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Original Article

Status of Scabies Cases in COVID-19 Pandemic Days

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Received 19 Mar 2021 Accepted 10 Jun 2021	Abstract Background: In Turkey, an increase of scabies cases was detected since the last quarter of 2019. During the same period, Turkey was also under the influence of the COVID-19 pandemic affecting the whole world. This study aimed to determine the current situation of scabies cases in increasing incidence during COVID-19 pandemic days and to create a scientific resource for the measures to be taken. Methods: This descriptive study was carried out in July 2020 and the records of patients diagnosed with scabies in health institutions in Kırklareli Province between Jan 2017-June 2020 were retrospectively analyzed. Results: Average number of cases before Sep 2019, when cases began to exceed the expected value, was calculated as 31.7 ± 12.0 and after Sep 2019 it was calculated as 129.8 ± 53.6 ($P < 0.001$, CI 95%). The number of scabies cases which increased before the pandemic and reached the epidemic level, decreased dramatically in Mar and Apr 2020. This period was also the period in which the measures taken for the COVID-19 pandemic were most strictly applied. In May and June, the epidemic continued from where it left off. Conclusion: COVID-19 pandemic which affects the whole world may create a new opportunity to combat infectious diseases. Not only for COVID-19 but also many infectious diseases, it is necessary to fix the negative socioeconomic and socio-cultural conditions and ensure the sustainability of the new social conditions to be created.
Keywords: Scabies; COVID-19 pandemic; Turkey	
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Introduction

Scabies is an infectious disease caused by *Sarcoptes scabiei* var. hominis. Generally, the infestation occurs by skin-to-skin contact or, less commonly, by contact with infected objects like clothing, towels,

bedsheets and blankets (1). Although it varies according to the socio-cultural and socioeconomic status of the societies, it can be seen in all races and age groups and both genders (2). The rate of spread of the disease may vary de-



pending on social behavior, access to adequate health services, and migration movements. In addition, the individual's shelter and personal hygiene conditions are important in spreading the disease (3). For example, in previous studies, conditions such as insufficient health education, overcrowded living conditions, sleeping together, sharing clothes and towels, poor hygiene practices, malnutrition and traveling to areas where scabies are common or migration from those regions have been reported as risk factors (4). The public may perceive scabies as a simple skin disease that causes pain and itching. However, it is a life-threatening disease that can cause serious complications and death by infecting skin lesions with bacteria (5). WHO estimated scabies to affect more than 200 million people at any time, globally (6).

In Turkey, the news of increased cases of scabies towards the end of 2019 began to rise (7-9). In addition to these media news, statements were made by official health institutions to inform the public that the frequency of the disease increased (10). Even a parliamentary question was given to the Turkish Grand National Assembly in Feb 2020 (11). The increase in scabies was statistically significant were also published (12,13).

On the other hand, WHO, on Jan 30, 2020, declared "the outbreak to be a public health emergency of international concern" for New Coronary Virus Disease (COVID-19), not previously reported in humans (14). In the following days, due to the rapid spread of COVID-19 cases in many countries, a pandemic was declared on Mar 11, 2020 (15). On the same date, the first COVID-19 case in Turkey was confirmed. Campaigns have been initiated immediately to increase the level of knowledge and awareness of the society on issues such as social distancing, personal hygiene measures to prevent the disease (16).

We aimed to determine the current situation of scabies cases in increasing incidence during COVID-19 pandemic days and to create a scientific resource for the measures to be taken.

Materials and Methods

Kırklareli, where our study was conducted, is a province located in northwestern Turkey, with a border crossing with Bulgaria. It is on the possible road route of irregular migrants who want to move to Europe due to being a border province. In addition, there is a removal center where irregular migrants are hosted in the province. According to the Turkey Statistical Institute (TSI) data, by the end of 2019, the province has a population of 361,836, of which 259,302 live in urban areas, and 102,534 live in rural areas (17).

Our descriptive study was carried out in July 2020. The records of patients diagnosed with scabies in health institutions in Kırklareli between Jan 2017-June 2020 were retrospectively analyzed. In addition, the data of the study were accessed through the Provincial Health Directorate's parasitic and zoonotic diseases records. Only anonymized data were used, and no individual patient data were accessed.

The collected data were recorded with Microsoft Excel and evaluated using SPSS (Chicago, IL, USA). Descriptive statistics and Kruskal Wallis, Mann Whitney U, Chi-Square tests were used to analyze the data. In determining the statistical significance, *P*-values of 0.05 and below were considered significant. In determining the outbreak, arithmetic averages of the number of cases seen in previous years have been accepted as "expected value."

This study was conducted with the permission of Kırklareli Provincial Health Directorate Research Applications Examination and Evaluation Commission (dated Mar 10, 2020, and numbered 2020/18) and Kırklareli University Institute of Health Sciences Ethics Committee (dated May 04, 2020, and numbered 2020-15).

Results

Overall, 1,838 scabies cases had been diagnosed with scabies in Kırklareli Province (Table 1).

Table 1: Scabies cases by years

<i>Years</i>	<i>The Population of Province</i>	<i>Number of cases</i>	<i>Incidence (per hundred thousand)</i>	<i>P</i>
2017	356.050	249	69,9	<0.001
Variation (n, %)	4.810 (1,4)	19 (7,6)	4,4	
2018	360.860	268	74,3	
Variation (n, %)	970 (0,3)	434 (161,9)	119,7	
2019	361.836	702	194,0	
2020 (First Six Months) *	-	619	-	-

* Since the population of the first six months is unknown, the incidence has not been calculated.

55.9% (n=1.027) of all cases were men and 44.1% (n=811) were women ($P<0.001$). In the distribution by age groups, the incidence of scabies was generally higher in men, but it was higher in women in some age groups. As an

example, in the 20-24 age group, the incidence of scabies in men (n=223) was 2.62 times more than in women (n=85), whereas, in the 50-54 age group, it was 1.68 times more in women (n=57) than in men (n=34) (Table 2).

Table 2: The distribution of cases by years and age groups

<i>Age Groups</i>	<i>Years</i>								<i>Total</i>	
	<i>2017</i>		<i>2018</i>		<i>2019</i>		<i>2020*</i>		<i>n (%)</i>	<i>P</i>
	<i>n (%)</i>	<i>P</i>	<i>n (%)</i>	<i>P</i>	<i>n (%)</i>	<i>P</i>	<i>n (%)</i>	<i>P</i>		
0-4	5 (2.0)		10 (3.7)		30 (4.3)		21 (3.4)		66 (3.6)	
5-9	8 (3.2)		10 (3.7)		30 (4.3)		17 (2.7)		65 (3.5)	
10-14	17 (6.8)		14 (5.2)		41 (5.8)		33 (5.3)		105 (5.7)	
15-19	28 (11.2)		22 (8.2)		51 (7.3)		54 (8.7)		155 (8.4)	
20-24	34 (13.7)		64 (23.9)		103 (14.7)		107 (17.3)		308 (16.8)	
25-29	20 (8.0)		21 (7.8)		64 (9.1)		47 (7.6)		152 (8.3)	
30-34	16 (6.4)		12 (4.5)		44 (6.3)		28 (4.5)		100 (5.4)	
35-39	17 (6.8)		13 (4.9)		62 (8.8)		40 (6.5)		132 (7.2)	
40-44	22 (8.8)	$P<0.001$	15 (5.6)	$P<0.001$	49 (7.0)	$P<0.001$	38 (6.1)	$P<0.001$	124 (6.7)	$P<0.001$
45-49	11 (4.4)		11 (4.1)		44 (6.3)		43 (6.9)		109 (5.9)	
50-54	15 (6.0)		8 (3.0)		32 (4.6)		36 (5.8)		91 (5.0)	
55-59	14 (5.6)		15 (5.6)		42 (6.0)		30 (4.8)		101 (5.5)	
60-64	12 (4.8)		12 (4.5)		35 (5.0)		33 (5.3)		92 (5.0)	
65-69	13 (5.2)		13 (4.9)		32 (4.6)		37 (6.0)		95 (5.2)	
70-74	3 (1.2)		10 (3.7)		18 (2.6)		18 (2.9)		49 (2.7)	
75-79	5 (2.0)		11 (4.1)		12 (1.7)		21 (3.4)		49 (2.7)	
80-84	6 (2.4)		4 (1.5)		8 (1.1)		11 (1.8)		29 (1.6)	
85 and over	3 (1.2)		3 (1.1)		5 (0.7)		5 (0.8)		16 (0.9)	
Total	249		268		702		619		1838	

* First six months

During the study period, the quarter with the lowest incidence (n=38) was Apr-Jun 2017, while the highest (n=332) quarter was Jan-Mar

2020. The distribution of the number of cases by gender and quarterly periods of the years is shown in Table 3.

Table 3: The distribution of the number of cases by gender and quarterly periods of the years

Years	Gender	First Quarter n (%)	Second Quarter n (%)	Third Quarter n (%)	Fourth Quarter n (%)	Total n (%)	P
2017	Female	33 (13.3)	18 (7.2)	30 (12.0)	41 (16.5)	122 (49.0)	0.987
	Male	36 (14.5)	20 (8.0)	30 (12.0)	41 (16.5)	127 (51.0)	
	Subtotal	69 (27.7)	38 (15.3)	60 (24.1)	82 (32.9)	249 (100.0)	
2018	Female	17 (6.3)	19 (7.1)	20 (7.5)	44 (16.4)	100 (37.3)	0.094
	Male	47 (17.5)	38 (14.2)	30 (11.2)	53 (19.8)	168 (62.7)	
	Subtotal	64 (23.9)	57 (21.3)	50 (18.7)	97 (36.2)	268 (100.0)	
2019	Female	56 (8.0)	57 (8.1)	70 (10.0)	134 (19.1)	317 (45.2)	0.679
	Male	81 (11.5)	62 (8.8)	80 (11.4)	162 (23.1)	385 (54.8)	
	Subtotal	137 (19.5)	119 (17.0)	150 (21.4)	296 (42.2)	702 (100.0)	
2020	Female	150 (24.2)	122 (19.7)	-	-	272 (43.9)	0.504*
	Male	182 (29.4)	165 (26.7)	-	-	347 (56.1)	
	Subtotal	332 (53.6)	287 (46.4)	-	-	619 (100.0)	

* Comparison of the first and second quarters

Considering the distribution of the cases by months, the number of cases followed a fluctuating course throughout our study period, which was higher in the first and last quarters

of the years compared to the other quarters. However, this fluctuation turned into an increasing trend in the last quarter of 2019 (Fig. 1).

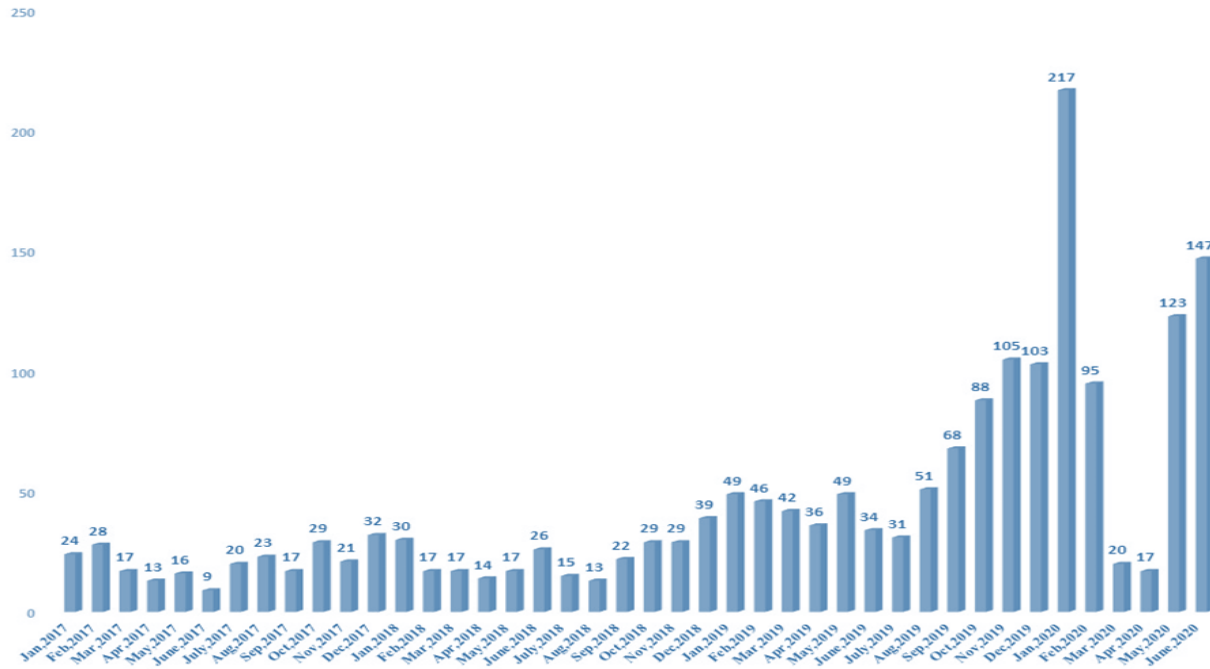


Fig. 1: The distribution of cases by months

When the expected values were calculated to interpret the increase in the number of cases, the expected number of cases per year was 21 for 2017, 22 for 2018 and 59 for 2019 (P

<0.05). Therefore, the average number of cases before Sep 2019, when cases began to exceed the expected value, was calculated as

31.7±12.0, and after Sep 2019 it was calculated as 129.8±53.6 ($P<0.001$, CI 95%).

Discussion

WHO defines a disease outbreak as the occurrence of disease cases over normal expectancy (18). The "expected level" for a disease is the level observed, not the desired. The desired level is zero for each disease. However, the disease may continue to appear at this level indefinitely, assuming that the current level is not high enough to consume the pool of susceptible people when there is no intervention. At this point, the concept of endemic, which means the constant presence and/or usual prevalence of a disease or infectious agent in a given population within a given geographic area emerges (19). Our findings showed that scabies is an endemic infestation for our study area. However, the increase that started in Sep 2019 exceeded the expected values and reached its highest level in Jan 2020. The incidence of the disease had increased at the level of the outbreak. This finding is also compatible with a study carried out with the participation of twelve tertiary health institutions in Turkey, which states the increase in the number of scabies as an outbreak (20).

During this period, following the first COVID-19 case reported on Mar 11, 2020, in Turkey, measures on "social distancing" started to be taken. In the one week following the detection of the first COVID-19 case, education was interrupted at all schools, including universities, prayers in congregations at mosques were suspended, including the Fri prayer. Entertainment venues were temporarily closed and travel from/to all countries where the number of cases increased was banned. Afterward, a partial curfew was declared for senior citizens aged 65 and over and those with chronic diseases. Those who were not obliged to go out have been encouraged to stay at home and working from home has been promoted. Twenty-two days after the

first case was detected, travel restrictions started for thirty-one provinces inhabited by approximately 78% of the population of Turkey and all domestic flights also stopped. One day later, the group of 20 yr old and under was included in the partial curfew. In addition, free financial assistance was provided to all who declared that they needed financial assistance. Financial support measures were implemented for those who lost their jobs. Thus, it was tried to eliminate the economic barriers in the combat against disease. This continued until the "normalization calendar" was announced on May 4, 2020. As of that date, a new period started with the slogan "Controlled Social Life", with the opening of workplaces temporarily closed, curfews and travel restrictions were lifted (21).

Throughout our working period, changes in the scabies outbreak trend in Turkey were considered to be remarkable in terms of overlaps with changes in the measures taken for the COVID-19 outbreak. The number of scabies cases that increased before the pandemic and reached the epidemic level decreased dramatically in Mar and Apr 2020. However, in May and June, the epidemic continued from where it left off.

The correlation between the two events is not proof that there is a cause-and-effect relationship between them. Therefore, of course, the measures taken for the pandemic cannot be said to stop the scabies outbreak. However, it is a fact that suggestions for the prevention of the COVID-19 epidemic are also necessary to eliminate the risk factors of scabies, such as inadequate health education, overcrowded living conditions, poor hygiene practices, and traveling to areas where scabies are common or migration from those areas.

The concept of health literacy is defined as the cognitive and social skills capacity required for individuals to access health-related information to maintain and improve their wellness and understand and use the information (22). Extensive studies to measure the overall

health literacy of the society have been carried out in Turkey. "Turkey Health Literacy Survey" conducted in 2014 showed that about two-thirds of the population does not have an adequate health literacy level (23). In the results of "Turkey Health Literacy Survey Levels and Related Factors" conducted in 2018, approximately 7 out of 10 people across the country have low levels of health literacy (24). With the public spots published due to the pandemic, activities for creating awareness in public on paying more attention to personal hygiene rules, such as washing hands regularly for at least twenty seconds, social distancing, etc. have increased. However, the most important teachings of pandemic days to us is "For combating communicable diseases that concern the overall population, it is necessary to take measures from the personal level to the social level and ensure its continuity".

The limitations considered when evaluating our study results are that it is based on records and cannot provide evidence to explain the cause-and-effect relationships.

Conclusion

The COVID-19 pandemic, which affects the whole world, may create a new opportunity to combat infectious diseases. It is crucial to benefit from this period in which the health awareness of the society increases to increase the level of health literacy. It has been concluded that not only for COVID-19 but also for many infectious diseases, it is necessary to fix the unfavorable socio-economic and socio-cultural conditions and ensure the sustainability of the new social conditions to be created.

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Conflict of interest

The authors declare that there is no conflict of interests.

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