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INVESTIGATION OF PREVENTIVE BEHAVIORS IN THE BEGINNING TERM OF COVID/19 PANDEMIC, EVIDENCE FROM TURKEY

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Abstract

Aim: In this study, it is aimed to determine the level of compliance of individuals to preventive health behaviours before, during and, after the pandemic in order to interrupt or reduce the spread of the virus in the Covid-19 pandemic.

Methods: This study is a descriptive and cross-sectional study. "Demographic Information Form" and "Questionnaire of Health Behaviors Regarding Influenza" were used as data collection tools. The questionnaire form prepared was designed as 16 questions, 5-point Likert type. The questionnaire contains the answers of the participants regarding the 14 rule implementation situations before, during and after the flu. The universe of this study was individuals living in 81 provinces in Turkey between 1-9 April 2020. In this study, snowball-sampling method was used. The data were collected with an online questionnaire

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on google forms. 517 people were surveyed from 81 cities in Turkey. In the analysis SPSS 25.0 statistical software was used to evaluate the data.

Results: As a result of the evaluation of the Health Behavior Towards Flu test results; the Cronbach Alpha (α) values were found (0.78) before, during (0.86) and after (0.83). When the participant's compliance with the 14 rules in influenza according to demographic variables was examined according to their learning of these rules, it was determined that; gender, literate in terms of education and housewives made a significant difference in the course (before-during-after) of the pandemic. In addition the application situations of the participants before-during-after learning the 14 rules in influenza were compared; while the information was effective during (ilness) and after (ilness) the informing process and was statistically significant (p<0.05); a low level and significant correlation was found in the influenza prevention behaviors of the participants before and during the pandemic (r =.351 p<,000).

Conclusion: The results showed that in the Covid-19 Pandemic, the adaptation of the society to preventive health behaviors increased; It also shows that individuals will continue to adapt to preventive health behaviors in the presence of common cold/flu-like infectious diseases that they may encounter in the future after the pandemic.

Keywords: COVID-19 Pandemic, Preventive Health Behavior, Influenza, Descriptive Analysis

INTRODUCTION

Influenza (flu) is a state of illness that occurs in immunocompromised individuals as a result of influenza viruses acting on the respiratory system. Although influenza is seen in all individuals; its effects (death, sequelae, etc.) vary according to the risk status of the individuals (age, weight, obesity, etc.). Influenza viruses are defined in four types, A, B, C and D. While influenza A viruses can cause diseases in humans, pigs, horses, and poultry; B viruses are seen in humans, C in pigs and humans and D in cattles. The genetic structure of influenza viruses changes over time and gains the ability to be transmitted from person to person and causes epidemics/pandemics by affecting a large number of people whose immunity is not developed. There have been many pandemics in world history, but five of these pandemics have taken place in the literature. The Spanish flu of 1918-1919, the H2N2 strain of 1957-1963, the Hong-Kong flu of 1968-70, the Russian flu of 1977, the 2009 H1N1 swine flu and the current has been Covid-19 pandemic. Each pandemic has epidemiologically different characteristics. While the 1957 flu had more impact on the children's group; the 1968 flu affected all age groups. In terms of deaths; Especially the Spanish

flu in 1918 effected 500 million people and death 50 million people from this diseases (Camcıoğlu, 2010).

In early 2020, the World Health Organization (WHO) reported that the world is facing a new virus (coronavirus), a potential pandemic agent. This virus, which is an etiologically positive-stranded RNA virus, was thought to originate from bats. While the disease was initially defined as non-fatal pneumonia, it is defined as Covid-19 disease with a mortality rate of 3.4% (Buruk&Ozlu, 2020).

In late 2019 it began diseases in China, in March of 2020 to 75% of the world (including Turkey) spread. Later, with the determination of etiological factors and accumulation, WHO decided to name the disease caused from SARS-CoV-2 as Covid-19, based on the data on the number of cases and diseases, and in March 2020, the coronavirus epidemic was declared as a pandemic.

Covid-19 first case in Turkey Turkey Ministry of Health (TMH) by the first death was reported on March 11, 2020. TMH announced that it spread all over Turkey on March 23, 2020 and the number of cases that infected 27069 and also reported that 574 people lost their lives Covid-19 pandemic (Sağlık Bakanlığı, 2020).

The virus could be found in the respiratory systems secretions of the patients one or two days before onset of the clinical symptoms and two weeks after the symptoms of the disease.
In addition, the presence of the virus had been shown in whole blood, serum, urine, and fecal samples and reported that pediatric patients accommodated the virus in their feces for one month (Young et al, 2020; Chang et al.2020; To et al.,2020; Peng et al., 2020; Cai et al., 2020).
Although the first route of transmission of the disease has not been determined yet, it was reported that it could be transmitted from person to person as a result of contact with the droplet path, the body surface containing the virus and inanimate environments nowadays (Buruk&Ozlu, 2020). The incubation period of the virus had been reported to be an average of 6.4 days (between 2.1 and 11.1 days) (Backer et al., 2020).

Contamination plays an important role in the transmission of the virus. The important point in preventing contamination; to provide individuals with general hygiene habits through hand washing, disinfection of contaminated surfaces in the home environment and environmental disinfection practices within the scope of infection prevention and control measures.

1. BACKGROUND

1.1. The Struggle Against Pandemic in Turkey

In Turkey the first pandemic legislation has been made at 2006 for regarding measures to be taken against the bird flu; then, in 2019, the second legal regulation was prepared for the influenza pandemic. The common point of these legislations are the definition of Pandemic National Preparedness Plans and Pandemic Provincial Preparation and Action Plans and the continuation of the activities according to these plans (HSGM, 2019; Sağlık Bakanlığı, 2020b; AÇSHB, 2021).

Within the scope of the control of the Covid-19 pandemic in line with the relevant Pandemic Plans, The Ministry of Health regulates the roles to be undertaken by the Central and Provincial Organizations with the Covid-19 Guides and corporate official correspondence, which they regularly update. In these guidelines, titles have been determined within the scope of National Level Infection Protection and Control Measures. One of these headings is defined as "Making habits in the society with suggestions for general hygiene habits". Since the beginning of the pandemic process, interventions have been developed by the Ministry of Health through public service announcements, regulations and different media in order to change behavior in society, especially in four subjects. These issues are the use of masks outside the home, ensuring continuous compliance with hygiene rules, especially hand hygiene, maintaining social distance outside the home and isolation.

In this study, it is aimed to determine the level of compliance of individuals to preventive health behaviours before, during and after the pandemic in order to interrupt or reduce the spread of the virus in the Covid-19 pandemic.

2. RESEARCH METHODOLOGY

This study is a descriptive and cross-sectional study. The aim of this research is to determine how individuals behaviour when they met with cold/flu. The universe of this study was individuals living in 81 provinces in Turkey between 1-9 April 2020. In this study, the *snowball*-sampling method was used. The data was collected using an online questionnaire on google forms. 517 people were surveyed from 81 cities in Turkey.

"Demographic Information Form" and "Questionnaire of Health Behaviors Regarding Influenza" were used as data collection tools.

***Demographic Information Form*:** This form, which was created by scanning the literature, included general questions about the participants' age, gender, education levels, jobs, and marital status.

Questionnaire of Health Behaviors Regarding Flu: In the study the questionnaire had been prepared to determine health behaviors for the common cold / flu. This form used in the study was prepared by the researchers using the Ministry of Health (2020) Covid-19 guide, which contains 14 rules against the new coronavirus risk. The questionnaire form prepared was designed as 16 questions, 5-point Likert type, and the participants were asked to mark between 1 and 5 how much they agreed with each item (1 = Strongly disagree to 5 = Strongly agree). The questionnaire had 3 stages. In the first stage, how individuals behave when they have had a cold / flu in the past; The second stage was prepared to measure how it behaves today, and the third stage to measure how they would have behave in the future. The questions in the questionnaire contain the answers of the participants regarding the 14 rule implementation situations before, during and after the flu. The increase in the scores obtained from the questionnaire indicates that the participant's belief in the relevant item increases. The total variance of the questions belonging to the Health Behaviors Scale to Flu scale and the questionnaire containing 14 rules was 49.19% and within the scope of internal consistency, the reliability coefficient Cronbach Alpha (α) was found to be 0.85 for all questions. In the analysis, IBM SPSS 25.0 statistical software was used to evaluate the data.

The data were collected online by using google forms via the internet, taking into account the presence of quarantine due to the epidemic. The explanation regarding the filling of data collection forms was made in the first part of the forms and it was stated that the questionnaires should be answered during the 7-day period between 1-9 April 2020. In the study, to fill/respond the survey form took about 7-10 minutes.

Ethics committee approval was taken from Istanbul Sabahattin Zaim University Etic Committee (2020/07). Information on Informed Consent; before applying the survey, the participants were informed online and the participants who gave their consent reached the survey questions.

The distribution of the questions in the Demographic Information Form was evaluated by using descriptive analysis such as frequency, percentage, and scale scores as mean and standard deviation. Before the analysis, Kolmogorov-Smirnov test used to determine the normal distribution

of the data and the results revealed a normal distribution of the data. In the case of two groups in the comparison of quantitative data, the "t" test was used for independent samples in the comparison of parameters between groups. The results were evaluated at 95% confidence interval and $p< 0.05$ significance level.

3.FINDINGS

In the study; the average age of 517 participants was 84.1% were in the 30-50 age group and 75.4% were women, 43.5% (n = 225) of the participants were civil servants, 77.8 % were university and upper graduates (n = 402), and 78.1% (n=404) were married (Table 1).

Table 1. Socio-demographic Situation (n = 517)

Variables	SS	n	%
Gender	Female	390	75.4%
	Male	127	24.6%
Age	18-30 years	32	6.2%
	31-40 years	164	31.7%
	41-50 years	271	52.4%
	51 and upper	50	9.7%
Education status	Literate	5	1.0%
	Primary Education	22	4.3%
	High School	88	17.0%
	University	278	53.8%
	Upper Graduate	124	24%
Job	Civil Servant	225	43.5%
	Public Worker	10	1.9%
	Private Sector	123	23.8%
	My Own Business	24	4.6%
	Retired	31	6.0%
	Unemployed	9	1.7%
	Housewife	75	14.5%
	Student	20	3.9%
Marital status	Married	404	78.1%
	Single	113	21.9%

As a result of the evaluation of the Health Behavior Towards Flu test results; the Cronbach Alpha (α) values were found (0.78) before, during (0.86) and after (0.83). As a result of the evaluation of the research data, the total score of the participants' compliance with the rules before knowing the 14 rules in influenza was $\bar{X} = 3.76 \pm 0.629$; the total mean score of the 14 rules in flu during illness was $\bar{X} = 4.42 \pm 0.710$; after learning the 14 rules, it was determined that the total average score of

obeying the rules in the event of having influenza was $\bar{X} = 4.57 \pm 0.997$. According to these findings, it was determined that before the participants learned the 14 rules, the average score of applying the rules in the event of getting influenza was lower than during and after (Table 2).

Table 2. Health Behavior Scores Towards Flu and Internal Consistency Coefficients (n = 517)

	Before		During		After	
Status of applying protective measures	$\overline{X}$	**SD**	$\overline{X}$	**SD**	$\overline{X}$	**,633**
Washing hands frequently with soap and water for at least 20 seconds	3,56	1,04	4,48	,902	4,67	,737
Washing hands after coughing and sneezing	3,89	1,20	4,48	,892	4,62	,632
Keeping a distance of at least 3-4 steps from people with cold symptoms	3,56	1,21	4,55	,836	4,67	,708
Covering the mouth and nose with a disposable tissue when coughing or sneezing	3,77	,861	4,42	,913	4,63	,585
Using the inside of the elbow if there is no handkerchief when coughing or sneezing	3,98	1,24	4,58	,797	4,72	,700
Trying not to touch eyes, mouth and nose with hands	3,21	,921	4,40	,895	4,62	,741
Avoiding close contact such as handshaking and hugging	3,61	1,23	4,58	,866	4,59	,694
Frequent ventilation of their environment	4,23	1,07	4,66	,681	4,69	,901
Washing clothes at 60-90 degrees with normal detergent	3,21	1,21	4,17	1,05	4,35	,85
Paying attention to avoid contact with children, the elderly, and people with chronic diseases when cold symptoms are experienced	4,11	,916	4,14	1,05	4,38	,662
Cleaning frequently used surfaces such as door handles, fixtures, sinks daily with water and detergent	2,90	,947	4,66	,761	4,66	1,00
Not going out without wearing a mask when experiencing cold symptoms	1,99	1,06	3,96	1,24	4,19	,732
Not sharing personal items such as towels	3,74	,953	4,50	,912	4,61	,649
To consume plenty of fluids	4,17	1,04	4,49	,868	4,63	,710
Paying attention to sleep patterns	3,99	1,20	4,48	,820	4,58	,725
Applying to a healthcare facility in case of persistent fever, cough and shortness of breath	3,74	1,21	4,30	,876	4,54	,717
Before-During-After Overall Total Score Average	$\overline{X}$		**SD**		**Cronbach Alpha (α)**	
Before	3,76		,629		0,78	
During	4,42		,710		0,86	
After	4,57		,997		0,83	

When the participants' compliance with the 14 rules in influenza according to demographic variables was examined according to their learning of these rules (Table 3), it was determined that;

- Gender made a significant difference and the difference was due to women ($p > 0.05$)

- According to education level there was a statistically significant difference between before and during the illness ($p< 0.05$) and this difference was caused by the average scores of those who were literate in terms of education.
- According to current employment status; there is a statistically significant difference during and after the current employment status ($p< 0.05$) and the difference stems from those who are housewives (Table 3).

Table 3. Comparison of the Demographic Characteristics of the Participants and the Averages of Practice Before-During-After Learning the 14 Rules in Flu (n=517)

	Practice Before Learning 14 Rules in Flu		**Learning the 14 Rules and Applying During Flu**		**Learning the 14 Rules and Applying After Flu**	
	$\overline{X}$	**SD**	$\overline{X}$	**SD**	$\overline{X}$	**SD**
Gender						
Woman	3,93	1,53	4,52	,618	4,64	,590
Man	2,92	1,77	4,12	,876	4,37	,576
t	3,911		4,698		4,531	
P	,000**		,000**		,000**	
Age						
18-28	3,54	,415	4,45	,416	4,49	,431
29-39	3,70	,663	4,50	,654	4,61	,562
40-50	3,60	,634	4,38	,794	4,58	,645
51 and upper	3,58	,559	4,34	,509	4,43	,512
F	1,122		1,221		1,447	
P	,340		,302		,228	
Education Status						
Literate	4,15	,624	4,94	,131	4,55	,513
Primary education	3,99	,568	4,54	,489	4,57	,507
High school	3,62	,639	4,23	,864	4,51	,642
University	3,58	,601	4,45	,625	4,60	,481
Postgraduate	3,64	,660	4,43	,789	4,56	,790
F	3.127		2,601		,451	
P	,015*		,035*		,772	
Marital Status						
Married	4,44	,721	4,59	,617	3,63	,629
Single	4,33	,663	4,53	,518	3,61	,616
t	1,615		917		,308	
P	,124		,406		,758	
Current Employment Status						
Public officer	3,64	,635	4,46	,665	4,66	,505
Public Worker	3,22	,397	2,76	1,52	2,91	1,69
Private sector	3,56	,662	4,36	,754	4,44	,529

Own Business	3,53	,563	4,21	,537	4,54	,415
Retired	3,57	,568	4,46	,367	4,52	,392
Unemployed	3,77	,453	4,54	,404	4,76	,467
Housewife	3,74	,626	4,69	,425	4,78	,395
Student	3,73	,530	4,29	,714	4,51	,705
F	1,459		11,523		17,333	
P	,180		,000**		,000**	

With the t-test analysis conducted in the study, the application situations of the participants before-during-after learning the 14 rules in influenza were compared; it was determined that the information was effective during (ilness) and after (ilness) the informing process and was statistically significant (p< 0.05). A low level and significant correlation was found in the influenza prevention behaviors of the participants before and during the pandemic (r =, 351 p< ,000). A low level and significant correlation was found in the influenza prevention behaviors of the participants before and after the pandemic (r =, 305 p< ,000). In addition, a significant difference was found in the behavior of individuals before and during the pandemic (Table: 4)

Table 4. Results of "t" test

	Paired Differences				**t**	**Sig. (2-tailed)**
	Mean	**Std. Deviation**	**95% Confidence Interval of the Difference**			
			Lower	**Upper**		
Before - During	-,79480	,76487	-,86095	-,72865	-23,604	,000**
Before – After	-,94956	,72170	-1,01191	-,88720	-29,916	,000**
Paired Samples Correlations						
	Correlation		**Sig.**			
Before - During	,351		,000**			
Before - After	,305		,000**			

4. CONCLUSIONS AND RECOMMENDATIONS

Pandemic is an important phenomenon that negatively affects activities that are vital for the state and community. Depending on the perception of pandemic severity, education, work order and public order may deteriorate (HSGM, 2019). When evaluated from a historical perspective, the fact that viruses that cause pandemics act independently of time and place seriously threatens social life. In addition to the effects of the current Covid-19 pandemic on mortality and morbidity (Çınar&Ekinci 2022), it emphasizes the importance of combating pandemics in the socio-economic destruction at the country level.

In the fight against viruses that cause pandemics, it is possible to implement preventive health behaviors and to develop vaccines and drugs. In this context, preventive and therapeutic drugs for the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus have started to be developed as of the second quarter of 2020. As of March 2021 While there are 276 studies with different phase studies over the clinical trial; 10 studies were found under the title of drugs that completed Phase 3 and Phase 4 (Sofosbuvir plus Ledipasvir, remdisevir etc.). The number of vaccines developed for preventive treatment has reached six (Clinical Trial gov.tr., 2021). Globally, over 115 million reported cases and 2.55 million deaths since the start of the Covid-19 pandemic and vacained only %0.72 of total population in the World (ews.google.com. 20219). Considering the limitations of the drugs and vaccines developed for the treatment of Covid-19, the effect of the virus on mortality and morbidity, and the fact that the virus progresses through different mutations, it is still possible to evaluate preventive health practices as the most effective solution against to diseases.

This study was conducted to examine the inviduals compliance to preventive health behaviors in the Turkey. As a result of the evaluation of the research data was determined that;

- According to these findings, it was determined that before the participants learned the 14 rules, their adaptation to preventive health behaviors in the event of getting influenza was lower than during and after.
- There was a significant level of awareness increase compared during and after the pandemic in adaptation to protective health behaviors of individuals to before (average increase 27%).
- The highest increase in compliance with protective health behaviors was determined in the item of "Not going out without wearing a mask when experiencing cold symptoms" (98% during and 110% after).
- The second highest increase in compliance with protective health behaviors was determined in the item of "Cleaning frequently used surfaces such as door handles, fixtures, sinks daily with water and detergent" (60% during and 60% after).
- The lowest increase in compliance with protective health behaviors was determined in the item of "Avoiding close contact such as handshaking and hugging" (26% during and 27% after).

- The other lowest increase in compliance with protective health behaviors was determined in the item of "Frequent ventilation of their environment" (10% during and 10% after).

When the participants' compliance with the 14 rules in influenza according to demographic variables was examined according to their learning of these rules, it was determined that; Gender, literate in terms of education and housewives made a significant difference in the course (before-during-after) of the pandemic

In addition the application situations of the participants before-during-after learning the 14 rules in influenza were compared; while the information was effective during (ilness) and after (ilness) the informing process and was statistically significant ($p< 0.05$); a low level and significant correlation was found in the influenza prevention behaviors of the participants before and during the pandemic ($r= ,351$ $p< ,000$).

Literature had shown that the level of adaptation of health professionals to preventive health behaviors in communicable diseases such as flu ect. was good. Thus in a study in which 67 studies were examined, it was concluded that compliance with hygiene rules and the use of masks were effective to break in or reduce the spread of respiratory viruses (Jefferson et al., 2011).

In a study evaluating the effect of community-wide use of masks in the control of 2019 coronavirus disease, it was revealed that wearing a mask in the community could contribute to the control of Covid-19 by reducing the transmission of saliva and respiratory droplets (Cheng, 2020). In a study on MERS-CoV to evaluate the reduction of transmission of MERS-CoV outbreaks among healthcare professionals; it was determined that regular wearing of surgical masks had reduced the transmission of MERS-CoV (Ki et al.,2019).

In a study conducted to estimate the preventive behaviors of 761 healthcare workers (HCWs) against Covid-19 based on the Protection Motivation Theory (PMT); Preventive behaviors against Covid-19 among HCWs have been evaluated at a relatively desirable level (Bashirian et al., 2020).

In another study, their intent to follow the recommendations of health authorities was robust and ranged from 68% to 83% for different preventive measures (Anaki D, Sergay J. 2021). Washing hands, the most popular preventive behavior, was exercised by only 62% of participants(Anaki D, Sergay J. 2021). Only 10% applied more than four preventive measures

(Anaki&Segay, 2021). Similar to this result a study, 88% of subjects reported using more than four (out of six total) preventive measures (Zhan et al., 2020).

In this study, we investigated the theoretical structure of health behavior in covid-19 disease and its relationship with various demographic variables. Although studies evaluating adaptation to protective health behaviors at the communal level are rarely encountered in the literature, the results of this study are accepted in accordance with the literature.

In addition to the fact that the Covid-19 virus will undergo new mutations in this process and continue its effects in the long term; by ensuring the sustainability of compliance with infection prevention and control measures at the social level; it seems possible to reduce the spread of infection in the community and the number of cases that will become infected in the early stages of the disease. In this context it is recommended that;

•Adding the training for protection from infectious diseases such as influenza etc. to the routine basic health education like such as oral and dental health hygiene training in the school

•To consider demographic characteristics, employment structure, educational status etc. when planned the training,

•To continue training in Preventive health behaviors compliance rules in pandemic,epidemic etc. in cases

4.1. Limitations of the Study

- This study was conducted in the early stages of the Covid-19 pandemic.
- Preventive health behaviors compliance rules for the Covid-19 pandemic were limited to the rules prepared by the Ministry of Health.

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