



The impact of the COVID-19 pandemic on patients with type 2 diabetes in Greece. Results from a real-world study

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INTRODUCTION

Type 2 Diabetes Mellitus (DM) is a non-communicable chronic disease, with increasing prevalence related to physical inactivity and obesity. During the pandemic of COVID-19 and the subsequent lockdown physical activities were disrupted for a substantial proportion of the Greek population.

AIM

The aim of the study was to investigate the magnitude of regional health inequalities in the prevalence of T2 DM in the Greek population, before and during the pandemic, using geospatial data.

METHOD

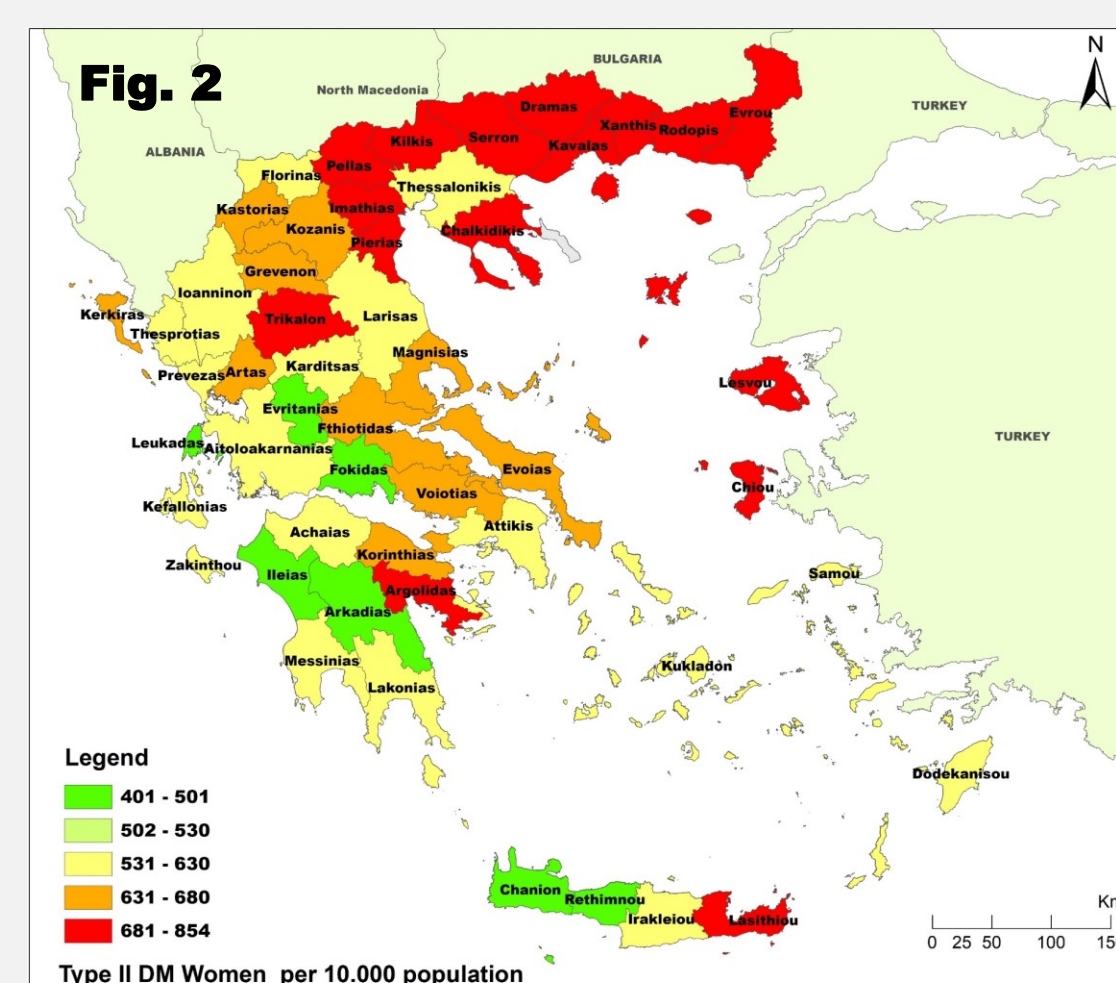
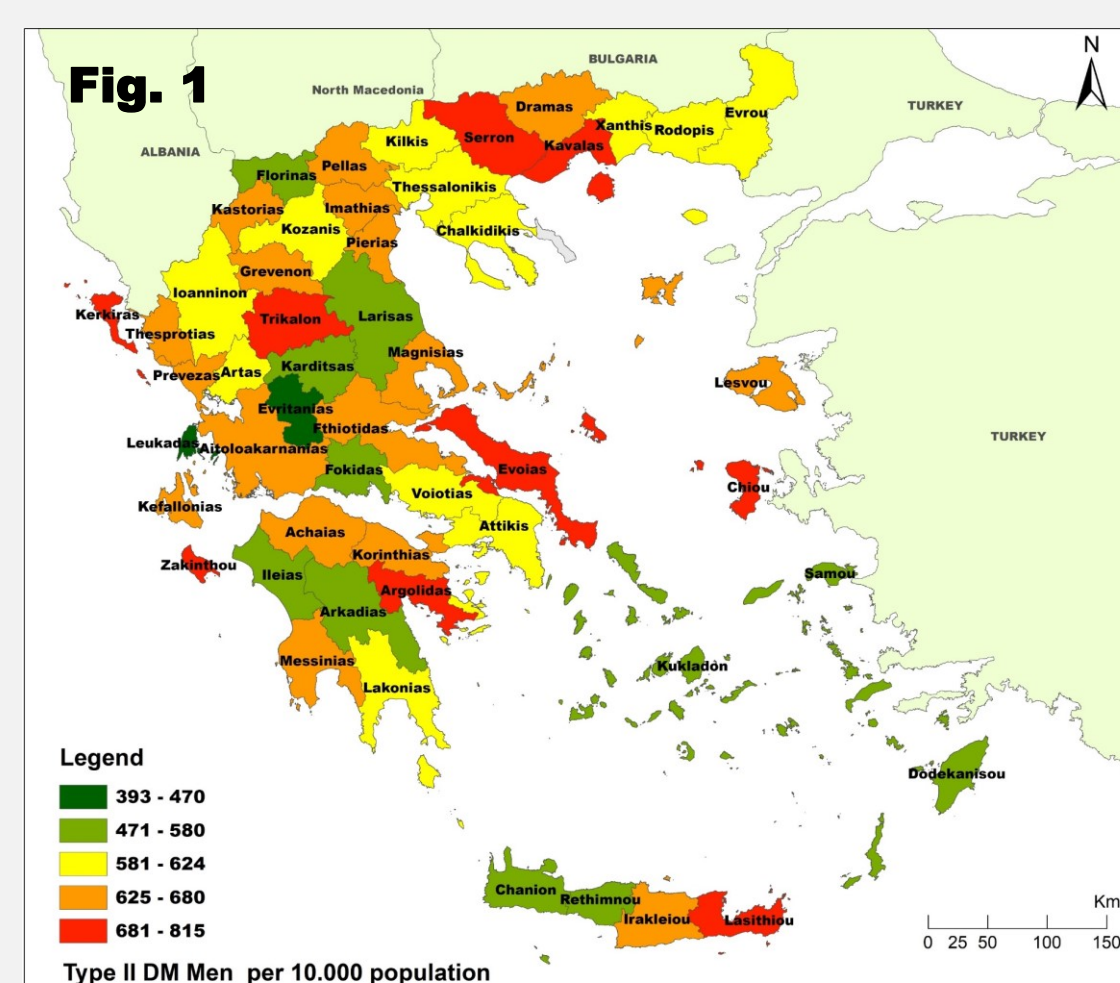
Data for Type 2 DM Patients from the Register of Diabetic Patients of the National Organization of Health Care Provision (Unique National Insurance Numbers) were examined, for the years 2019 and 2020, per sex, age groups (0-14, 15-24, 25-64, 65-74 & 75+) and per prefecture (NUTS 3 level) in Greece. The two time periods were compared to detect possible differences due to the lifestyle changes by the pandemic. The results were portrayed on thematic maps, leveraging geographical information systems - GIS. Hot Spot Analysis was performed implementing Getis-Ord Gi* statistic to identify statistically significant spatial clusters of high values (hot spots) and low values (cold spots). Share of DM patients was expressed per 10,000 population, according to the 2011 census data of the Hellenic Statistical Authority.

RESULTS

Prevalence

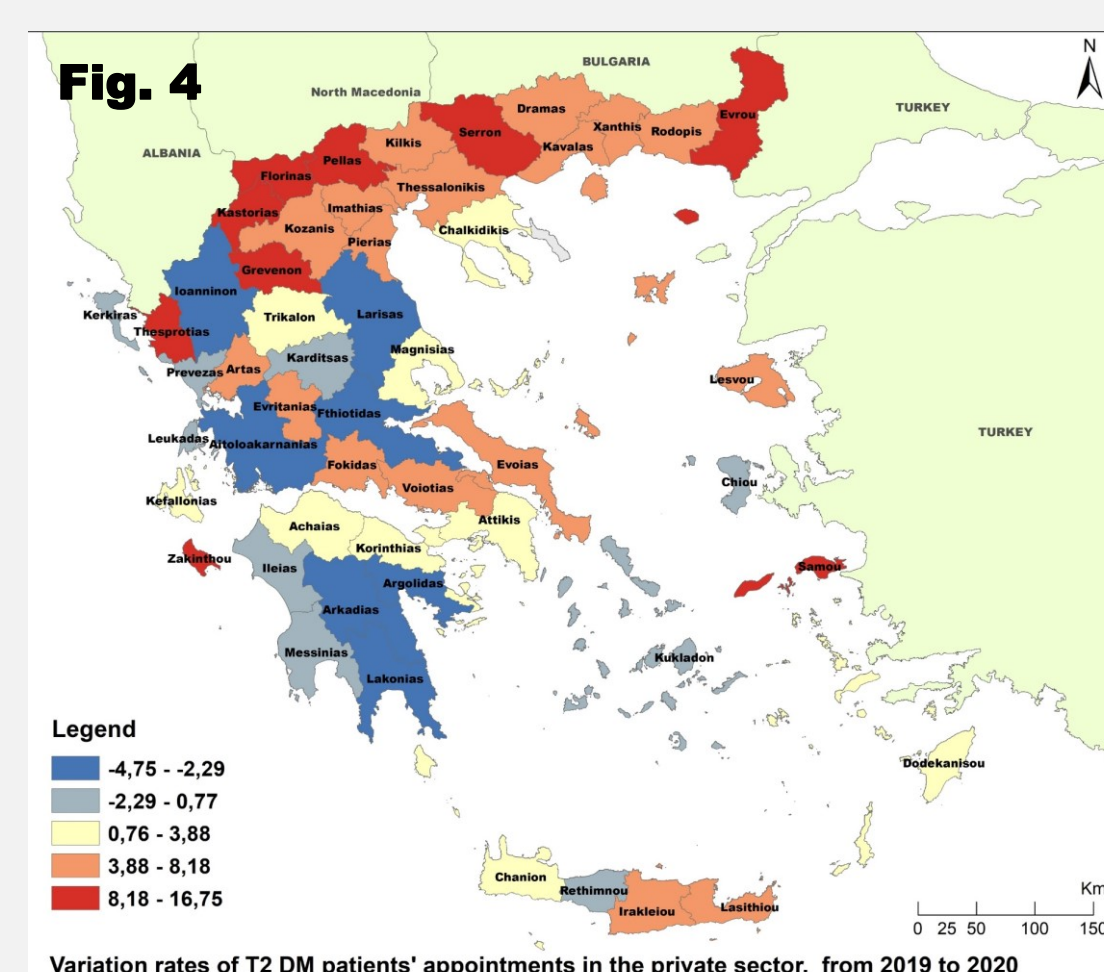
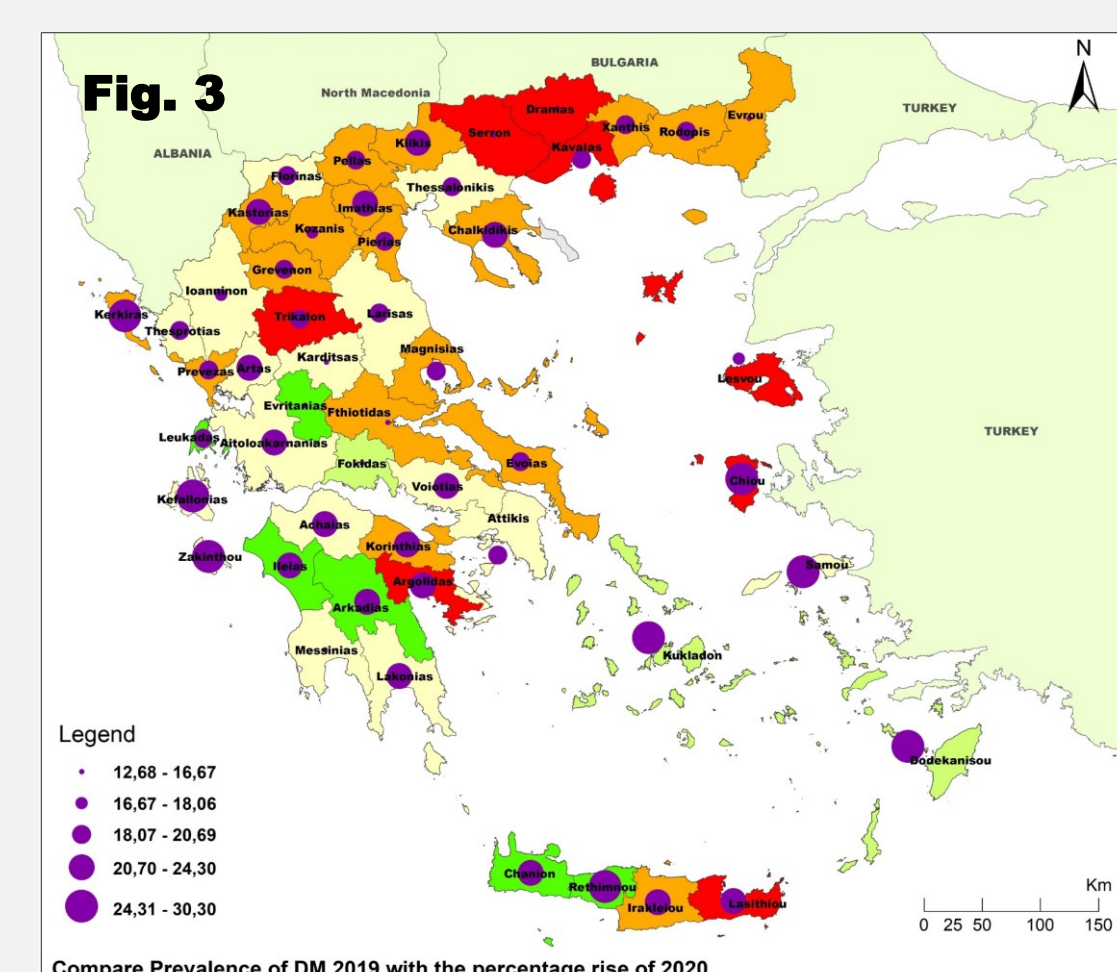
The prevalence of DM in the Greek population in 2019 was 499,2 patients per 10.000 people (5,38% of the total population). In 2020 the corresponding prevalence increased by 20% and was estimated at 606 patients/10.000 people i.e. (6,06% of the total population).

For T2 DM, our results suggest that in 2020, the prevalence was 624,5 patients/10.000 men and 630,7 patients/10.000 women, respectively. Higher prevalence was observed for men in North and Central regions of Greece and for women in North and Northeast regions of Greece (Fig. 1 & Fig. 2)



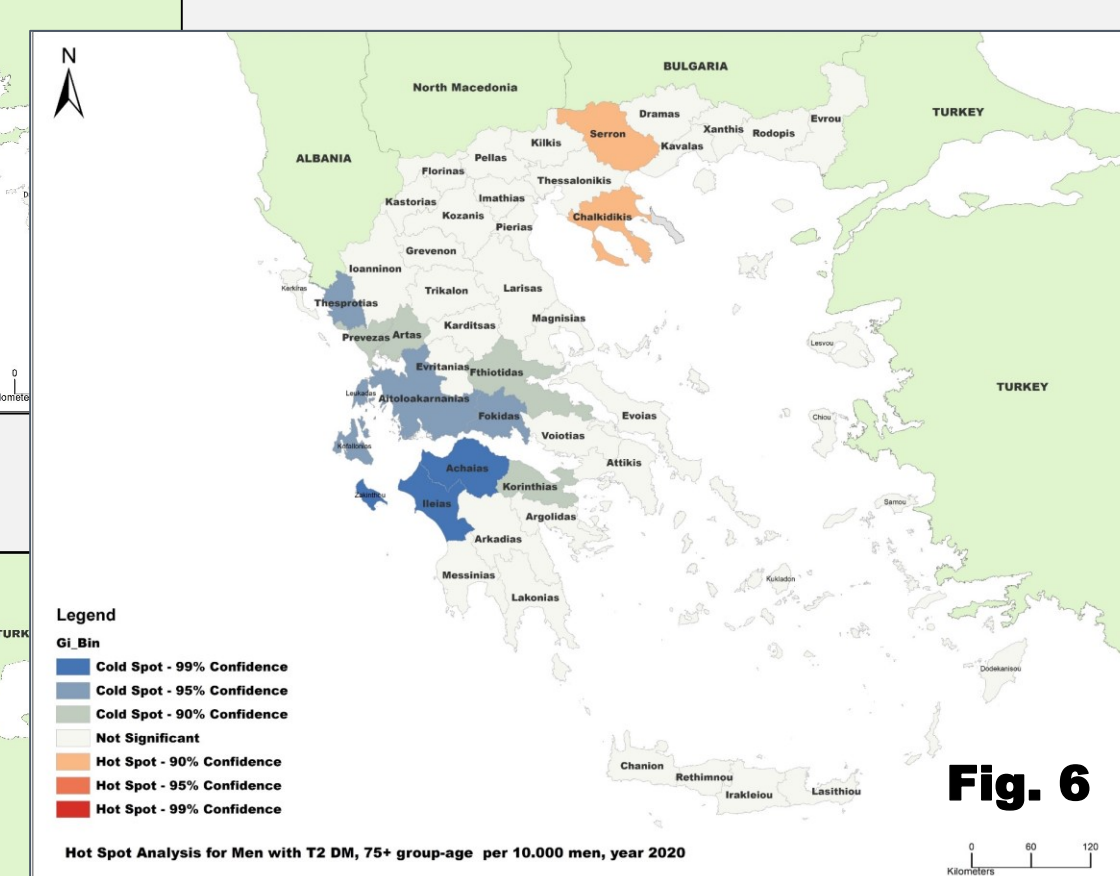
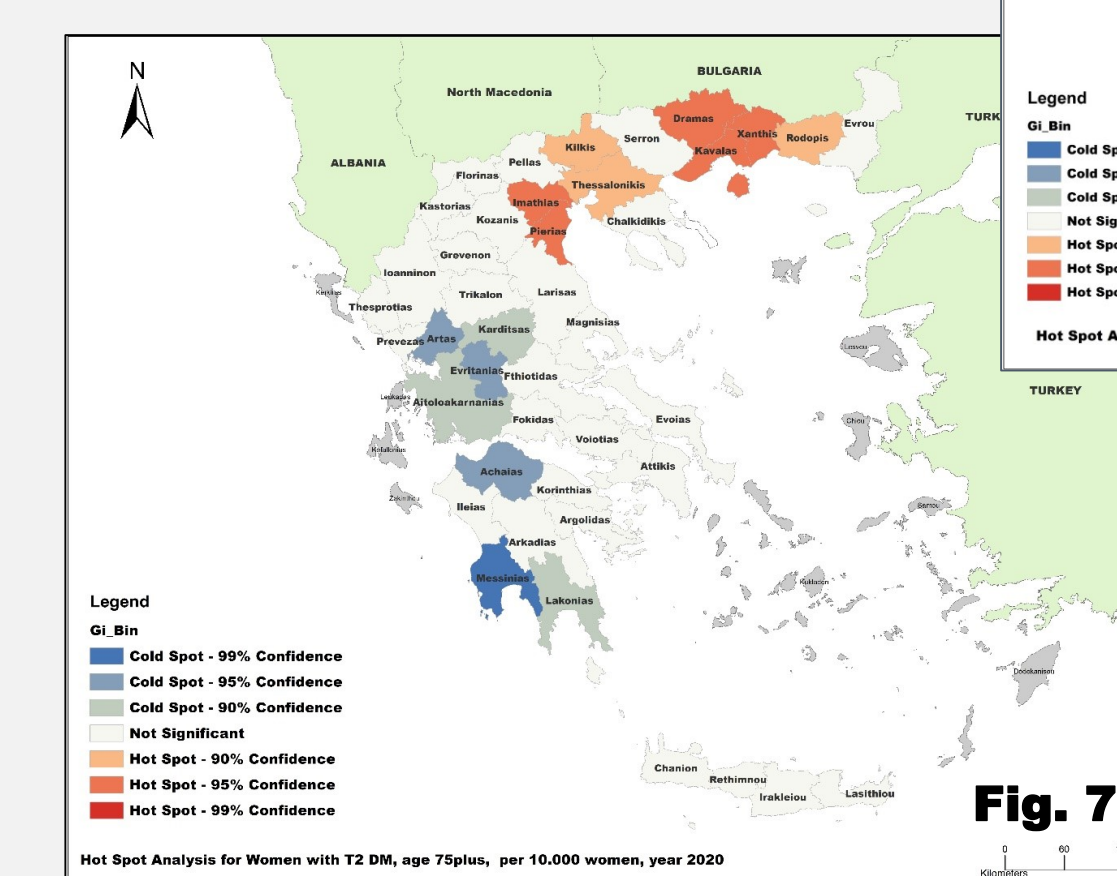
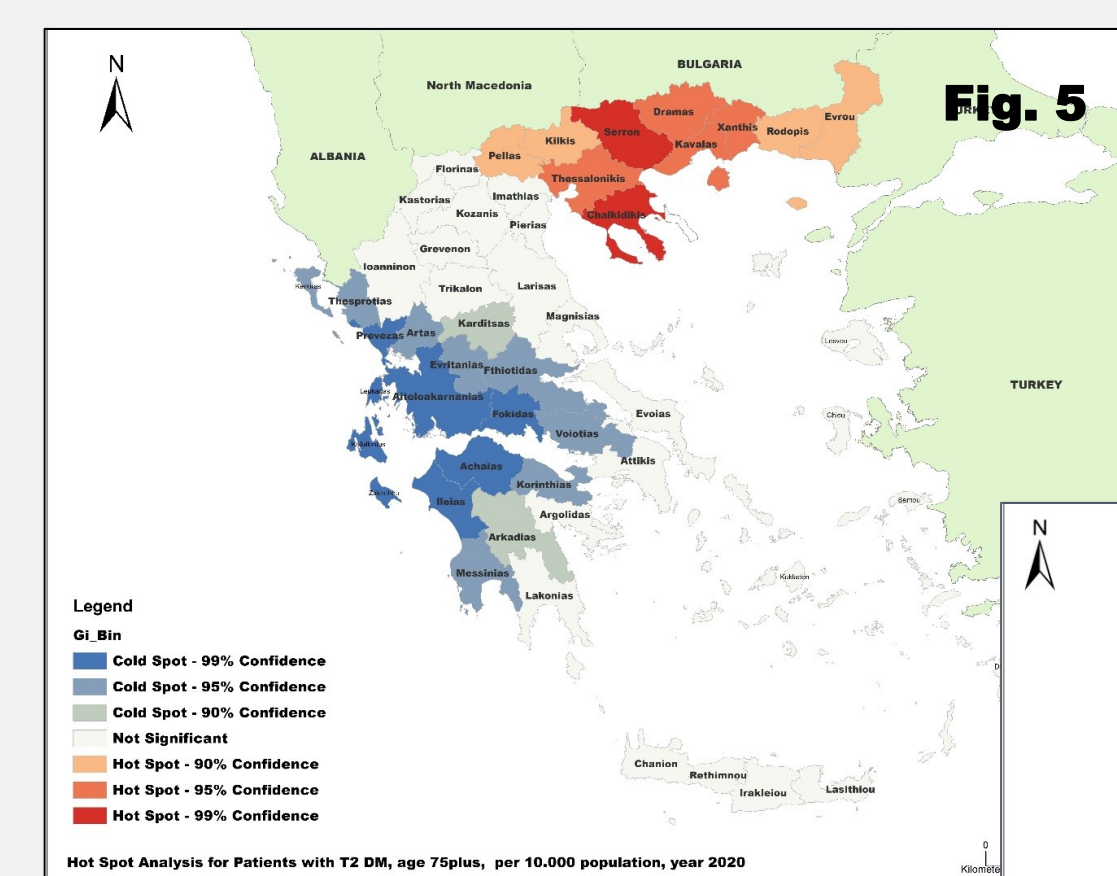
There was an increase of 21,46% in men and of 19,13% in women with T2 DM during the year 2020. A substantial increase also was observed in the young of 15-24 years of age (from 1,98/10.000 population in 2019 to 3,16/10.000 population). The highest increase was observed in ages 75+ for both, men and women (by 21,36% in men and 19,14% in women, respectively).

Considering the effects of the economic crisis on the prevalence of DM in Greece, we found the highest increase in the islandic regions, were recorded in Dodekanisa 30%, Zakynthos 28.8%, Samos 25.9%, Kerkira 25.7%, Kukulades 25.2% (Fig. 3).



Hotspot Analysis

When hotspot analysis was applied, a significant clustering of high prevalence in Northern Greece and of low prevalence in Central and Western Greece was identified, concerning the ages 75+ (Fig. 5). As for the gender, hot spot clustering of high prevalence in Northern Greece was identified in both men and women while, cold spot clustering of low prevalence was identified in Central and Northern Greece (Fig. 6 & Fig. 7).



Regarding the primary follow-up of patients during the two years, the number of appointments in the public and private sector were examined. Public sector consists of diabetic clinics and certified diabetes centers as well as the private sector consists of contracted specialists. The results showed that the number of appointments of T2 DM patients, during the year 2020, in general, decreased by 3.86% in public structures and increased by 3.14% in private ones. The highest increase of appointments in the private sector (with decrease in public sector) was observed in Northern and East Northern regions while the highest decrease was observed in Central and Southern regions of the country (Fig. 4)

CONCLUSIONS

COVID-19 pandemic had a catalytic negative effect on the population of Greece with increased prevalence of T2 DM, especially among the younger patients.

Lockdown, the increased unemployment rates among the young population, the closure of many diabetic clinics, the limitation of appointments in certified diabetic clinics as well as the transformation of hospitals into COVID-19 clinics, disrupted significantly the function of health services.

The results reveal the significant deterioration of diabetes health status in Greece due to COVID-19 pandemic.

The increase of appointments in the private sector, by the time when the public sector was almost exclusively dedicated to the management of COVID 19 pandemic, presented the immediate need for primary care, especially in Northern Greece, where the highest prevalence of T2DM patients was observed

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