021;2(2):14-26.

16. World Health Organization Vaccines and immunization for monkeypox: Updated interim guidance, 24 August 2022.
17. Çelik M, Acar U, Akgül F, et al. COVID-19 pandemisi sonrası maymun çiçeği (mpox) salgını tehdidi: sağlık profesyonelleri yeni psikolojik savaşlara hazır mı?. *J Contemp Med*. 2023;13(5):966-974.
18. Temsah MH, Aljamaan F, Alenezi S, et al. Monkeypox caused less worry than COVID-19 among the general population during the first month of the WHO Monkeypox alert: experience from Saudi Arabia. *Travel Med Infect Dis*. 2022;49:102426. doi:10.1016/j.tmaid.2022.102426
19. Nolen LD, Osadebe L, Katomba J, et al. Extended human-to-human transmission during a monkeypox outbreak in the Democratic Republic of the Congo. *Emerg Infect Dis*. 2016;22(6):1014-1021. doi:10.3201/eid2206.150579
20. Garfin DR, Holman EA, Fischhoff B, Wong-Parodi G, Silver RC. Media exposure, risk perceptions, and fear: Americans' behavioral responses to the Ebola public health crisis. *Int J Disaster Risk Reduct*. 2022;77:103059. doi:10.1016/j.ijdrr.2022.103059
21. McLaughlin KA, Garrad MC, Somerville LH. What develops during emotional development? A component process approach to identifying sources of psychopathology risk in adolescence. *Dialogues Clin Neurosci*. 2015;17(4):403-410. doi:10.31887/DCNS.2015.17.4/kmclaughlin
22. McLean CP, Asnaani A, Litz BT, Hofmann SG. Gender differences in anxiety disorders: prevalence, course of illness, comorbidity and burden of illness. *J Psychiatr Res*. 2011;45(8):1027-1035. doi:10.1016/j.jpsychires.2011.03.006
23. Farhane-Medina NZ, Luque B, Tabernero C, Castillo-Mayén R. Factors associated with gender and sex differences in anxiety prevalence and comorbidity: a systematic review. *Sci Prog*. 2022;105(4):368504221135469. doi:10.1177/00368504221135469
24. Kudielka BM, Kirschbaum C. Sex differences in HPA axis responses to stress: a review. *Biol Psychol*. 2005;69(1):113-132. doi:10.1016/j.biopsycho.2004.11.009
25. Pfefferbaum B, North CS. Mental health and the COVID-19 pandemic. *N Engl J Med*. 2020;383(6):510-512. doi:10.1056/NEJMp2008017