ORIGINAL ARTICLE

Eastern Journal of Medicine
East J Med 29(1): 70-80, 2024
DOI: 10.5505/ejm.2024.93196

The Effect of Movie-Watching on Depression, Anxiety and Stress in Hospitalised Patients with COVID-19: A Randomized Controlled Study

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ABSTRACT

This study was carried out to determine the effect of watching a comedy movie on depression, anxiety, and stress levels in hospitalized patients with COVID-19.

This was a randomized controlled study. The population of the study consisted of patients in the pandemic ward of a university hospital in a province located in the eastern region of Turkey. Power analysis was performed to determine the sample size. The study was completed with 53 in the experimental group and 53 in the control group. Patient information form and Depression, Anxiety and Stress Scale (DASS) were used for data collection.

Patients in the experimental and control groups were homogeneous in terms of descriptive characteristics ($p>0.05$). When DASS scores were analyzed according to the descriptive characteristics of the patients in the experimental group, it was determined that patients with seven or more children and chronic diseases had higher anxiety and stress scores ($p<0.05$). A statistically significant difference was found between the mean depression, anxiety and stress scores of the experimental and control groups and it was determined that the depression, anxiety and stress scores of the experimental group were lower compared to those of the control group.

In this study, it was found that watching comedy movies, which can be considered as a complementary practice for hospitalized patients with COVID-19, significantly decreased the depression, anxiety and stress levels of the patients. It was determined that patients with seven or more children and chronic diseases had higher anxiety and stress scores.

Keywords: Anxiety, COVID-19, depression, stress, movie-watching, nursing

Introduction

Coronavirus diseases 2019 (COVID-19) began to spread rapidly to many regions of China and almost to all the countries in the world and it continues to be a important health problem worldwide (1). Turkey was among the top ten countries with the highest total number of cases as of May 2020 (2). COVID-19 disease not only affects the physical health of individuals, but also seriously affects their psychological health (3,4). These psychological problems, in addition to physical health problems, caused by the pandemic would surely worsen the situation to a great extent (5,6). Patients with COVID-19 who are hospitalised will be faced with an environment they have never seen before. Patients who are taken into isolation to prevent contamination are treated in single rooms, in a physically restricted area, and without an accompanying person (7). Healthcare workers in "spacesuits" whose faces cannot be seen can be frightening to patients. As a result, patients' anxiety levels are heightened and they may develop a fear of death. Isolated patients may feel like they are in a prison cell (8). The other main psychological effect of isolation is uncertainty; isolated patients may experience stress and anxiety due to multifaceted uncertainties, such as feelings of concern about recovery and survival or for loved ones in quarantine (9). Studies on COVID-19 show that this disease causes psychological traumas in society (10-12). According to online surveys, people affected by the pandemic had higher levels of depression and anxiety compared to unaffected people (13). Bo et al. reported that among 714 clinically stable COVID-19 patients hospitalised in temporary quarantine hospitals in Wuhan, China, 96.2% showed signs of COVID-19-related post-traumatic stress. This suggests that almost all patients experience clinically significant levels of post-traumatic stress (14). Kong et al. found the prevalence of anxiety and depression

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Received: 30.05.2023, **Accepted:** 17.12.2023

symptoms to be 34.72% and 28.47%, respectively, in hospitalised patients with COVID-19 during the outbreak in the city of Wuhan (15). The study by Zhang et al. reported that approximately 20.9% of patients with mild symptoms of COVID-19 had anxiety and 18.6% had depression (16). A meta-analysis reported that after a ≥1-week follow-up period, individuals with COVID-19 living in isolation or those under quarantine were evaluated as at risk, particularly for depression, anxiety and stress-related disorders (17).

Studies have shown that anxiety, depression, and stress levels decrease with the application of non-pharmacological complementary therapies (18-32). In studies conducted on patients with COVID-19, yoga (25), cognitive behavioural therapy (26), progressive muscle relaxation (27), mandala-colouring (28) and acupuncture (29) were found to be effective against anxiety, depression and stress. To the best of our knowledge, there is no study in the literature investigating the effect of movie-watching on patients with COVID-19. There are studies in the literature evaluating the effect of movie-watching during colonoscopy (30), dialysis (31) and oesophagogastroduodenoscopy (32) and these studies reported that watching movies reduces the patient's anxiety, depression and stress levels.

While patients receive treatment for the disease in the hospital, the course of the disease, isolation, and the unknown aspects regarding COVID-19 cause high levels of depression, anxiety and stress in them. Adding psychological problems to the physical health problems caused by the epidemic will significantly worsen the situation. This may make compliance with treatment difficult, cause complications and negatively affect the healing process (3-6). This is the first study to evaluate the effect of watching comedy movies on depression, anxiety and stress levels in patients with COVID-19. It is thought that the results of this research, planned in a randomised controlled experimental design, can make a significant contribution to both the literature and practice. The research will make visible the effect of watching movies on patients and will ensure that movie watching is based on better levels of evidence.

This study was carried out to determine the effect of watching a comedy movie on depression, anxiety and stress (DAS) levels in hospitalised patients with COVID-19.

Research hypotheses

H_0: Watching comedy movies reduces the mean DASS scores of hospitalised patients with COVID-19.

H_1: Watching a comedy movie does not affect the mean DASS scores of hospitalised patients with COVID-19.

Materials and Methods

Study design: This is a randomized controlled experimental study. The research was carried out in the COVID-19 pandemic ward of the Atatürk University Health Research and Application Center Hospital between August 2020 and February 2021.

Inclusion criteria: Patients aged>18 years; diagnosed with COVID-19; clinically stable; the absence of psychiatric disease (for psychiatric disease, both hospital records were checked and an anamnesis was taken from the patient) or communication problems or vision and hearing problems and who agreed to participate in the study.

Exclusion criteria: Patients not diagnosed with COVID-19, the presence of major depression or psychosis, having communication or vision and hearing barriers, clinically unstable patients, leaving the study voluntarily,

Randomization and Intervention: In this study, a priori power analysis was performed to determine the sample size. In the power analysis, it was determined that if the study was conducted with 45 participants in each group and a total of 90 people, 80% power could be reached at a significance level of 0.05 with a 95% confidence interval (assuming a high effect size). After adjusting for data loss, the sample size increased by approximately 20%, and the study was completed with a total of 106 patients (53 in the experimental group and 53 in the control group) during the specified dates. Patients were randomly assigned to the experimental and control groups. Groups A and B were formed by simple random sampling method (randomization according to room numbers) (Figure Consort Statement). Group A was the experimental group and patients in Group A watched the comedy movie. Group B was the control group in which no intervention was performed

Movies to be watched by patients were selected after consulting with the Department of Psychiatry. The films were selected based on criteria such as appropriate humorous content, good reviews and the possibility of generating laughter and a good mood. Several movies in the comedy genre were selected in line with their recommendations; the movies were presented to the patients and they watched them according to

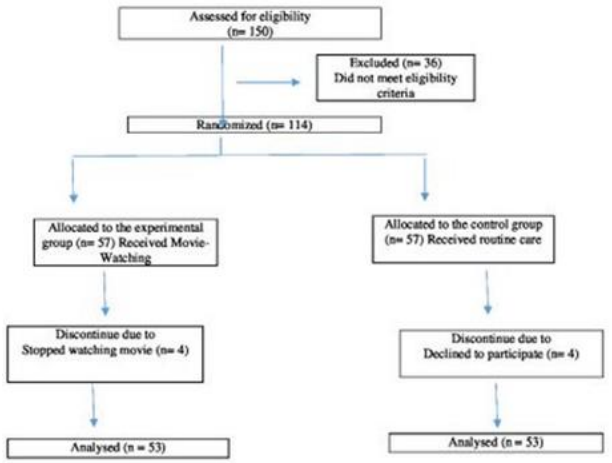

Fig.1. Consort statement

their choice. Data were collected by the researcher in the COVID-19 pandemic ward of the a University Health Application and Research Center between August 2020 and February 2021. Patients diagnosed with COVID-19 were staying in single rooms. A projector and sound system were arranged by the researcher and each patient in the experimental group was shown the movie in his or her own room.

Data were collected from the control group patients after randomization and from the experimental group patients after they had watched the movie.

Data Collection Tools: Patient information form and Depression, Anxiety and Stress Scale were used to collect data.

Patient information and observation form: This form was prepared by the researchers in accordance with the relevant literature.

Depression, Anxiety and Stress Scale (DASS): This scale was developed by Lovibond and Lovibond (33). The scale was found to have three different Turkish adaptation studies. The first was conducted by Yılmaz et al. (34) in 2017, the second by Sarıçam (35) in 2018 and the third by Yıldırım et al. (36) in 2018. In this study, the adaptation of Yıldırım et al. (2018) was employed. The scale consists of 21 items, three sub-dimensions (depression, anxiety and stress) and a 4-point Likert-type scoring system. If an individual scores 5 points or more in the depression subscale, 4 points or more in the anxiety subscale, or 8 points or more in the stress subscale, it indicates that he or she has a relevant problem. In addition, for depression, a score of "0-4" is normal, "5-6" is mild, "7-10" is moderate, "11-13" is severe, and "14 and above" is very severe; For anxiety, a score of "0-3" is normal, "4-5" is mild, "6-7" is moderate, "8-9" is severe, and "10 and above" is very severe; For stress, a score of "0-7" is classified as normal, "8-9" is mild, "10-12" is moderate, "13-16" is severe, and "17 and above" is classified as very severe. High scores obtained from the sub-dimensions mean that the emotions of the individual for the related sub-dimension are intense.

Statistical Analysis: Data analysis has been conducted using Statistical Package for the Social Science (SPSS) 20.0. Statistical significance of the data has been assessed at $p < 0.05$ level. For evaluating the data, the percentage distributions, frequency, average, standard deviation one-way ANOVA, independent *t* test, Chi-Square Test, Mann Whitney U test, Kruskal Wallis test analysis were used.

Ethical Principles: Ethics committee approval was obtained from a University Faculty of Medicine Ethics Committee for the study to be conducted (B.30.2.ATA.0.01.00/363). Research During the collection of data, individuals were informed about the research. "Informed Consent Form" was filled. on whether or not to participate in the study. The principle of "Respect for Autonomy", stating that they are free, was applied to the patients participating in the research. Instead of the "Confidentiality and Protection of Confidentiality" principle, stating that the information will be kept confidential was brought. Since individual rights must be protected in research, adhering to the Helsinki Declaration of Human Rights

Results

When the descriptive characteristics of the experimental and control group patients were compared, no significant difference was found between the groups in terms of age, gender, marital status, number of children, place of residence, income status, previous hospitalization experience, presence of a chronic disease, and smoking status. ($p>0.05$, Table 1)

When the mean DASS scores were analyzed according to the descriptive characteristics of the patients, no significant difference was found between the DASS scores with respect to age, gender, marital status, number of children, family type, income status, previous hospitalization experience, presence of a chronic disease, and smoking status ($p>0.05$, Table 2)

When the mean DASS scores were analyzed according to the descriptive characteristics of the patients, a significant difference was found

Table 1: Comparison of Experimental and Control Group Variables

Variables	Experimental Group (n=53)		Control Group (n=53)		p
	n	%	n	%	
Age					
18-24	4	7.5	5	9.4	
25-34	8	15.1	7	13.2	
35-44	5	9.4	6	11.3	χ2=.397
45-54	14	26.4	13	24.5	p=.995
55-64	11	20.8	10	18.9	
65 age and ↑	11	20.8	12	22.6	
Gender					
Female	25	47.2	26	49.1	χ2=.038
Male	28	52.8	27	50.9	p=.846
Marital Status					
Single	8	15.1	11	20.8	χ2=.577
Married	45	84.9	42	79.2	p=.447
Number of Children					
No	9	17.0	11	20.8	
1-3	16	30.2	18	34.0	χ2=1.018
4-6	23	43.4	18	34.0	p=.797
7 and↑	5	9.4	6	11.2	
Place of Residence					
City	30	56.6	30	56.6	χ2=1.533
District	13	24.5	17	32.1	p=.465
Village	10	18.9	6	11.3	
Income Status					
Income<expense	14	26.4	16	30.2	
Income=expense	33	62.3	27	50.9	χ2=1.733
Income>expense	6	11.3	10	18.9	p=.420
Previous Hospitalization Experience					
No	19	35.8	21	39.6	χ2=.161
Yes	34	64.2	32	60.4	p=.689
Presence of a Chronic Disease					
Yes	22	41.5	27	50.9	χ2=.949
No	31	58.5	26	49.1	p=.330
Smoking Status					
Yes	17	32.1	15	28.3	
No	28	52.8	31	58.5	χ2=.344
Quit	8	15.1	7	13.2	p=.842

between the mean DASS anxiety and stress scores with respect to the number of children and the presence of a chronic disease. It was determined that patients with seven or more children and chronic diseases had higher anxiety and stress scores ($p<0.05$, Table 3).

Table 2: Comparison of DASS Scores According to the Descriptive Characteristics of the Control Group

Characteristics	n	DASS-Depression	DASS-Anxiety	DASS-Stress
		$\bar{X}$±SS	$\bar{X}$±SS	$\bar{X}$±SS
Age				
18-24	5	7,40±5.12	8.00±3.74	8.40±2.50
25-34	7	8,57±4.89	6.46±4.23	9.29±5.08
35-44	6	8,67±4.08	8.16±3.65	9.50±3.83
45-54	13	7,92±6.18	7.53±6.30	9.23±6.32
55-64	10	10,80±3.93	10.20±4.73	13.10±3.95
65 age and ↑	12	9,08±3.94	11.58±5.07	11.33±4.77
Test and P value		KW=3.656 p=0.600	KW=6.036 p=0.303	KW=6.318 p=0.276
Gender				
Female	26	9.84±5.22	10.23±5.04	11.57±4.80
Male	27	7.88±4.06	7.66±4.98	9.52±4.85
Test and P value		MWU=272.0 p=0.159	MWU=247.5 p=0.065	MWU=261.5 p=0.110
Marital Status				
Single	11	8.18±5.04	7.18±4.11	8.81±4.26
Married	42	9.02±4.69	9.38±5.31	10.80±5.04
Test and P value		MWU=215.0 p=0.725	MWU=182.0 p=0.281	MWU=175.5 p=0.222
Number of Children				
Yok	11	8.18±5.01	7.18±4.11	8.18±4.26
1-3	18	9.27±5.13	9.00±4.89	11.16±5.27
4-6	18	8.33±4.36	9.27±5.52	10.27±4.94
7 and↑	6	10.33±4.76	10.83±6.55	11.33±5.42
Test and P value		KW=0.652 p=0.722	KW=522p=0.770	KW=0.346 p=0.841
Place of Residence				
City	30	8.70±4.96	8.67±5.04	10.43±4.93
District	17	9.00±4.65	10.05±5.92	11.17±5.34
Village	6	9.16±4.49	7.00±2.19	8.00±3.22
Test and P value		KW=0.193 p=0.908	KW=1.291 p=0.524	KW=2.632 p=0.268
Income Status				
Income<expense	16	10.18±4.54	11.06±4.99	11.50±5.57
Income=expense	27	8.11±4.20	7.62±4.45	10.11±4.28
Income>expense	10	8.70±6.23	9.00±6.32	9.40±5.64
Test and P value		KW=2.091 p=0.352	KW=4.479 p=0.107	KW=1.372 p=0.504
Previous Hospitalization Experience				
No	21	8.66±5.48	7.95±4.57	9.76±5.02
Yes	32	8.98±4.25	9.56±5.44	10.81±4.88

Test and P value		MWU=314.0 p=0.688	MWU=284.5 p=0.348	MWU=288.0 p=0.381
Presence of a Chronic Disease				
Yes	27	9.44±5.04	10.33±5.37	11.55±5.11
No	26	8.23±4.38	7.46±4.51	9.19±4.49
Test and P value		MWU=312.5 p=0.492	KWU=256.5 p=0.092	KWU=255.0 p=0.087
Smoking Status				
Yes	15	8.60±4.45	7.06±4.62	9.06±4.18
No	31	9.00±4.90	9.58±4.90	11.03±4.90
Quit	7	8.71±5.18	10.00±6.78	10.42±6.52
Test and P value		KW=0.080 p=0.961	KW=2.483 p=0.289	KW=1.614 p=0.446

It was determined that the mean DASS scores of the experimental group were lower than those of the control group (DASS depression, p<0.001; DASS anxiety, p<0.001; DASS stress, p<0.001, Table 4).

Discussion

To our knowledge, this is the first randomized controlled study aiming to determine the effect of watching comedy movies on DAS in hospitalised patients with COVID-19. Since there is no study in the literature that determines the effect of watching movies in the comedy category on depression, anxiety and stress in hospitalised patients with COVID-19, the results were discussed with the support of close group studies.

In this study, it was found that the depression levels of the experimental group patients were mild and the control group patients were moderate. It was found that the anxiety levels of the experimental group patients were mild, while the anxiety levels of the control group patients were severe. It was determined that the stress levels of the experimental group patients were normal, while the stress levels of the control group patients were moderate. The results showed that depression, anxiety and stress levels significantly decreased in the experimental group. In addition, it was determined that patients' chronic diseases and having children affected their DAS level. This study shows that watching movies that are simple, cheap, have no side effects, can be easily applied and non-pharmacological has a significant positive effect on DAS levels in hospitalised patients with COVID-19.

During pandemics such as the COVID-19 pandemic, it is normal for people to feel intense stress and develop some psychiatric symptoms (37). Studies show that COVID-19 patients experience high levels of DASS (15,38-41). Hospitalization with total isolation and uncertainties regarding the course of the disease further increase the DAS levels of the patients.

When the descriptive characteristics of the experimental and control group patients were compared, it was determined that the groups were homogeneous, which increases the reliability of the study (Table 1)

In the control group, no significant difference was found in the mean DASS scores with respect to the descriptive characteristics of the patients (Table 2).

When the mean DASS scores of the patients in the experimental group were analyzed according to the descriptive characteristics, a significant difference was found in the DASS anxiety and stress scores with respect to the number of children. It was determined that patients with seven or more children had higher anxiety and stress scores (Table 3). In the study of Günlü et al., it was determined that 63.5% of the parents showed high levels of DASS during the second wave of COVID-19. Furthermore, 78% of the parents who participated in the study stated that they feared that their child would get infected with the coronavirus (42). As the number of children increases, parents' responsibility increases. Uncertainty regarding the disease course and issues such as who will take care of the children if the parent falls ill and how their needs will be met may be additional factors that lead to increased levels of DASS.

When the mean DASS scores of the patients in the experimental group were analyzed according to the descriptive characteristics, a significant difference was found in the DASS anxiety and stress scores with respect to the presence of a chronic disease. It was determined that patients with chronic diseases had

Table 3: Comparison of DASS Scores According to The Descriptive Characteristics of the Experimental Group

Characteristics	n	DASS Depression	DASS Anxiety	DASS Stress
		$\bar{X}$±SS	$\bar{X}$±SS	$\bar{X}$±SS
Age				
18-24	4	8.25±3.86	6.75±3.77	6.00±3.16
25-34	8	5.62±4.24	3.25±2.05	5.50±3.07
35-44	5	4.40±3.57	3.60±3.36	5.20±2.58
45-54	14	6.28±3.42	4.28±2.75	5.92±3.58
55-64	11	6.72±2.76	5.72±3.03	7.54±3.14
65 age and ↑	11	5.54±3.29	6.36±3.29	6.45±2.69
Test and P value		KW=2.812 p=0.422	KW=3.337 p=0.343	KW=0.147 p=0.986
Gender				
Female	25	5.52±3.33	4.48±3.35	5.92±3.18
Male	28	6.60±3.44	5.42±2.82	6.53±2.99
Test and P value		MWU=288.0 p=0.267	MWU=288.5 p=0.269	MWU= 299.5 p=0.365
Marital Status				
Single	11	7.00±3.50	3.87±2.41	6.00±3.16
Married	42	5.93±3.40	5.17±3.17	6.28±3.09
Test and P value		MWU=147.5 p=0.417	MWU=144.5 p=0.373	MWU=169.5 p=0.793
Number of Children				
Yok	9	7.33±3.42	4.78±3.52	6.11±2.97
1-3	16	4.87±3.48	3.81±2.90	4.62±2.50
4-6	23	5.91±3.38	5.21±2.82	7.08±3.07
7 and↑	5	8.60±1.14	8.00±2.54	7.80±3.49
Test and P value		KW=5.315 p=0.07	KW=6.830 p=0.033	KW=7.361 p=0.025
Place of Residence				
City	30	5.76±3.25	4.43±2.83	5.50±2.58
District	13	7.07±3.52	6.07±3.42	7.76±3.46
Village	10	5.80±3.79	5.20±2.193.29	6.50±3.43
Test and P value		KW=1.222 p=0.543	KW=2.373 p=0.305	KW=4.388 p=0.111
Income Status				
Income<expense	14	6.78±2.80	6.14±3.10	7.42±3.45
Income=expense	33	5.75±3.46	4.39±2.86	5.87±2.89
Income>expense	6	6.33±3.40	5.50±3.93	5.50±2.88
Test and P value		KW=1.141 p=0.565	KW=2.569 p=0.277	KW=2.698 p=0.259
Previous Hospitalization Experience				
No	19	6.98±3.61	4.52±2.95	6.15±2.67
Yes	34	5.64±3.24	5.23±3.18	6.29±3.31

Test and P value		MWU=1.288 p=0.202	MWU=282.5 p=0.448	MWU=320.0 p=0.955
Presence of a Chronic Disease				
Yes	27	5.95±3.06	6.31±2.88	7.54±2.82
No	26	6.19±3.67	4.03±2.91	5.32±2.94
Test and P value		MWU=324.00 p=0.834	MWU=165.00 p=0.002	MWU=187.5 p=0.007
Smoking Status				
Yes	17	5.94±4.02	4.70±2.71	6.00±3.04
No	28	5.82±3.04	4.82±3.22	5.78±3.03
Quit	8	7.37±3.33	6.12±3.52	8.37±2.72
Test and P value		KW=1.237 p=0.539	KW=1.422 p=0.491	KW=4.861 p=0.088

Table 4: Comparison of Depression, Anxiety and Stress Scores of the Groups

	Experimental Group	Control Group	P	
	$\bar{X}$±SS	$\bar{X}$±SS		
DASS- Depression	6.09±3.40	8.84±4.73	t=-3.442	p<0.001
DASS- Anxiety	4.98±3.09	8.93±5.13	t=-4.792	p<0.001
DASS- Stress	6.24±3.07	10.39±4.92	t=-5.205	p<0.001

higher anxiety and stress scores (Table 3). In their study, Özdin and Bayrak Özdin emphasized that among the groups that were most affected psychologically by COVID-19 were those with chronic diseases, and their anxiety levels were higher (43). In their study, Li et al. found that those with chronic diseases had higher anxiety levels (40). Wang et al. determined that a history of chronic disease was significantly associated with higher DAS stress and anxiety subscale scores (12). Moreover, the cause of death due to COVID-19 is usually related to chronic disease, which increases the level of anxiety (44,45). The results of the studies in the literature are consistent with this study's results and support them.

It was determined that the mean DAS scores of the experimental group were lower than those of the control group. The increase in the mean score indicates that the level of DAS increases. In addition, a statistically significant difference was observed between the mean DAS scores of the experimental and control groups (Table 4). Based on the results of this study, we can say that watching comedy movies is effective in reducing DAS levels. The results support the H_0 hypothesis. In the literature, methods such as yoga, (23) cognitive behavioral therapy, (24) progressive muscle relaxation, (25) mandala-coloring, (26) and acupuncture (27) were generally used in studies aimed at reducing DAS in patients with COVID-19, and these methods were found to be effective. Among the randomized controlled studies that use movie-watching as an intervention, Umezawa et al. found that watching movies during colonoscopy reduced anxiety scores in patients (30). In another study, Morales et al. found that watching movies during dialysis reduced the level of anxiety and depression in patients (31). Sogabe et al. found that watching a visual and auditory film during esophagogastroduodenoscopy reduced the anxiety level of patients (32). The results of these studies are consistent with the findings of the present study. Therefore, we believe that the present study is a pioneering study evaluating the effect of watching comedy movies, which can be considered a nonpharmacological method, in hospitalised patients with COVID-19.

Conclusions and Recommandations: It was found that watching comedy movies, which can be considered as a complementary practice for hospitalised patients with COVID-19, significantly decreased the DAS levels of the patients. In addition, it was determined that patients with seven or more children and chronic diseases had higher anxiety and stress scores.

The results of the present study, it can be concluded that hospitalised patients with COVID-19 experience high levels of DAS. As a result, the presence of DAS disorders should be identified in them during hospitalization and attempts should be made to reduce their DAS levels. Healthcare professionals play a major role in identifying DAS in the wards where patients are followed up. In order to overcome this disease with the least damage, patients should be evaluated using appropriate scales and structured clinical interviews. Watching movies is a method that does not have any side effects, is easy to apply, and provides results similar to the results obtained from other complementary applications. Further studies can be conducted with a larger sample group to validate the effectiveness of this method. It could be suggested that the study be conducted in other countries, in wider and different sample groups.

Limitations of the Study: Study is only limited to the patients coming to the pandemic service of the health institution where the study has been conducted. It cannot be generalized to all institutions and regions. The measurements attained from the study are limited to the used scales and the self-reports of the participants.

Acknowledgments: The authors would like to thank their participants.

Funding: No

Conflicts of Interest: The authors declare that there are no conflict of interests.

Authors' Contributions: VEI and AY and were responsible for the conception and design of the study. İÖ, AY and VEI were collected the data. İÖ, AY and VEI were in charge of statistical analysis. VEI, AY and İÖ and drafted the manuscript and approved the final version.

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