

## Research Article / Araştırma

# Effect of health education supported with motivational interviewing on medication adherence of COVID-19 patients receiving home care

## Motivasyonel görüşme ile desteklenen sağlık eğitiminin evde takip edilen COVID-19 tanılı hastaların ilaç tedavisi uyumuna etkisi

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### ABSTRACT

**Objective:** The objective of this study is to determine the effect of health education supported with motivational interviewing on medication adherence of COVID-19 patients receiving home care. **Materials and Methods:** This study was carried out in Gelibolu between the dates of June 2021 - January 2022. Participants who meet the inclusion criteria of the study were assigned to the intervention group (50) and control group (50) using the block randomization method. Data of the study were obtained with the "Sociodemographic Questionnaire Form" and "Medication Treatment Satisfaction Level" which were developed by the researchers according to the literature and also "Medication Adherence Reporting Scale". The "Medicine Calendar" was used to track the drug use status of all participants. Data obtained were evaluated with the statistical analysis of percentage, frequency, mean, Mann Whitney U, Perason Ki Square and Wilcoxon test using SPSS 22.00 program. **Results and Conclusion:** At the end of the study, the mean "Medication Adherence Reporting Scale" score of the participants in the intervention group ( $16.12 \pm 5.37$ ) was higher than the mean score of the participants in the control group ( $9.96 \pm 5.62$ ) ( $p < 0,05$ ). In group comparison; it was observed that the mean score of the "Medication Adherence Reporting Scale" ( $16.12 \pm 5.37$ ) of the intervention group after the study was statistically significantly increased compared to the mean score of the pre-study scale ( $11.02 \pm 4.03$ ) ( $p < 0,05$ ). However, it was evaluated that the mean score of the intervention group was below the cut-off point (20.00) and drug compliance was still at a low level. In the in-group comparison of the control group; it was observed that the mean score of the "Medication Adherence Reporting Scale" ( $9.96 \pm 5.62$ ) after the study decreased statistically significantly compared to the mean score of the pre-study scale ( $11.40 \pm 4.93$ ) ( $p < 0,05$ ). This has demonstrated that health education supported by motivational interviewing provided by nurses is an important component to improve medication adherence.

### ÖZ

**Giriş:** Bu çalışmanın amacı, motivasyonel görüşme ile desteklenen sağlık eğitiminin evde takip edilen COVID-19 tanılı hastaların ilaç tedavisi uyumuna etkisinin belirlenmesidir. **Gereç ve Yöntem:** Bu çalışma Haziran 2021- Ocak 2022 tarihleri arasında Gelibolu' da yürütüldü. Çalışmaya dâhil edilme kriterlerini karşılayan katılımcılar blok randomizasyon yöntemi ile müdahale (50) ve kontrol (50) grubuna ayrıldı. Çalışmada, kontrol grubu standart COVID-19 ilaç tedavisi alırken, müdahale grubuna standart tedavinin yanı sıra; tedavinin ikinci gününde çevrimiçi olarak motivasyonel görüşme ile desteklenmiş sağlık eğitimi yapıldı. Çalışmada veriler; araştırmacılar tarafından literatür doğrultusunda hazırlanan, "Tanıtıcı Bilgi Formu", "İlaç Uyumunu Bildirimi Ölçeği" ve "İlaç Tedavisinden Memnuniyet Düzeyi" anketi ile elde edildi. Tüm katılımcıların, ilaç kullanma durumunu takip edebilmek için "İlaç Takvimi"nden yararlanıldı. Elde edilen veriler; SPSS 22.00 programıyla yüzde, frekans, ortalama, Pearson Ki Kare, Mann Whitney U, Wilcoxon testi istatistiksel analizleriyle değerlendirildi. **Bulgular ve Sonuç:** Çalışma sonunda, müdahale grubundaki katılımcıların "İlaç Uyumunu Bildirimi Ölçeği" puan ortalamasının ( $16,12 \pm 5,37$ ), kontrol grubundaki katılımcıların puan ortalamasından ( $9,96 \pm 5,62$ ) daha yüksek olduğu bulundu ( $p < 0,05$ ). Grup içi karşılaştırmada; müdahale grubunun çalışma sonrası "İlaç Uyumunu Bildirimi Ölçeği" puan ortalamasının ( $16,12 \pm 5,37$ ), çalışma öncesi ölçek puan ortalamasına ( $11,02 \pm 4,03$ ) kıyasla, istatistiksel açıdan anlamlı düzeyde arttığı görüldü ( $p < 0,05$ ). Ancak müdahale grubunun ölçek puan ortalamasının kesme noktasının (20.00) altında kaldığı ve ilaç uyumunun halen düşük düzeyde olduğu değerlendirildi. Kontrol grubunun grup içi karşılaştırmada ise; çalışma sonrası "İlaç Uyumunu Bildirimi Ölçeği" puan ortalamasının ( $9,96 \pm 5,62$ ), çalışma öncesi ölçek puan ortalamasına ( $11,40 \pm 4,93$ ) kıyasla, istatistiksel açıdan anlamlı düzeyde azaldığı görüldü ( $p < 0,05$ ). Bu durum hemşireler tarafından verilen motivasyonel görüşme temelli sağlık eğitiminin ilaç uyumunu arttırmada önemli bir bileşen olduğunu ortaya koymuştur.

#### Key Words:

COVID-19, Health Education, Medication Adherence, Motivational Interviewing

#### Anahtar Kelimeler:

COVID-19, İlaç Uyumunu, Motivasyonel Görüşme, Sağlık Eğitimi

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## INTRODUCTION

Treatment adherence is defined as the individual's behavior is in accordance with the recommendations of health professionals. (Uchmanowicz et al.,2018). It has been reported that the rates of treatment adherence vary between 20-50% especially in chronic diseases and also in psychiatric diseases such as schizophrenia and bipolar disorder (Cakmak and Kapucu, 2021; Ozpulat and Emiroglu 2020; Sartori et al., 2020). In a study evaluating the illness perception of patients hospitalized with a diagnosis of COVID-19, the rate of use of COVID-19 drug therapy was stated as 83.3% (Alankaya & Kurnaz 2022). Decrease in treatment adherence can lead to delayed or lack of desired effects of medications, prolonged illness period, and even death as a result of incorrect use of treatment regimes and cause an increase in healthcare expenses due to unnecessary use of already limited healthcare resources (Uchmanowicz et al., 2018; Chien et al., 2019).

Treatment adherence can be affected by factors related to patients' age, gender, marital status, educational status, employment status, income status, health literacy level, self confidence level, treatment regimen and health system (Uchmanowicz et al., 2018). At the beginning of the factors affecting treatment adherence of COVID-19; There is a limitation in the level of knowledge related to COVID-19 disease and its treatment. Information pollution spreading rapidly from false sources, as well as the absence of a treatment whose efficacy and safety have been proven, may cause patients to develop a negative attitude towards the treatment of COVID-19 (Joukar et al., 2020; Kassie et al., 2020). Another preventive factor in the treatment of COVID-19 is the low severity of the infection and the tolerable symptoms, leading to the behavior of avoiding medical treatment (Azam et al., 2020; Joukar et al., 2020). In the literature, it has been determined that patients do not display health care-seeking behavior and avoid medical treatment until they show serious symptoms (Azam et al., 2020; Antinyan et al., 2020; Joukar et al., 2020).

Early treatment and increasing treatment adherence of COVID-19 cases plays an important role in preventing the pandemic by breaking the chain of infection (Sun et al., 2020; Choi and Jeffers, 2020). In the literature it is reported that treatment adherence can be increased by effective communication and counselling with which healthcare professionals provide sufficient social support, patient-centred approach and do not ignore expectations and beliefs of the patients (Erci and Elibol, 2018; Sartori et al.,2020; Mathes et al., 2017). Today, in addition to tele-healthcare service behavioural interventions which can be used by healthcare professionals to improve treatment adherence are also available. One of these

interventions is motivational interviewing (Yin et al., 2022; Li et al., 2017; Muslu & Ardahan 2017; Sartori et al., 2019; Taibanguay et al., 2019). Motivational interviewing was reported to have a positive effect on medication adherence in the studies in which medication adherence in different patient groups was evaluated (D'souza, et al., 2018; Murali et al., 2019).

Motivational interviewing is defined as a person-centered counseling method for identifying and resolving ambivalence about negative behavior and increasing intrinsic motivation to change behavior (Abadi et al.,2018; Miller and Rollnick, 2013). In recent years, the motivational interviewing method has been widely used to help with treatment and rehabilitation by encouraging healthy living behaviour in patients with smoking addiction, eating disorders and in management of chronic diseases (Cakmak et al., 2021; Liet al.,2020; Tzikas et al., 2020). Studies that investigated patients with chronic or mental illnesses reported that programs supported with motivational interviewing increased patients' treatment adherence (Tzikas et al., 2020; Chen et al., 2018; Ertem and Duman, 2019; Ok and Kutlu, 2021). In studies, the effect of motivational interviewing on treatment adherence in chronic diseases has been investigated, but the effect of motivational interviewing on treatment adherence in acute and infectious diseases has not been examined. In the literature, limited studies designed to determine adherence with the treatment of COVID-19, an acute and contagious disease, have been found. It is thought that the conflicting information in the media and the lack of an approved and definitive treatment method may significantly affect treatment adherence of COVID-19. For this reason, it is predicted that motivational interview-based health education to be given to individuals with low treatment adherence may be effective in increasing treatment adherence. This study intended to evaluate the effect of health education supported with motivational interviewing on medication adherence of COVID-19 patients.

## MATERIALS AND METHODS

### Aim and Design

This study intended to evaluate the effect of health education supported with motivational interviewing on medication adherence of COVID-19 patients receiving home care and was designed as a randomized controlled study.

### Sample

The study was carried out with COVID-19 positive patients followed at home by the Gelibolu District Health Directorate between the dates of June 2021 - January

2022. Researchers evaluated patients to confirm that they meet the inclusion criteria. Study inclusion criteria are listed as follows: age 18 years and older, efficiency in writing and reading Turkish, being a COVID-19 patient receiving home care, possession of necessary equipment and Internet connection for video calls, a score of lower than 20.00 points in the “Medication Adherence Reporting Scale” (MARS) and willingness to be included in the study. The MARS cut off score is 20.00 points, and those whose MARS average score falls below this score are considered to have a low level of drug compliance. Purposive sample selection method was used in the study and participants with low drug compliance level were included in the study. In this study, patients who were contraindicated for the antiviral medication (Favipiravir) (patients with liver failure, kidney failure, patients receiving chemotherapy), pregnant women, patients who were hospitalized for any reason during the study were excluded. In accordance with the results of the study of Cakmak and Kapucu (2022), the sample size was calculated with “G\*Power” program to include 90 participants with 45 participants in each group with  $\alpha=0.05$ ,  $\beta=0.05$ , effect size  $f=0.6$  and 90% power and 95% confidence interval (Cakmak et al., 2021; Gpower). Taking into account potential withdrawals, it was decided to add 10% more participants and with this decision the study population consisted of 100 participants with 50 participants in each group.

## RESEARCH TOOLS

### Sociodemographic Questionnaire Form

This questionnaire form was developed for the participants both in the intervention and control group. The sociodemographic questionnaire form includes questions about sociodemographics such as age, gender, marital status, education, employment status, income level, chronic diseases (7 questions), and patients' complaints about COVID-19 disease, their level of knowledge about the treatment, information sources and self-confidence in treatment adherence (4 questions). MARS was in the other part of the form. MARS was developed by Horne and Hankins (2001) to evaluate patients' medication adherence (Horne & Hankins 2001). The validity and reliability study of the Turkish version of the scale was done by Şen et al. (2019) (Sen et al., 2019). Scale scores range between 5 and 25. In the literature although a score lower than 20 refers to a low medication adherence (Bäck et al., 2021), it is also suggested that the mean score obtained in every study can also be used as a cutting point of that study (Sen et al., 2019). Cronbach  $\alpha$  value of the Turkish version of the scale is 0.78 (Sen et al., 2019). This study calculated the Cronbach  $\alpha$  value as 0.83.

### Medication Satisfaction Questionnaire

The Visual Analogue Scale (VAS) was used on a scale from “0=Not satisfied at all” to “10=Very Satisfied” to determine both the participant's satisfaction level with the health education supported with motivational interview and Standard COVID-19 medication treatment.

### COVID-19 Medication Schedule

COVID-19 medication schedule is a tracking form on which participants can enter daily information only whether they have taken their COVID-19 medication. This was developed by the researchers based on their literature review to monitor medication adherence behaviour of the participants (Cakmak et al., 2021; Tran et al., 2022; Boratas & Kılıç, 2018; Yin et al., 2022). Participants were asked to enter the information whether they take their COVID-19 medication every day for five days on this form.

### Health Education Brochure

In this study, a “Brochure on How to Take COVID-10 Antiviral Drugs” was created for the health education that aims to improve COVID-19 antiviral drug treatment adherence. Related literature was reviewed to develop the education brochure, and the content was developed to meet information needs of the participants and also to identify and discover the dilemmas and ambivalence that are at the core of motivational interviewing and create the need for a behaviour change for treatment (Sartori et al., 2020; Li et al., 2020; Tzikas et al., 2020). The “Brochure on How to Take COVID-10 Antiviral Drugs” was checked and approved by two professors and an associate professor.

The topics included in the “COVID-19 Antiviral Medication User Manual” are;

- What is antiviral drug therapy,
- How to apply antiviral drug therapy,
- What to do in case of forgetting the medication, taking too much or vomiting,
- Food or drug interactions of the antiviral drug,
- Side effects of antiviral drugs,
- Antiviral drug is listed as storage conditions.

### Scope of the interview

First of all, the responsible researcher1 attended the “Motivational Interview Techniques” course given by a qualified and experienced expert in motivational interviewing on February 15-16, 2020. Researcher1 has

successfully completed both the theoretical and practical part of this course. In the content of the training; change process, indecision, the spirit and basic principles of motivational meeting, motivational interview methods and its application. Before starting the implementation of the research, pre-application was made in 15% of the sample size (8 in each group, a total of 16 participants). The data of the participants who were pre-applied were excluded from the study. In the pre-application, it was evaluated that the data collection forms and the health education brochure were clear and understandable, and it was decided that no correction was necessary.

### First Day of Treatment

Patients who were COVID-19 positive and on their first day of their treatment were contacted by phone by the senior researcher and told about this research and asked whether they would volunteer to participate in the study. The researchers evaluated and reviewed to determine whether patients volunteering to participate in the research meet the study inclusion criteria except for the medication adherence level. On the same day, face to face interviews (15-20 min.) were planned with the participants who met the inclusion criteria (Figure 1) .

### Second Day of Treatment

On the second day of the treatment, researchers had video calls with all participants (20-25 min.) First, participants were told that they would be asked questions about their personal information and medication treatment, that there would be no correct or wrong answer in the questions and then encouraged to choose the answers that best suited them. Questions and answer options in the sociodemographic questionnaire and MARS were given to the participants without providing any guidance and the answers of the participants were documented. After the interviews were completed, sociodemographic information of the participants was collected, their MARS scores were evaluated. After the first evaluation, patients who had a mean MARS score of over 20.00 (n=124) were excluded from the research. At this stage, participants were assigned either to the intervention or the control group using the double block single-blind randomization method according to the date of cases (Figure 1.) The CONSORT Statement for Randomised Trials of Non-Pharmacological Treatments standards were adhered to in all stages of the study (Figure 1).

## PROCEDURE

### Intervention Group

On the second day of the treatment, after the phone call,

the participant assigned to the intervention group was interviewed face-to-face during the home visit (10-15 min.). In the face-to-face meeting, the "COVID-19 Medication Use Booklet" was given and it was stated that the participants would be video-talked about the topics included in the booklet at an appropriate time on the same day, and time was planned. The participant was informed that the interview should be in a quiet room so that it would not be interrupted. Then, every video call based on the motivational interviewing principles started by greeting the participant; then the participant was told that the time needed for motivational interviewing was 40-45 minutes according to the "Adult Health Education Principles". (Gunes & Deveci, 2020). Motivational interviewing includes four processes: engagement, focus, awakening, and planning. These processes are related to the flow of conversation between the participant and the MI practitioner. The video call aimed to allow the participant to tell whether they take the antiviral drug, learn their feelings, thoughts and behaviour about the use of this medication, to discover the participant's hesitations and worries about this treatment and understand any resistance for taking this drug, to understand and support the participant's internal motivation, and help the participant to decide about changing behaviour and take action and progress with the change cycle. On the fifth day of the treatment, the participants were asked to fill out the MARS and medication satisfaction questionnaire (intervention) during face to face interviews (10 min.). The participants' "COVID-19 Medication Schedules" on which they entered their fifth day treatment were collected in closed envelopes in accordance with the contact isolation rules.

### Control Group

Participants in the control group after the randomization process continued to receive the healthcare service according to the standard COVID-19 medication treatment procedure determined by the Ministry of Health. Participants in the control group did not receive any intervention in addition to the standard COVID-19 medication treatment procedure. On the fifth day of the treatment, the participants were asked to fill out the MARS and medication satisfaction questionnaire (control) during face to face interviews (10 min.). The participants' "COVID-19 Medication Schedules" were collected in closed envelopes in accordance with the contact isolation rules.

### Statistical Analysis

Data obtained in the research were analyzed using Statistical Package of Social Sciences (SPSS, Inc., Chicago,

IL, USA) 20.0 program. Descriptive statistics are shown in number and percentage for the variables determined with counting (%), mean±standard deviation for the variables determined with measurement (mean±sd) and minimum-maximum (min.-max) values. Since study data was not normally distributed, Mann Whitney U test was used to compare independent variables that included two groups. Wilcoxon test was used to compare in-group medication adherence scores before and after the implementation. Categorical data comparisons between the independent groups in the study were tested with the Pearson Ki-square test. The level of significance was set at  $p \leq 0.05$  for all analyses.

## RESULTS

### Demographics and Clinical Characteristics:

When the intervention group and the control group were compared based on the data obtained at the beginning of the study; groups were found to be similar in age, gender, marital status, education, employment status, income level, chronic diseases, self-confidence in treatment adherence and level of knowledge about the treatment ( $p > 0.05$ ) (Table 1.). The median age of the participants was 41.

### Medication Adherence:

At the beginning of the study, the mean score of the intervention group in MARS was  $11.02 \pm 4.03$  and the mean score of the control group was  $11.40 \pm 4.93$ . A statistical difference was not found between the two groups for MARS mean score at the beginning of the study ( $p > 0.05$ ). MARS mean score of the intervention group was  $16.12 \pm 5.37$ , and MARS mean score of the control group was  $9.96 \pm 5.62$  at the end of the study. MARS mean score of the intervention group was higher than the MARS mean score of the control group at the end of the study (Table 2). For in-group comparisons; MARS mean score of the participants in the intervention group at the beginning of the study was lower than their mean score at the end of the study and there was a statistically significant difference between these two mean scores ( $p: 0.01$ ). In the control group; MARS mean score of the participants in the control group at the beginning of the study was higher than their mean score at the end of the study and there was a statistically significant difference between these two mean scores ( $p: 0.006$ ) (Table 2).

### Satisfaction with Care

At the end of the study, the mean satisfaction score of the participants in the intervention group with the medication treatment together with the health education

supported by motivational interviewing ( $6.71 \pm 1.20$ ) was higher than the mean satisfaction score of the participants in the control group with the standard COVID-19 medication treatment ( $4.28 \pm 1.75$ ) and there was a statistically significant difference between these two groups ( $p: 0.01$ ).

### COVID-19 Medication Schedule

When entries in the participants' medication schedules were reviewed, there was no statistically significant difference between the groups on the first day and second day of the treatment for taking morning medication ( $p > 0.05$ ). There were statistically significant differences between the two groups for taking the morning medication on the third day of the treatment, on the fourth day and on the fifth day of the treatment ( $p < 0.05$ ). The percentage of the participants in the intervention group, who took morning medication dose on the 3., 4. and 5. days of the treatment was higher than the participants in the control group ( $p < 0.05$ ) (Table 3).

There was no difference between the two groups for taking the evening dose of the medication on the first day of the treatment ( $p > 0.05$ ). There were statistically significant differences between the study groups for taking the evening medication dose on the second, third, fourth and fifth days of the treatment ( $p < 0.05$ ). The percentage of the participants in the intervention group, who took evening medication dose on the 2., 3., 4. and 5. days of the treatment was higher than that of the participants in the control group (Table 3).

## DISCUSSION

This study found that there was no statistically significant difference between groups for all the factors affecting medication adherence and the two groups have similar characteristics ( $p < 0.05$ ) (Table 1). Therefore it was concluded that randomization was achieved in the study and confounding factors did not affect the resulting variable. Treatment adherence describes the degree to which a patient accepts and correctly follows medical advice of healthcare professionals about their treatment (Haddad et al., 2018). It is reported that severity of infections and number of complications and hospitalizations can be reduced by ensuring patients' adherence to COVID-19 antiviral medication in Turkey (Naalweh et al., 2017; Tohme et al., 2017).

Another duty of the public health nurses who are essential for prevention and treatment of COVID-19 is to evaluate and plan actions to increase patients' medication adherence with tele-health service (Tanrıverdi et al. 2020). In this present study, satisfaction level of the participants with the health education with motivational

**Table 1.** Distribution of the Groups at the Beginning of the Study by Characteristics (N=100)

Characteristics	Intervention Group (n=50)		Control Group (n=50)		Test Statistic	P
	n	%	n	%		
Gender						
Female	22	44	27	54	1.000	0.317 <sup>a</sup>
Male	28	56	23	46		
Marital Status						
Married	32	64	41	82	4.110	0.061 <sup>a</sup>
Single	18	36	9	18		
Educational Level						
≤8 years	20	40	22	44	0.164	0.685 <sup>a</sup>
<8 years	30	60	28	56		
Working Status						
Working	26	52	22	44	0.641	0.423 <sup>a</sup>
Not working	24	48	28	56		
Income Level						
Income more than expenses	18	36	12	24	1.714	0.190 <sup>a</sup>
Income equal to/less than expenses	32	64	35	70		
Chronic Disease						
Yes	41	82	34	68	2.613	0.106 <sup>a</sup>
No	9	18	16	32		
Age Mean±SD (Min.-Max)	42.44±12.79	(22-69)	42.28±14.81	(19-68)	0.345	0.730 <sup>b</sup>
Self-Confidence in Adherence to Treatment Level of Self-report	3.20±1.34	(0-10)	3.36±1.70	(2-8)	0.180	0.86 <sup>b</sup>
Level of Knowledge About Treatment	3.04±1.67	(0-6)	3.08±1.83	(0-8)	0.455	0.65 <sup>b</sup>

SD= Standard Deviation, min. = minimum value, max. = maximum value

<sup>a</sup>Pearson Chi-Square test

<sup>b</sup>Mann Whitney U test

**Table 2.** Comparison of the Intervention and Control Groups Mean Medication Adherence Reporting Scale Scores (N=100)

Groups	Intervention Group (n=50)		Control Group (n=50)		Test Statistic	P
	Ort. ± SS	Min.- Mak.	Ort. ± SS	Min.- Mak.		
At the beginning of the study MARS	11.02±4.03	5-19	11.40±4.93	5-20	0.278 <sup>b</sup>	0.78
At the end of the study MARS	16.12±5.37	5-23	9.96±5.62	5-25	4.919 <sup>b</sup>	0.01 <sup>*</sup>
Test istatistiği	4.952 <sup>a</sup>		2.595 <sup>a</sup>			
P	0.001 <sup>*</sup>		0.009 <sup>*</sup>			

MARS: Medication Adherence Reporting Scale

<sup>a</sup>Wilcoxon test

<sup>b</sup>Mann Whitney U test

<sup>\*</sup>p<0.05

Table 3. Comparison of the Groups According to the Status of Medicine Use During the Study (N=100)

Characteristics	1. day		2. days		3. days		4. days		5. days	
	Intervention Group (n=50) n(%)	Control Group (n=50) n(%)	Intervention Group (n=50) n(%)	Control Group (n=50) n(%)	Intervention Group (n=50) n(%)	Control Group (n=50) n(%)	Intervention Group (n=50) n(%)	Control Group (n=50) n(%)	Intervention Group (n=50) n(%)	Control Group (n=50) n(%)
<b>I took my medicine in the morning</b>										
Yes	11(22)	16(32)	14(28)	12(24)	31(62)	6(12)	29(58)	9(18)	29(58)	7(14)
No	39(78)	34(68)	36(76)	38(76)	19(38)	44(88)	21(42)	41(82)	21(42)	43(86)
$\chi^2$	1.268		0.208		26.813		16.978		21.007	
P	0.260		0.648		0.001*		0.001*		0.001*	
<b>I took my medicine in the evening</b>										
Yes	9(18)	16(32)	34(67)	8(16)	29(56)	9(18)	29(56)	7(14)	29(56)	7(14)
No	41(82)	34(68)	16(33)	42(84)	21(44)	41(82)	21(44)	43(86)	21(44)	43(86)
$\chi^2$	2.613		27.750		16.978		21.007		21.007	
P	0.079		0.001*		0.001*		0.001*		0.001*	

$\chi^2$ = Pearson Chi-Square Test,  
\*p<0.005

interviewing through video phone calls is higher than that of the participants in the control group, who received standard treatment. In the study of Cakmak and Kapucu, 70% of the participants reported that they were satisfied with the health education and counselling provided through phone calls to improve medication adherence (Cakmak et al., 2021). All patients receiving home treatment, especially COVID-19 patients, need more information about the disease and treatment. Considering the existence of uncertainties regarding COVID-19 disease and its treatment, patients are left with many questions. It is thought that the satisfaction level of the patients is positively affected because the telehealth service is offered together with the motivational interview, which is an effective counseling method, because it is personal and also increases the self-efficacy of the individuals.

Tele-health and tele-nursing which is one of the sub-dimensions of tele-health is a healthcare service which continuously evolves and represents an important step of home care (Keskin & Ozhelvacı, 2022). With planned and well-organized phone calls it is possible to allow patients to control side effects of their diseases, take care of themselves and increase their treatment adherence, to include patients in the decisions taken about their treatment and care processes by improving their quality of life (Keskin & Ozhelvacı, 2022; Çakmak et al., 2021). Today, motivational interviewing is one of the behavioral interventions that can be offered together with tele-health services by healthcare professionals to increase adherence to treatment (Burhenn & Smudde, 2015; Wood, 2012; Spoelstra & Rittenberg, 2015; Li et al., 2017). In this study, the mean medication adherence score of the participants in the intervention group was higher than the mean medication adherence score of the participants in the control group ( $p < 0.05$ ) (Table 2). However, MARS score of the intervention group was lower than the cutting point and their medication adherence level was still low. The mean medication adherence score of the participants in the control group decreased to a level lower than the baseline at the end of the treatment. In the literature it was reported that motivational interviewing increased treatment adherence of patients with diabetes, there were improvements in the metabolic variables, glycemic control and physical activity levels of patients after motivational interviewing (Li et al., 2020; Doğru et al., 2019; Muslu & Ardahan, 2017). In their study with the purpose of determining the effect of motivational interviewing on the life style, body-mass index, blood pressure, self-sufficiency perception and medication adherence of hypertensive people, Ozpulat and Emiroglu (2020) reported that medication adherence of the participants increased and body-mass index and systolic and diastolic blood pressure decreased and life

style improved and self-sufficiency perception increased after motivational interviewing (Ozpulat et al., 2020). In their study on the effect of motivational interviewing on middle age women to encourage them to have the pap-smear test, Abadi et al. (2018) reported that majority of the participants had the test within two months after motivational interviewing (Abadi et al., 2018). Studies have showed that motivational interviewing has been effective in the process of adherence to treatment and healthy behavior change. It is thought that the limited effect of motivational interviewing in our study may be due to the fact that COVID-19 is an acute disease, the short duration of drug treatment, the lack of a definitive and approved treatment, and the conflicting information in the media.

In this study, when medication schedules of the participants, on which the participants entered information whether they took COVID-19 medication on every day were reviewed, the percentage of the participants who took their medications on the first day of the treatment was found to be too low. Follow up evaluations (2. day evening; 3. day morning/evening; 4. day morning/evening; 5. morning/evening) after the health education with motivational interview on the second day of the treatment, the percentage of participants taking the medication in the intervention group was higher than the control group ( $p < 0.05$ ) (Table 3). Approximately 60% of the participants in the intervention group continued to take their medications regularly whereas approximately 90% of the participants in the control group discontinued the medication (Table 3). In Ozpulat's (2015) study, in the first interview, approximately 46% of the antihypertensive individuals in the intervention group whereas the control group; It has been reported that 18% not taken consciously more than ten medications in the last three months. In the last interview, approximately 16% of the antihypertensive individuals in the intervention group whereas the control group; It was stated that 60% of them not taken consciously 1 or 3 drugs. (Ozpulat, 2015). Therefore motivational interviews with the participants in the intervention group may be interpreted to have helped the participants to improve their medication adherence. Based on these findings, the reasons why participants in both groups discontinued the treatment may include the following factors: information pollution about COVID-19 medication treatment from wrong sources, severity of symptoms, very high medication doses, varying dose calculation, adverse effects and shortness of treatment and insufficient number of motivational interviews.

### Strengths of the Study

Studies carried out to evaluate motivational interviewing and increase treatment adherence are mostly done on



people with chronic diseases. The strengths of this study are that this was the first study with the purpose of using motivational interviewing to increase medication adherence in COVID-19 which is an acute and infectious disease and there was no participant withdrawn from the study.

### Limitations of the Study

Online motivational interviewing and data collection due to COVID-19 isolation measures, including of patients who also received previous COVID-19 treatment into the study, insufficient data about the efficacy of the medication, patients self-reporting in the medication schedule, short course therapy with the medication, allowing only one participant for each group per day during the data collection process and conducting the study in a relatively small area are the limitations of this study.

### CONCLUSION

This study has concluded that health education with only one motivational interview during the treatment process of the intervention group had a limited effect on the participants' COVID-19 medication adherence. The frequency of interviews should be increased to make the intervention more effective. Studies that investigate the effect of the motivational interviewing technique which is generally used to improve treatment adherence and increase medication adherence in chronic diseases should be conducted to investigate its effects on acute diseases and medication adherence in acute diseases such as COVID-19 infection. Nurses who provide healthcare services with their medical education and counselling roles, have more direct and one on one contact with patients and affect treatment adherence of patients should receive training on the motivational interviewing technique and this technique should be integrated into the treatment process and healthcare practices.

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