Original Research / Orijinal Araştırma

The Effect of Hand-Washing and Nutrition Education Given to Women with Chronic Diseases Living in Rural Areas During the Covid-19 Pandemic-Randomized Controlled Study

Covid-19 Pandemi Döneminde Kırsal Kesimde Yaşayan Kronik Hastalığa Sahip Olan Kadınlara Verilen El Yıkama ve Beslenme Eğitimin Etkisi-Randomize Kontrollü Çalışma

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Abstract

Objective: This study was conducted to evaluate the effectiveness of handwashing and nutrition education given to women with chronic diseases living in rural areas during the Covid-19 pandemic. Methods: The research is a randomized controlled study and its population consists of women over the age of 18 with at least one chronic disease registered in a Family Health Center of a District in Turkey. A total of 90 women were included in the study, 45 of which were drawn among the volunteers for each group. Hand washing and nutrition training were given to the intervention group, and the questionnaires were filled out again after 3 months. Only routine follow-ups were performed in the control group. For collecting the research data, the Descriptive Information Form, the Social Hand-Washing Knowledge Form, and the Nutritional Knowledge Level Scale for Adults prepared by the researchers by scanning the literature were used. Results: By the groups, the educational status, having children, smoking, alcohol use, monthly income, and working status of the cases do not show a statistically significant difference ($p> 0.05$) and it is seen that both groups are homogeneous. The mean age of women in the intervention group was 54.67±8.17 years, and the mean age of women in the control group was 57.18±9.88 years. The post-training scores of the intervention group in the Social Hand-Washing Knowledge Form and Food Choice were found to be significantly high compared to the cases of the control group ($p=0.001$; $p<0.01$). Conclusion: The training given to the women in rural areas created a significant benefit for them to have the appropriate food choices and hand-washing behaviours. More studies are needed to examine the effects of these interventions (ClinicalTrials.gov-Identifier Number: NCT04957017).

Key words: Covid-19, hand hygiene, attitude, chronic disease, rural area, education, women.

Özet

Amaç: Bu çalışma, Covid- 19 pandemi döneminde kırsal kesimde yaşayan kronik hastalığı olan kadınlara verilen el yıkama ve beslenme eğitiminin etkinliğini değerlendirmek amacıyla yapılmıştır. Yöntem: Araştırma randomize kontrollü bir çalışma olup, evrenini Türkiye'de bir İlçenin Aile Sağlığı Merkezine kayıtlı en az bir kronik hastalığı olan 18 yaş üstü kadınlar oluşturmaktadır. Her grup için gönüllüler arasında kura çekerek 45 olmak üzere toplam 90 kadın çalışmaya dahil edildi. Müdahale grubuna el yıkama eğitimi ve beslenme eğitimi verildi, anketler 3 ay sonra tekrar dolduruldu. Kontrol grubuna sadece rutin takipler yapıldı. Araştırma verilerinin toplanmasında araştırmacılar tarafından literatür taranarak hazırlanan Tanımlayıcı Bilgi Formu, Sosyal El Yıkama Bilgi Formu ve Yetişkinler için Beslenme Bilgi Düzeyi Ölçeği kullanılmıştır. Bulgular: Gruplara göre olguların eğitim durumu, çocuk sahibi olma, sigara, alkol kullanımı, aylık geliri ve çalışma durumu istatistiksel olarak anlamlı farklılık göstermemekte ($p> 0.05$) ve her iki grubun homojen olduğu görülmektedir. Müdahale grubundaki kadınların yaş ortalaması 54,67±8,17, kontrol grubundaki kadınların yaş ortalaması 57,18±9,88'dir. Müdahale grubunun Sosyal El Yıkama Bilgi Formu ve Besin Seçimi'ndeki eğitim sonrası puanları kontrol grubuna göre anlamlı derecede yüksek bulunmuştur. ($p=0.001$; $p<0.01$). Sonuç: Kırsal kesimdeki kadınlara verilen eğitimler, kadınlara uygun besin seçimi ve el yıkama davranışlarında önemli faydalar sağlamıştır. Bu müdahalelerin etkilerini incelemek için daha fazla çalışmaya ihtiyaç vardır (ClinicalTrials.gov-Identifier Number: NCT04957017).

Anahtar kelimeler: Covid-19, el hijyeni, davranış, kronik hastalık, kırsal alan, eğitim, kadın.

Geliş tarihi / Received: 09.04.2022 Kabul tarihi / Accepted: 15.10.2022

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Ucan Yamac S, Terkes N. The Effect of Hand-Washing and Nutrition Education Given to Women with Chronic Diseases Living inRural Areas During the Covid-19 Pandemic-Randomized Controlled Study. TJFMPC, 2022;16(4): 786-797

DOI: 10.21763/tjfmpc.1100837

Introduction

The Coronavirus infection that broke out in Wuhan, China in late 2019 and quickly spread across other countries was named 'Covid-19', the acronym for 'Coronavirus disease 2019', by World Health Organisation (WHO). The Covid-19 agent was named Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) due to its close similarity to SARS-CoV.[1,2] Due to the growing concerns about the rapid spread of the epidemic, WHO declared a pandemic on March 11, 2020.[3]

During the pandemic period, isolation, which has caused people to be away from their routine life, has also resulted in changes in their emotional state and more inactive life. Isolation leads to certain changes in individuals' emotional states and physical activity levels, and the physical and physiological state experienced causes the emotional state and nutritional behaviours to change. It is inevitable for those with emotional deprivation to have an increase in their body weight. It is really important in this period to avoid inappropriate eating behaviours which may be developed based on the changing emotional state and to control the body weight and keep the immune system strong.[4,5]

It is generally stated in the literature that strict compliance with routine measures for inflammatory respiratory diseases reduces the risk of Covid-19 although it is not a verified diagnosis.[6] Hand hygiene, use of gloves, and use of masks and glasses are of vital importance to protect areas such as the nose and oral mucosal surfaces, hair, and outer ear from contamination through mucosal contact and droplets. Furthermore, the necessity of compliance with the standards for wearing protective equipment, sterilization, and cleaning specifications has been emphasized.[7]

Available information demonstrates that the disease is at a critical level, especially in the elderly and those with a chronic disease. Epidemic complications include Acute Respiratory Distress Syndrome (ARDS), arrhythmia, shock, acute kidney damage acute heart damage, liver dysfunction, and secondary infection.[8] Covid-19 causes a unique threat and a major problem for patients with chronic disease. In addition to its severity for all communities, people with a chronic disease are considerably vulnerable to the Covid-19 pandemic.9 The role of healthcare professionals in raising awareness of the public and particularly women with chronic diseases is highly significant.

Healthy eating behaviors, adequate nutritional knowledge, and control of healthy body weight are accepted as the main preventive practices in the protection and development of health and the prevention of chronic diseases. Lack of adequate and balanced nutrition increases the likelihood of developing obesity, diabetes, cancer, and cardiovascular diseases.[10,11] In our country, 59% of women are overweight or obese, and the rate of obese women has increased from 23% to 30% in the last 15 years.[12] When evaluated according to the region they live in, it is seen that the rate of being overweight or obese in rural areas (63%) is higher than that of women living in urban areas (58%).12 The World Health Organization (WHO) states that factors such as an unhealthy diet, high blood pressure, obesity, and insufficient physical activity increase deaths due to non-communicable diseases.[11] During the pandemic, the eating habits of individuals have changed for various reasons. The increased stress and mood changes in individuals during the pandemic have increased the consumption of packaged foods high in simple sugar and trans fat. Increases in snacking frequency between meals and intake of caffeine sources were also observed. This situation both caused an increase in body weight and increased the intake of simple sugar, saturated and trans fats, increasing the risk of chronic diseases.[13]

The current Covid-19 pandemic has seen a focus on education and information on handwashing aimed both at people working within the health sector as well as at the general public. There has been a proliferation of public health messages through various sources about the importance of handwashing, and the correct techniques for handwashing. Memes and short videos aimed at reaching people on their handheld devices, as well as through social media, and mainstream television, radio, print ads, and billboards are all in use, and all with the same message that effective handwashing is crucial to stopping the spread of Covid-19.[14] Handwashing has long been promoted to maintain health and in preventing disease transmission. One of the most valuable ways to communicate messages about handwashing is for educational purposes.[15] How to wash hands is as important as when and how often to wash hands for acquiring proper hand hygiene habits.[16]

For this reason, it is thought that women in rural areas, who have an important place in society, need training on appropriate hand-washing and nutrition during the pandemic period, and the training given to women will improve their behaviours and attitudes in this process. This study is a randomized controlled trial that was conducted to inform, women with chronic disease in rural areas, about hand-washing and nutrition, and to evaluate the efficiency of the training program. It aimed to evaluate the effectiveness of handwashing and nutrition education given to women with chronic diseases living in rural areas during the Covid-19 pandemic

period.

Hypotheses of Research

1. Hypothesis (H1): The hand-washing scores of the women with chronic diseases living in rural areas where the training was applied are higher.
2. Hypothesis (H1): The basic nutritional knowledge level scores of the women with chronic diseases living in rural areas where the training was applied are higher.
3. Hypothesis (H1): The food choice scores of the women with chronic diseases living in rural areas where the training was applied are higher.

Methods

Design

The research is a monocenter, single-blinded randomized controlled experimental study. The study population of the research consists of women with at least one chronic disease registered in a District's Family Health Center. The inclusion criteria were as follows: be female; have a chronic disease; 18 years and older; no disability of verbal communication; agreeing on participating in the study. Our research was performed between August 2020 and January 2021.

Intervention group

The first interview with the participant, applying the measurement tools to obtain baseline data, and providing education were held face-to-face before the participant, complying with the social distance rules before the training. After the data was collected, the women in the intervention group were trained on 'Hand-Washing and Nutrition during the Covid-19 period'. The training on hand-washing and nutrition was given using the 'Hand-Washing and Nutrition Training Guide' prepared by the researchers, and the 'Hand-Washing and Nutrition Training Manual' covering the content of the training, was distributed to the women at the end of the training. The data collection forms were re-filled three months after the training.

Control group

The women with chronic disease were met, and the Descriptive Information Form, Social Hand-Washing Knowledge Form, and Nutritional Knowledge Level Scale for Adults were filled face-to-face with the ones volunteering to participate in the study, complying with the social distance rules. The same survey was re-filled after three months. No training was given to the women with chronic disease during the three months. After the research was completed, a 45 minute-training which is the same as the one provided to the intervention group was given individually to the control group, complying with the social distance rules.

Sample size calculation

The sample was calculated in G Power 3.1.9.7 program before the study started. Considering the parameters of the groups, the effect size was calculated as 0.648. When alpha 0.05 and power (1-beta) were taken as 0.80, a total of 78 participants were found for 2 groups (intervention: 39, control: 39). Considering the possible loss of cases, 90 people in total were included in the study, 45 for each group. Women were informed about the subject and time of the training through family health personnel. For randomization, 45 women were included in the intervention group and 45 women in the control group, drawing a lot among the volunteers. The study flow diagram is summarised in Figure 1.

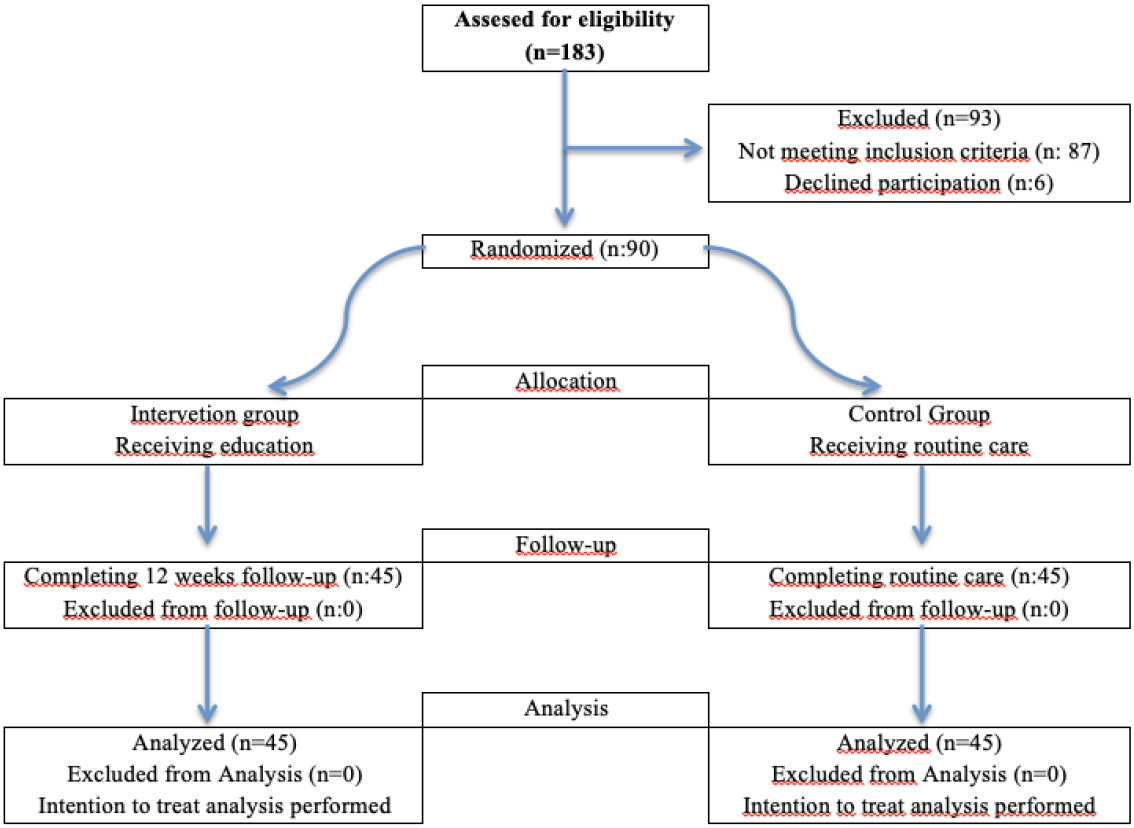

Figure 1. Flow diagram of the randomized controlled study (CONSORT 2010)

Randomization

Simple randomization technique was used as the randomization method. Before collecting data, a randomization list was created using the https://www.randomizer.org/ website. In addition, the analyses were made by an expert statistician. Researchers were not included in the data analysis. Participants did not know the part of the study they were involved in. Participants were also unaware of the hypotheses of the study and were blinded because they were not informed about the hypotheses or aims of the study.

Outcome measures

The Descriptive Information Form (8 questions), the Social Hand-Washing Knowledge Form (11 questions), and the Nutritional Knowledge Level Scale for Adults (32 items) prepared by the researchers by scanning the literature were used for collecting the research data.[5,17-19]

The Nutritional Knowledge Level Scale for Adults (NKLSA) developed by Batmaz in 2018 and whose validity and reliability was studied, the 20 statements under the heading 'Basic Nutritional and Food-Health Knowledge' and 12 statements under the heading 'Food Choice' were responded to using one of the following: strongly agree, agree, neither agree nor disagree, disagree and strongly disagree. The participants who responded to the appropriate statements by 'strongly agree' got 4 points; those who 'agreed' with these statements got 3 points; those who neither agreed nor disagreed got 2 points; those who disagreed got 1 point, and those who strongly disagreed with them got 0 points. The participants who responded to the inappropriate statements by 'strongly agree' got 0 points; those who 'agreed' with these statements got 1 point; those who neither agreed nor disagreed got 2 points; those who disagreed got 3 points, and those who strongly disagreed with them got 4 points. The maximum score that can be obtained from the 'Basic Nutritional and Food-Health Knowledge' is 80, and the maximum score to be obtained from the 'Food Choice' is 48. The reliability

coefficient Cronbach's Alpha=0.72 for the 'Basic nutrition' section of YETBİD was found to be Cronbach's Alpha =0.70 for the 'Nutrition preference' section. 20 In our study, the internal consistency of the scale was determined as α=0.626 before the training, while it was determined as α=0.812 after the training. The scores of the women participating in the study in the total sub-dimension of Food Preference ranged from 22 to 48 before the education, with an average of 34.74 ± 6.00, after the training it ranged from 26 to 48, with an average of 42.02 ± 5.06. While the internal consistency of the scale was determined as α=0.856 before the training, it was determined as α=0.826 after the training.

Social Hand-Washing Knowledge Form was created by the researchers by scanning the literature,[10-12] and the authors received expert opinions from 3 academic members for the content validity of the knowledge statements. The answers given to the questions were scored as No '0', Occasionally '1', and Yes '2'. Question 11 included in our survey was reversely scored. The lowest score to be obtained from our survey was 0 and the highest score was 22. As we considered it more comprehensible to convert this score into a hundred scale and make our evaluations over 100 points, we evaluated the total score obtained by each case through converting it into a hundred scale.

Data analysis

NCSS (Number Cruncher Statistical System) 2007 program was used for statistical analysis. Descriptive statistical methods (mean, standard deviation, median, frequency, percentage, minimum, maximum) were used when evaluating the study data. The conformity of quantitative data to normal distribution was tested by the Shapiro-Wilk test and graphical analysis. Student t-test was used for the comparison of the normally-distributed quantitative variables between two groups, while the Mann-Whitney U test was used for the comparison of the quantitative variables without normal distribution between two groups. The Kruskal-Wallis test was used for the comparison of the quantitative variables without normal distribution between more than two groups. The Wilcoxon signed-ranks test was used for within-group comparisons of the quantitative variables without normal distribution. Pearson's chi-square test, Fisher's exact test, and Fisher-Freeman-Halton exact test were used to compare the qualitative data. Spearman correlation analysis was used to evaluate the relationships between the quantitative variables. Statistical significance was considered as $p<0.05$.

Ethical considerations

In order to carry out the research, ethical approval was obtained from a university non-interventional clinical research ethics committee (Date: 20.08.2020; Decision No: GO 2020/192) before starting the research. The approval of the Scientific Research Evaluation Commission of the Ministry of Health was obtained for conducting the study. The written consent of all participants involved in the research was obtained. The identities of the participants were kept secret.

Results

The educational status, having children, smoking, alcohol use, monthly income, and working status of the cases do not show a statistically significant difference by the groups ($p>0.05$) and it is seen that both groups are homogeneous.

Table 1. Evaluation of Demographic Characteristics by Groups

		Groups		
		Invervention	**Control**	***p***
Age	*Min-Maks (Median)*	37-72 (54)	32-77 (58)	[a]***0.192***
	Mean±Sd	54,67±8,17	57,18±9,88	
Educational Status	**Primary school**	34 (75.6)	39 (86.7)	[b]***0.454***
	Middle School	4 (8.9)	2 (4.4)	
	High school	5 (11.1)	4 (8.9)	
	University	2 (4,4)	0 (0.0)	
Child	**Yes**	44 (97.8)	40 (88.9)	[c]***0.203***
	No	1 (2.2)	5 (11.1)	
Cigaret	**Uses**	9 (20.0)	9 (20.0)	[d]***1.000***
	Not using	36 (80.0)	36 (80.0)	
Alcohol	**Uses**	1 (2.2)	0 (0.0)	[c]***1.000***
	Not using	44 (97.8)	45 (100.0)	
Monthly Income	**≤1500 TL**	0 (0.0)	3 (6.7)	[b]***0.068***
	1500-3000 TL	12 (26.7)	9 (20.0)	
	3000-5000 TL	27 (60.0)	20 (44.4)	
	≥5000 TL	6 (13.3)	13 (28.9)	
Working Status	**Never worked**	3 (6.7)	2 (4.4)	[b]***1.000***
	Still working	25 (55.6)	24 (53.3)	
	Not working	10 (22.2)	11 (24.4)	
	Retired	7 (15.6)	8 (17.8)	
Chronic Disease	**Blood pressure**	26 (57.8)	35 (77.8)	***b0.007***
	Type 2 Diabetes	7 (15.6)	6 (13.3)	
	Obesity	0 (0.0)	1 (2.2)	
	Arthritis	4 (8.9)	0 (0.0)	
	COPD	0 (0.0)	2 (4.4)	
	Blood Pressure + Diabetes	8 (17.8)	1 (2.2)	

[a]*Student-t Test* [b]*Fisher Freeman Halton Test* [c]*Fisher's Exact Test*
[d]*Pearson Chi-Square Test* ***p<0,01*

Table 2. Distribution of the Answers Given to the Questions of Social Hand-Washing Knowledge Form Questions

Form Questions		Intervention		Control	
		Pre-training	Post-training	Pre-training	Post-training
		n (%)	n (%)	n (%)	n (%)
I use soap and water while washing my hands.	Yes	38 (84.4)	45 (100)	38 (84.4)	38 (84.4)
	Sometimes	7 (15.6)	0 (0)	7 (15.6)	7 (15.6)
I wash my hands with soap for at least 20 seconds.	Yes	5 (11.1)	44 (97.8)	12 (26.7)	12 (26.7)
	No	10 (22.2)	0 (0)	10 (22.2)	9 (20)
	Sometimes	30 (66.7)	1 (2.2)	23 (51.1)	24 (53.3)
While washing my hands, I take off my jewellery such as rings, watches, bracelets.	Yes	3 (6.7)	19 (42.2)	9 (20)	9 (20)
	No	30 (66.7)	0 (0)	31 (68.9)	21 (46.7)
	Sometimes	12 (26.7)	26 (57.8)	5 (11.1)	15 (33.3)
While washing my hands, I clean by rubbing between the fingers without forgetting my thumb, and I clean the palm and back of the hand by rubbing them.	Yes	4 (8.9)	41 (91.1)	10 (22.2)	(0)
	No	20 (44.4)	0 (0)	28 (62.2)	10 (22.2)
	Sometimes	21 (46.7)	4 (8.9)	7 (15.6)	21 (46.7)
I wash my hands before cooking and eating and after eating.	Yes	45 (100)	45 (100)	45 (100)	45 (100)
I wash my hands before using the toilet.	Yes	11 (24.4)	45 (100)	14 (31.1)	44 (97.8)
	No	8 (17.8)	0 (0)	9 (20)	0 (0)
	Sometimes	26 (57.8)	0 (0)	22 (48.9)	1 (2.2)
I wash my hands after using the toilet.	Yes	45 (100)	45 (100)	45 (100)	45 (100)
After cleaning my nose and coughing/ sneezing, I wash my hands.	Yes	39 (86.7)	45 (100)	44 (97.8)	44 (97.8)
	Sometimes	6 (13.3)	0 (0)	1 (2.2)	1 (2.2)
I wash my hands as soon as I get home.	Yes	42 (93.3)	45 (100)	40 (88.9)	40 (88.9)
	Sometimes	3 (6.7)	0 (0)	5 (11.1)	5 (11.1)
Hand-washing is important for my health and for maintaining my health.	Yes	26 (57.8)	45 (100)	28 (62.2)	29 (64.4)
	No	4 (8.9)	0 (0)	3 (6.7)	3 (6.7)
	Sometimes	15 (33.3)	0 (0)	14 (31.1)	13 (28.9)
Hand-washing damages skin structure.	Yes	5 (11.1)	0 (0)	9 (20)	2 (4.4)
	No	18 (40)	45 (100)	18 (40)	31 (68.9)
	Sometimes	22 (48.9)	0 (0)	18 (40)	12 (26.7)
Social Hand-Washing Knowledge Score	Pre-training	*Min-Max*	45.5-100	45.5-100	***[a]0.623***
		Mean±SD	70.10±12.98	71.52±14.16	
	Post-training	*Min-Max*	90.9-100	63.6-100	***[e]0.001*****
		Mean±SD	96.87±3.04	79.39±10.90	
		Difference	26.77±12.68	7.88±6.60	***[e]0.001*****
		p	***[f]0.001*****	***[f]0.001*****	

[f]Wilcoxon Signed Ranks Test

Table 1 shows the distribution of the answers given by the participants, involved in the study, to the 'Social Hand-Washing Knowledge Form' by pre- and post-training groups. The total scores that were obtained by the intervention group of the cases involved in the study from the Social-Hand Washing Data Form ranged from 45.5 to 100 with an average of 70.10 ± 12.98 before the training, and it ranged from 90.9 to 100 with an average of 96.87±3.04 after the training. The total scores obtained by the control group from the Social-Hand Washing Data Form ranged from 45.5 to 100 with an average of 71.52±14.16 before the training, and it ranges from 63.6 to 100 with an average of 79.39±10.90 after the training.

No statistically significant difference was found between the pre-training scores of the cases by groups in the Social Hand-Washing Knowledge Form ($p > 0.05$). The post-training scores of the intervention group in the Social Hand-Washing Knowledge Form were found to be significantly high compared to the cases of the control group ($p=0.001$; $p<0.01$). The average increase of 26.77 ± 12.68 units in the post-training scores of the intervention group compared to their pre-training scores was found to be statistically significant ($p= 0.001$; $p<0.01$). The average increase of 7.88±6.60 units in the post-training scores of the control group compared to their pre-training scores was found to be statistically significant ($p= 0.001$; $p<0.01$). The change in the post-

training scores of the intervention group compared to their pre-training scores was found to be statistically and significantly higher than those obtained by the cases of the control group (p= 0.001; p <0.01) (Table 2).

Table 3. The Relationship Between Scale Sub-Scale Scores

		Basic Nutritional Knowledge Score			
		Intervention		Control	
		r	*p*	r	*p*
Food Choice Score	**Pre-training**	0.466	***0.001*****	0.622	***0.001*****
	Post-training	0.474	***0.001*****	0.219	***0.147***

r=Spearman's Korelasyon Katsayısı ***p<0.01*

In the intervention group, a positive correlation of 0.466 (the higher the Basic Nutritional Knowledge level score, the higher the Food Choice score) between the pre-training scores of the participants obtained from the sub-scales of Basic Nutritional Knowledge Level and the Food Choice was found to be statistically significant (r= 0.466; p= 0.001; p<0.01). A positive correlation of 0.474 between the post-training scores of the participants obtained from the sub-scales of Basic Nutritional Knowledge Level and the Food Choice was found to be statistically significant (r=0.474; p=0.001; p<0.01) (Table 3).
In the control group, a positive correlation of 0.622 between the pre-training scores of the participants obtained from the sub-scale of Basic Nutritional Knowledge Level was found to be statistically significant (r=0.622; p=0.001; p<0.01), while no statistically significant relationship was found between their post-training scores obtained from the sub-scales of Basic Nutritional Knowledge Level and the Food Choice (r=0.219; p=0.147; p>0.05) (Table 3).

Table 4. Scores of Basic Nutrition Knowledge Level and Food Preference Sub-Dimensions Before and After Training According to Groups

			Groups		
			Intervention	**Control**	***p***
Basic Nutritional Knowledge Score	**Pre-training**	*Min-Max*	43-68	45-68	[e]*0.001***
		Mean±SD	51.64±5.01	55.40±5.93	
	Post-training	*Min-Max*	61-80	47-74	[e]*0.001***
		Mean±SD	73.80±3.38	60.58±6.88	
		Difference	22.16±5.24	5.18±5.02	[e]*0.001***
		p	[f]*0.001***	[f]*0.001***	
Food Choice Score	**Pre-training**	*Min-Max*	22-48	29-48	[e]*0.001***
		Mean±SD	32.09±4.92	37.40±5.86	
	Post-training	*Min-Max*	41-48	26-48	[e]*0.001***
		Mean±SD	45.18±1.95	38.87±5.25	
		Difference	13.09±4.45	1.47±2.42	[e]*0.001***
		p	[f]*0.001***	[f]*0,001***	

*[a]Student-t Test, [e]Mann Whitney U Test, [f]Wilcoxon Signed Ranks Test **p<0.01*

The pre-training scores that were obtained by the intervention group from the sub-scale of Basic Nutritional Knowledge Level were found to be significantly lower compared to those of the control group cases (p=0.001; p<0.01). The post-training scores that were obtained by the intervention group cases from the sub-scale of Basic Nutritional Knowledge Level were found to be significantly higher compared to those of the control group (p=0.001; p<0.01). The average increase of 22.16±5.24 units in the post-training scores of the intervention group compared to their pre-training scores was found to be statistically significant (p= 0.001; p<0.01). The average increase of 5.18±5.02 units in the post-training scores of the control group compared to

their pre-training scores was found to be statistically significant (p=0.001; p<0.01). The change in the post-training scores of the intervention group compared to their pre-training scores was found to be statistically and significantly higher than those obtained by the cases of the control group (p=0.001; p <0.01) (Table 4). The pre-training total scores that were obtained by the intervention group from the sub-scale of Food Choice were found to be significantly lower compared to those of the control group cases (p=0.001; p<0.01). The post-training total scores that were obtained by the intervention group from the sub-scale of Food Choice were found to be significantly higher (p=0.001; p<0.01). The average increase of 13.09±4.45 units in the post-training scores of the intervention group compared to their pre-training scores was found to be statistically significant (p= 0.001; p<0.01). The average increase of 1.47±2.42 units in the post-training scores of the control group compared to their pre-training scores was found to be statistically significant (p= 0.001; p<0.01). The change in the post-training scores of the intervention group compared to their pre-training scores was found to be statistically and significantly higher than those obtained by the cases of the control group (p= 0.001; p <0.01) (Table 4). Figure 2 shows graphically the distribution of the basic nutritional knowledge level and food choice scores by groups.

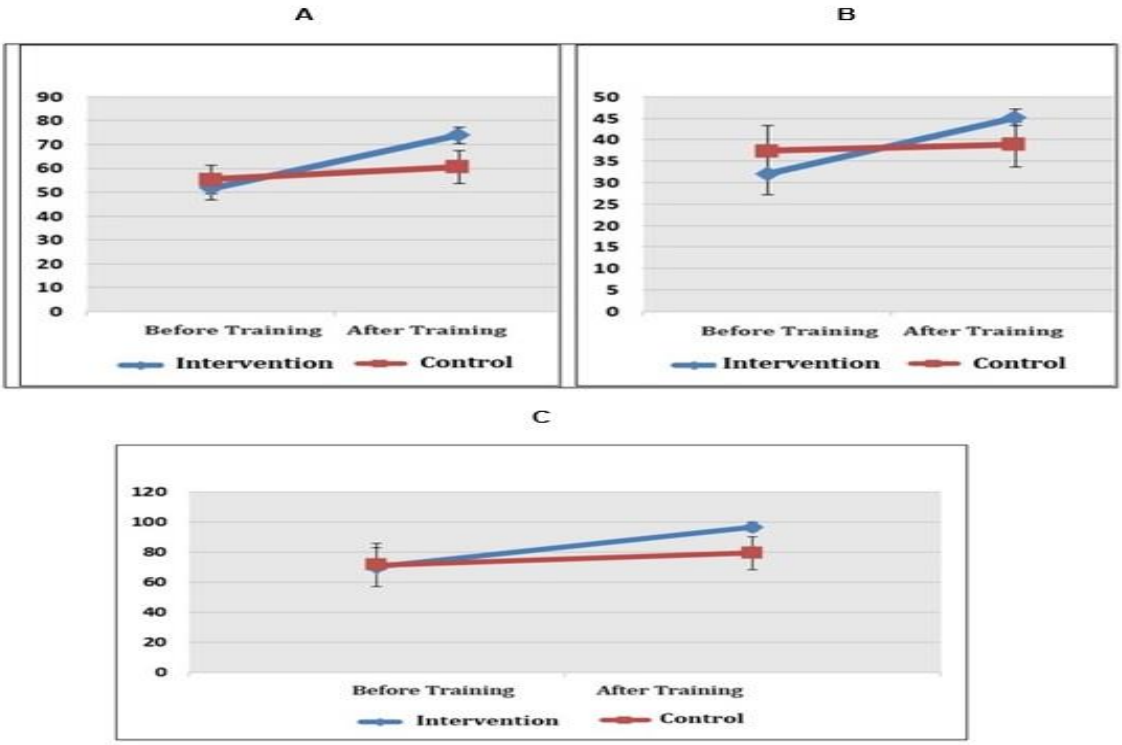

Figure 2. Distribution of Basic Nutrition Knowledge Level (A), Food Choice (B), and Social Hand-Washing Knowledge (C) Scores by Groups

Discussion

This study was conducted to inform, women with chronic diseases in rural areas, about hand-washing and nutrition, and to evaluate the efficiency of the training program. Covid-19 causes a unique threat and a major problem for patients with chronic disease. In addition to its severity for all communities, people with a chronic disease are considerably vulnerable to the Covid-19 pandemic.[9] Hands have an important role in the spread of infectious diseases. Although hand washing is highly important in the control of respiratory and gastrointestinal diseases, the frequency of hand washing is still found to be low by the studies carried out in the world and in our country. For this reason, women in particular should perform hand-washing

appropriately.[18] Hand-washing has become an increasingly significant issue. The relationship between hand-washing and disease prevention and the spread of Covid-19 is especially important.[22,23]

Considering the distribution of the answers given to the questions of the Social Hand-Washing Knowledge Form in our study, it is seen that the average score of the social hand-washing knowledge level of women before the training is significantly higher than the post-training scores. It shows that this difference is in favour of the post-training skill score and that the training has positively improved the knowledge level of women. It also emphasizes the significance of frequent hand-washing during the ongoing Covid-19 epidemic, particularly after coughing, sneezing, and blowing your nose. Kaya et al. (2019) revealed that the pre-training median of the students' knowledge level of hand hygiene was 70.0, and their post-training median was 80.0, and they found a statistically significant difference between pre-training and post-training knowledge levels.[21] Varghese et al (2020) reached the result that the training on hand-washing was effective in improving the knowledge about hand-washing and its importance among adolescents.[25] Uğurlu et al. (2020) found out that during the Covid-19 epidemic, the knowledge of 79.8% of the participants about hand-washing improved, and 89.4% of them had increased hand-washing frequency.[26] Another study stated that 40.0% of women could make their family members wash their hands before eating, 73.0% after using the toilet, and 40.0% after coming from outside.[21] Sending personal reminders on hand washing behaviour contributes to hand washing behaviour. Moreover, taking habit strength and goal importance, and to a lesser extent self-control into account is important when designing interventions to promote hand-washing behaviour.[27] It is considered that as hand-washing training and post-training feedback increase, compliance with hand hygiene will also be improved positively, and accordingly, compliance with hygienic hand washing especially by midwives and nurses working in rural areas will increase.

Nutrition is one of the important issues to focus on today. Nutrition is defined as the use, of food eaten, in the body to sustain life and protect health. Namely, it is a behaviour aiming to obtain, the nutritional elements needed by the body, in sufficient amounts and at the appropriate time, to protect health and improve the quality of life.[28] During the epidemic process, healthy individuals should also be provided with an adequate and balanced diet, especially to support the immune system.[29]

We should spend the pandemic process by eating less and moderately, consuming pulp (fruits and vegetables) and boiled vegetables easy to digest. We should first avoid uncontrolled eating. Since we spend the day at home, we do not consume much energy and we do not need much to eat. We may have the desire to overeat due to the stress caused by staying at home. We can overcome this state of anxiety not by eating food but by reading books, exercising, and doing various pursuits. We generally skip our liquid consumption with liquids such as tea, coffee, fruit juice, and soup. For liquid consumption, it is essential to drink water. We neglect drinking water. Since we are physically restricted at home, our body remains inactive and does not sweat enough. We need to perceive drinking water as a duty.[30]

In our study, while the scores of the subjects from the sum of Basic Nutrition Knowledge Level and Food Preference were found to be moderate before the training, it was found to be very good after the training. Education has increased the level of knowledge. The quasi-experimental study, conducted by Davarani et al (2020) on 400 women, determined a positive and significant relationship between knowledge and nutritional habits, knowledge, and attitude, attitude, and eating habits before the intervention. After the intervention, the average knowledge scores, attitudes, and eating habits increased significantly.[31] In the study of Sim et al. (2012), the average nutritional knowledge score increased from 9.3 to 17.7 (90%) after the training.[32] In the study of Saltekin (2022), it has been observed that individuals' fear of COVID-19, nutritional knowledge level, and healthy lifestyle behaviors are affected by various sociodemographic characteristics and there is a weak relationship between them.[33] Studies conducted in Turkey also reveal that nutrition education is effective in increasing the level of nutrition knowledge while also gaining healthy eating habits.[34,35] Our study found that the nutrition training we gave to chronic patients during the pandemic period positively affected the nutritional knowledge and food choices of the patients.

There are a few limitations to our study. The trial sample will only represent women who had a chronic disease. The findings will not be generalizable to all women. Another potential limitation of this trial is that only women could be included in the study. The fact that it was conducted in a single-family health center is another limitation of this study.

Conclusion

In conclusion, the face-to-face training given to women with chronic diseases in rural areas created a significant benefit for them to have the appropriate food choices and hand-washing behaviours. Therefore, the

training that aims to allow all women with chronic diseases to adopt the appropriate hand hygiene and nutritional behaviours should be scheduled by midwives and nurses, and the continuity of home visits should be maintained during this pandemic period. In particular, Family Physicians also provide mobile services to Health Centers located in rural areas, and primary healthcare services need to plan nutrition and hygiene education together with family health personnel.

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