

# Impact of COVID-19 pandemic in dermatology outpatient visits

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## ABSTRACT

The COVID-19 pandemic lockdown measures significantly affected the readiness of dermatology patients to contact health services. However, such trends have yet to be documented in Albania. To this aim, we collected the relevant information about all patients who sought medical help at the dermatology clinic, University Hospital Center “Mother Teresa”, in Tirana, Albania, during 2019–2021 and compared outpatient visits trend across the years. A total of 7,807 patients have been consulted in our dermatology clinic during this period. Compared to 2019, the number of visits decreased significantly by 72% in 2020 and 57% during 2021. The ratio of visits by gender Male/Female, for the three years, was 1:1.1, 1:1.3, and 1:1, respectively. The age group >65 years old had more frequently visited our clinic but its weight within all patients dropped by 5 percentage points during the pandemic. Patients from Tirana had frequented more often the outpatient unit in 2019 and 2021. In conclusion, the pandemic situation due to COVID-19 had an unprecedented impact on Dermatology Service in our university tertiary center. There were significant reductions in the number of outpatient visits, and other differences with regard to patients’ demographic characteristics.

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## 1. INTRODUCTION

The COVID-19 pandemic period and lockdown measures significantly affected the healthcare system utilization virtually across all countries [1]–[3]. The reduction of healthcare utilization mostly affected non-life-threatening disease appointments, including dermatologic diseases [4], [5]. Although the majority of developed countries have reported their pandemic experience, it is vital to generate further evidence and not to regress our vigilance, especially when it comes to countries with low health capacities [1], [6]–[9].

Albania is a small post-communist country located in South East Europe (SEE). The first COVID-19 case was identified on March 8, 2020. During the pandemic, Albania had the lowest incidence and mortality rate among SEE countries [9]. They share common features such as the limited financial budget, the lack of medical personnel due to emigration (many retired doctors returned to clinics), the geographical proximity to Italy and the frequent travels of tourists or employees, which increased the risk of infections. In eight countries (Albania, Kosovo, North Macedonia, Croatia, Greece, Bosnia Hercegovina, Romania, and Slovenia) the first infected patient had traveled to Italy [10].

However, the Albanian circumstances should be considered genuine. The situation before the pandemic was not easy because, since November 2019, Albania was facing the consequences of a devastating earthquake leaving a burden on the state budget prior to COVID-19 but also exposing the fragility of the healthcare system [9]. This is the first national study that sheds light on the COVID-19 pandemic's influence on outpatient service utilization at the only Albanian tertiary university hospital. We still struggle to identify the health system gaps and social groups that need to be prioritized. The dermatology department experience can contribute to: i) the enrichment of epidemiological data for a barely understood disease sometimes associated with skin manifestations ii) guide public decision-making in the potential future emergencies from the dermatology perspective [11]–[13]. The dermatologic examination requires close doctor-patient contact due to different specifics: many diseases are accurately diagnosed by palpation, many diseases require examination of the genitals and special areas, such as: scalp or oral mucosa and procedures (dermatoscopy) are performed only by a doctor. Because of these reasons, dermatologists and their patients were especially reluctant to contact each other in the face of prevailing policies and recommendations suggesting to keep physical distance, lack of enough and appropriate protective equipment (masks and gloves) [11], [14]–[17].

In uncommon conditions, the dermatological staff decided to reorganize the medical care to avoid the North Macedonian scenario where every fourth patient reported with COVID-19 was a dermatologist [18]. These roles included managing emergency cases, diagnosing and treating patients primarily through teleconsultations. During this period dermatological visits were mostly postponed; they have been reorganized through teleconsultations. Due to restrictions of unnecessary hospitalizations, we managed not to have any spread of infection between patients and dermatology workers. This article assesses the impact of COVID-19 in the dermatology department of a university tertiary hospital center in Tirana, Albania. We provide the reader with the trend of the visits in our outpatient unit during 2019–2021 and the socio-demographic characteristics of the patients.

## 2. METHOD

This cross-sectional study included all patients seeking medical help at the outpatient unit of the dermatology clinic, University Hospital Center “Mother Theresa” in Tirana Albania, during the period 2019–2021. A total of 7,807 patients showed up during this period. Patients' age, gender, place of residence, as well as the year they showed up for seeking dermatologic care, were recorded and then the data were compared across years to reveal the respective trends. This study was approved by the Ethical Committee of the Faculty of Medicine, Tirana, Albania. Absolute numbers and respective percentages were used to describe the number of outpatient dermatology visits and their trends over time. Chi square test was used to compare categorical variables. All the analysis has been carried out using the statistical package for social sciences (SPSS), version 15.

## 3. RESULTS AND DISCUSSION

A total of 7,807 patients have been consulted in our tertiary outpatient unit during the 2019–2021 period. Compared to 2019, the total number of visits was significantly reduced by about 72% in 2020 and 57% in 2021, the details can be seen in Table 1. The visits during the total lockdown in April 2020 (27 visits) were emergency cases only. Compared with the pre pandemic year (397 visits), there is a 93.2% reduction revealing the maximal impact of the pandemic and lockdown on dermatology outpatient visits.

Table 1. The number of outpatient dermatological visits during 2019–2021

Month	2019	2020	2021	% Reduction 2020–2019	% Reduction 2021–2019	p-value *
January	403	311	126	-22.8%	-68.7%	<0.001*
February	346	286	99	-17.3%	-71.4%	<0.001**
March	375	89	121	-76.3%	-67.7%	
April	397	27	117	-93.2%	-70.5%	
May	410	35	183	-91.5%	-55.4%	
June	566	109	235	-80.7%	-58.5%	
July	363	59	173	-83.7%	-52.3%	
August	318	52	155	-83.6%	-51.3%	
September	352	76	208	-78.4%	-40.9%	
October	406	110	179	-72.9%	-55.9%	
November	321	66	188	-79.4%	-41.4%	
December	288	69	189	-76.0%	-34.4%	
<b>Total</b>	<b>4545</b>	<b>1289</b>	<b>1973</b>	<b>-71.6%</b>	<b>-56.6%</b>	

Note: \* p-value according to chi square test for 2019–2020 comparison; \*\* p-value according to Chi-square test for 2019–2021 comparison

During January-February 2019 there were 749 visits (16%) whereas the rest of the visits (3,796, or 84%) occurred during March-December 2019; during January-February 2020 (still pre-pandemic period) there were 597 visits (or 46% of total 2020 visits) while during March-December 2020 (Covid period) there were 692 visits (or 54% of 2020 total visits). There was a 1:1 ratio of visits in the pre-pandemic period/pandemic period for 2020. While this ratio was 1:5 in the same periods in 2019. In total there was a decrease of about 72% in total visits in 2020 and a decrease of about 57% in 2021 compared to 2019.

The data according to the periods of restrictive measures were as follows: in Albania, in the period March - May 2020 (lockdown 1) a total of 151 visits were made, compared to 1182 visits of the same period a year before, reflecting a decrease of 87%. In the period June-September 2020 (opening) a total of 296 visits were made, compared to 1,599 visits in the same period a year ago, reflecting a decrease of 81%. In the period October-December 2020 (lockdown 2) a total of 245 visits were made, compared to 1,015 visits in the same period a year ago, reflecting a decrease of 76% (less than in the first lockdown). As can be seen in Figure 1, the decline is greater in the first months of the pandemic, showing an increased uncertainty of patients from the beginning of the pandemic.

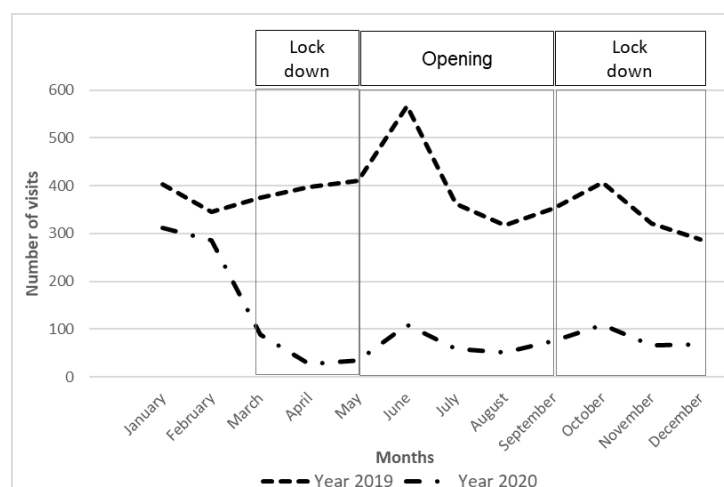


Figure 1. The trend of dermatological visits in 2019 and 2020

Table 2 shows the trends of dermatology outpatient visits during 2019-2021 separately for male and female patients. The greatest reduction for both males and females occurred in April 2020 (respectively -91% and -96%) compared to the 2019 pre-pandemic year. Overall, the reduction of outpatient visits in 2020 and 2021 compared to 2019 was almost similar among both genders (-69% among males and -74.4% among females in 2020, and -58%, and -55.1%, respectively, in 2021).

Table 2. The number of outpatient dermatological visits during 2019-2021 by gender

Month	Males			Females		
	2019 (n)	2020 n (% reduction compared to 2019)	2021 n (% reduction compared to 2019)	2019 (n)	2020 n (% reduction compared to 2019)	2021 n (% reduction compared to 2019)
January	224	162 (-27.7)	63 (-71.9)	179	149 (-16.8)	63 (-64.8)
February	176	164 (-6.8)	46 (-73.9)	170	122 (-28.2)	53 (-68.8)
March	209	41 (-80.4)	63 (-69.9)	166	48 (-71.1)	58 (-65.1)
April	222	20 (-91.0)	60 (-73.0)	175	7 (-96.0)	57 (-67.4)
May	214	24 (-88.8)	85 (-60.3)	196	11 (-94.4)	98 (-50.0)
June	265	68 (-74.3)	130 (-50.9)	301	41 (-86.4)	105 (-65.1)
July	175	31 (-82.3)	88 (-49.7)	188	28 (-85.1)	85 (-54.8)
August	160	37 (-76.9)	78 (-51.3)	155	15 (-90.3)	77 (-50.3)
September	176	43 (-75.6)	98 (-44.3)	176	33 (-81.3)	110 (-37.5)
October	203	62 (-69.5)	93 (-54.2)	203	48 (-76.4)	86 (-57.6)
November	168	36 (-78.6)	83 (-50.6)	153	30 (-80.4)	105 (-31.4)
December	155	39 (-74.8)	99 (-36.1)	136	30 (-77.9)	90 (-33.8)
Total	2,347	727 (-69.0)	986 (-58.0)	2198	562 (-74.4)	987 (-55.1)

Figure 2 shows that the reduction of dermatology outpatient visits has affected all age groups, with the most considerable reduction noticed among the oldest age group (-75.8% in 2020 and -62.8% in 2021, compared to 2019). The p-value according to Chi-square test for 2019-2020 comparison is <0.001. The p-value according to chi square test for 2019-2021 comparison is 0.011.

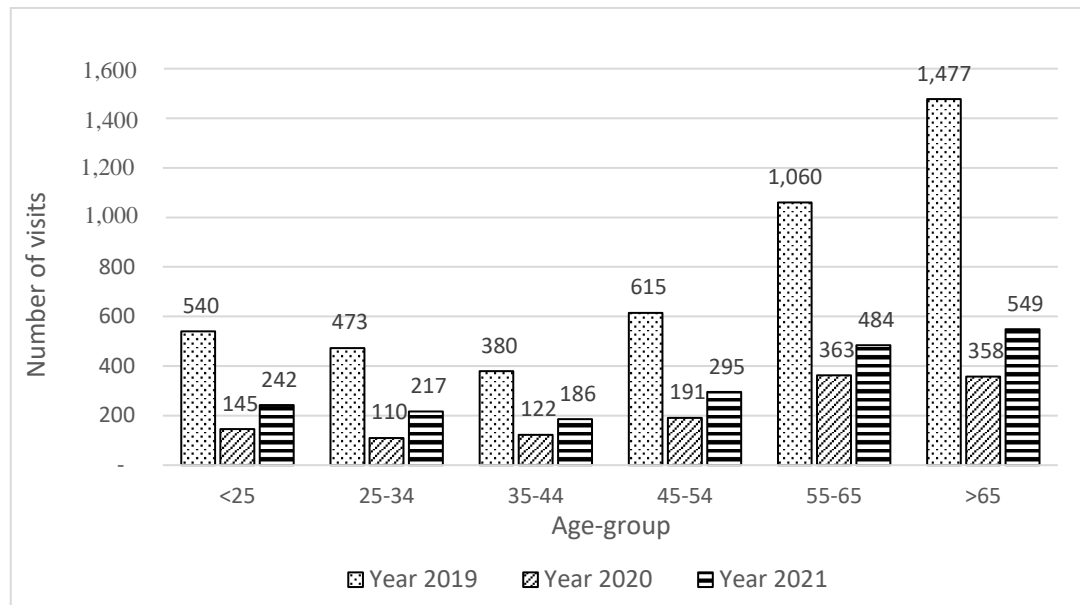


Figure 2. Number of dermatology visits according to the age group during 2019-2021

Table 3 shows the age distribution (%) of dermatology outpatient visits during the study period, by patients' sex and in total. Even though the visits have been greatly reduced in the pandemic years (see Table 2), male and female patients aged 55-65 and >65 years were the most frequent visitors of our outpatient dermatology unit. In total, the age group >65 years showed a decreased representation among all patients during the pandemic (5 percentage points decrease, from 33% in 2019 to 28% in 2020 and 2021). On the other hand, young males aged <25 years old and young females aged 25-34 years old seem to have been particularly reluctant to visit the dermatology outpatient unit during the 2020 pandemic year as compared to 2019 data (see Table 2). For example, in 2019, about 10.3% of male outpatients were <25 years old, but in 2020, this proportion dropped to about 8.3%; the respective figures for 25-34 years old females were 10.4% and 8.7%. All sex-age differences in each study year are significant ( $p < 0.05$ ).

Table 3. Dermatology visits according to the age group and gender, 2019-2021

Age-group	2019		2020		2021	
	Male N (%)	Female N (%)	Male N (%)	Female N (%)	Male N (%)	Female N (%)
<25	242 (10)	298 (14)	60 (8)	85 (15)	103 (10)	139 (14)
25-34	245 (10)	228 (10)	61 (8)	49 (9)	98 (10)	119 (12)
35-44	178 (8)	202 (9)	73 (10)	49 (9)	91 (9)	95 (10)
45-54	237 (10)	378 (17)	91 (13)	100 (18)	124 (13)	171 (17)
55-65	601 (26)	459 (21)	229 (32)	134 (24)	260 (26)	224 (23)
>65	844 (36)	633 (29)	213 (29)	145 (26)	310 (31)	239 (24)
Total	2,347 (100)	2,198 (100)	727 (100)	562 (100)	986 (100)	987 (100)

Patients in our tertiary ambulatory dermatologic unit come from the district of Tirana (the capital city) or other districts. No significant differences were noticed in the distribution of patients in each of the pandemic years compared to the pre pandemic period (2019) with regard to the place of residence, the data shown in Table 4. In 2019 and 2021 there were more visits from patients residing in Tirana than in other districts whereas in 2020 almost half of the outpatient visits came from Tirana and half came from other districts.

Table 4. Dermatology visits by patients' place of residence during 2019-2021

Variable	2019	2020	2021	p-value
Place of residence Tirana (the capital)	2,342 (53.5) *	637 (49.4)	1,059 (53.7)	0.205*
Other areas	2,213 (46.5)	652 (50.6)	914 (46.3)	0.093**
Total	4,545 (100.0)	1,289 (100.0)	1,973 (100.0)	

Note: \* Absolute number and column percentage (in parenthesis); \*\* p-value according to Chi-square test for 2019-2020 comparison; \*\*\* p-value according to chi square test for 2019-2021 comparison.

We have considered various studies to compare our epidemiological data, including studies from Italy, (the country with the earliest impact from COVID-19, the country where the first infected patient came from), multicenter and other studies conducted in Turkey (a middle-east country of similar social-cultural heritage with ours) and elsewhere. A recent systematic literature review comparing healthcare utilization before and during the COVID-19 pandemic (mostly in developed countries), up to 10 August 2020, reported a median 37% reduction in healthcare services overall, with the greatest reductions occurring during March and April 2020; the greatest median reduction was observed for medical visits (a reduction of 42.3%), followed by diagnostic services (-31.4%), therapeutic services (-29.6%) and admissions (-28.4%) [19].

Our data showed that in total there was a decrease of about 72% in total dermatology outpatient visits in 2020 and a decrease of about 57% in 2021 compared to 2019. For comparison, an Italian study noticed a decrease of 80% during lockdown 1 compared to a year ago [20]. In Turkey, a study found a negative correlation between the number of COVID-19 patients in the country and the number of patients requesting a dermatology outpatient clinic visit in the secondary and tertiary care hospitals, attributing such reduction to “stay-at-home” policies being enforced in Turkey as an effort to contain the pandemic spread [21]. Another study in Turkey noted a significant reduction in the rate of dermatology outpatient visits during the COVID-19 pandemic compared to the pre-pandemic period [22]. In Indonesia, a study reported that, compared to the same period a year before, at the beginning of the COVID-19 pandemic, there was a reduction of about 60% in outpatient visits in dermatology and venerology clinics and a reduction in diagnostic and therapeutic procedures as well [23].

In the period March-May, in our study, male patients predominate, both before and during the pandemic (85 males/66 females in 2020, 645 males/537 females in 2019), with a decrease of 87% males and 88% females, respectively. In total there are 2,347 males/2,198 females in 2019 and 727 males/562 females in 2020 with a decrease of 70% in males and 74% in females. Apparently, the perception of risk (of being infected from SARS-CoV-2) is more pronounced in women, similar to the Italian study where women did access hospital services less frequently. In addition to the psychological impact, this decline in the same category may also reflect structural social similarities where women in both societies are more predisposed to stay and care for the family. The male predomination among dermatology outpatient visits is reported in another study as well [24]. Also, Kartal *et al.* [25] found that female dominance had shifted in favor of males during the pandemic. In Albania during 2021, there was an almost 1:1 male vs. female ratio in dermatology outpatient visits.

Regarding the origin of the consultations, no statistically significant differences were noticed in Albania. They remained almost the same, despite the fact that Tirana (the capital city and the city where the University Hospital Center “Mother Theresa” is located) has had the highest incidence of infections in Albania. In 2019, 48% of patients were referred from Tirana polyclinics, while in 2020 this figure was 49%. While in the first lockdown period, 71 visits (47%) were made from Tirana, versus 80 visits from the districts (53%). This indicates that seeking medical help has been a priority despite the risk of infection. This is the opposite finding from that of the Turkish study, where countries with the lowest incidence of infection required fewer medical consultations [25]. The number of consults from the capital city was higher than from local districts during 2021 which indicates easier access of Tirana patients to the dermatology outpatient unit at the UHC “Mother Theresa”.

From the analysis of age group data, it was noticed that in 2019 the most frequent age group was >65 years old, while in 2020 it was the 55-65 years old group. The age groups with increased consults were: 34-45 years old, 45-54 years old, 55-64 years old, while the age groups with reduced consults are <25 years old, 25-34 years old and >65 years old, which were the targeted age groups in terms of health public awareness in Albania. The youngest age groups, being the most active part of the population and consequently the most predisposed to be the transmission vector of SARS-CoV-2, saw a decline in using dermatology services during the pandemic period, probably because of fear of getting infected with COVID-19. However, the service usage reduction was more pronounced among the oldest patients (>65 years); this can be explained by the government restrictions and the greater risk and/or fear of morbidity and mortality from COVID-19. Similar to a study in Turkey, the pandemic was associated with lower hospital attendance in both age groups 0-18 years and >65 years [25]. During 2021, the oldest age group had still fewer routine medical visits compared to the pre-pandemic period.

The spectrum of COVID-19-lockdown measures varied between countries but in general, every country faced unprecedented restricted clinical visits further to contain the spread of SARS-CoV-2 virus [26]. In Albania such reduction affected mostly the youngest and oldest patients, for different reasons, and female patients. However, the reduction in the number of visits due to lockdown measures does not mean that the need for dermatologic consultations has been diminished; instead, the opposite might be true due to an association between COVID-19 and a range of skin manifestations [27], [28], that add to the normal dermatologic profile of the population. These changes, in an emergency public health situation, would potentially require the intervention of a dermatologist through distant consultation approaches such as telemedicine [29], [30]. The study of the trends and profile of dermatology visits in time and under various circumstances (i.e. public health emergencies) is important in order to be able to adapt consultations approaches and offer patients continuous uninterrupted dermatological service.

#### 4. CONCLUSION

In this study, we attempted to estimate the impact of the COVID-19 pandemic on healthcare utilization, with a focus on outpatient visits. Based on our findings, we conclude that the pandemic had an unprecedented impact on the Dermatology Department. For middle-income countries, such as Albania, the report of every clinical experience and the development of a detailed data infrastructure, would create a fruitful model of national emerging preparedness plans, especially for vulnerable groups. Our data shows less medical access from females and age groups <25 and >65 years old; therefore, health authorities should be advised not to neglect these groups in upcoming potential emergencies. Since the pandemic is not over yet, the identification of the role of telemedicine for diagnosis and follow-up has reoriented the management approach toward our patients, in terms of public health policies (prevention) and financial cost reductions. We would recommend the encouragement of supportive strategies to enhance telemedicine practice among other services as a reasonable starting measure in exceptional scenarios.

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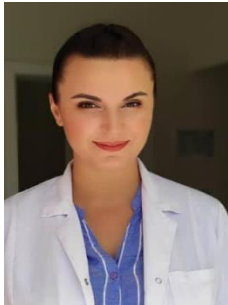
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