Epidemiological Analysis of Colorectal Cancer in Cyprus Amidst the Absence of Organised Screening Programs. Data from 2000 to 2020

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INTRODUCTION

- Colorectal cancer (CRC) is the third most common cancer globally, with 1.9 million new cases annually, projected to exceed 3 million by 2040.
- In Cyprus CRC remains a major public health issue, being the third leading cause of cancer death.
- Unlike most European countries, Cyprus lacks a national organized screening program, resulting in extremely low participation rates (3.3% in 2017–2019 vs. 33.3% EU average).
- The Europe's Beating Cancer Plan (2021) aims to screen 90% of eligible EU populations, highlighting the gap in Cyprus.
- The Cyprus Cancer Registry (CCR) is the official national system for collecting, recording and analyzing data on cancer cases across the Republic of Cyprus. It serves as a population-based cancer registry, meaning it aims to record all cancer cases diagnosed among residents of Cyprus, regardless of where they receive treatment.

OBJECTIVE

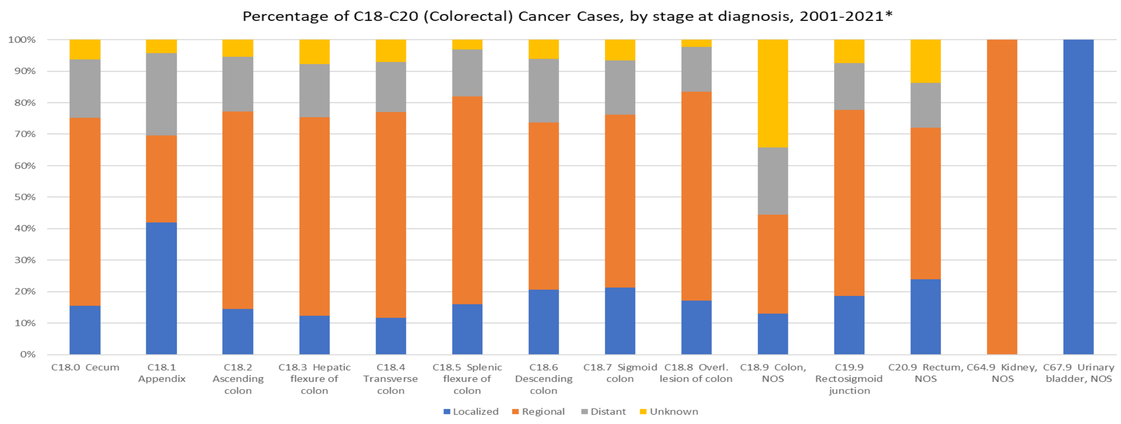
To analyze colorectal cancer trends in Cyprus between 2001 and 2021, focusing on incidence, mortality, demographic and geographic distribution, and to compare these findings with corresponding European data to identify gaps due to the lack of a national screening program.

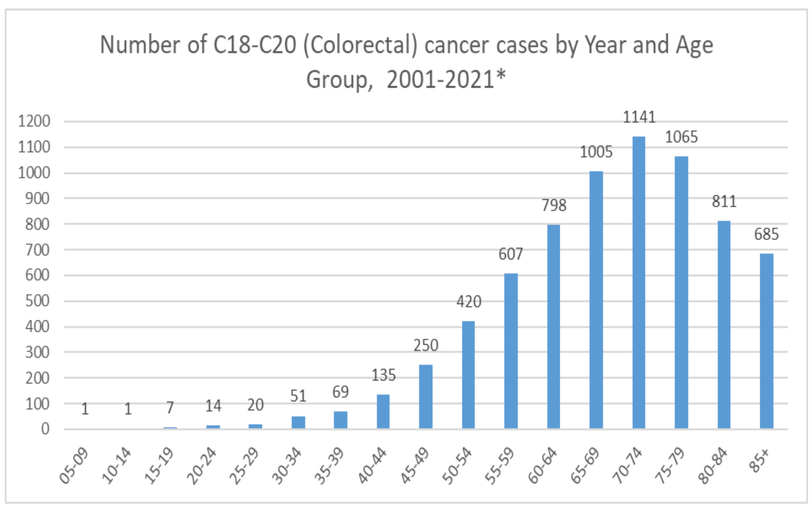
METHODS

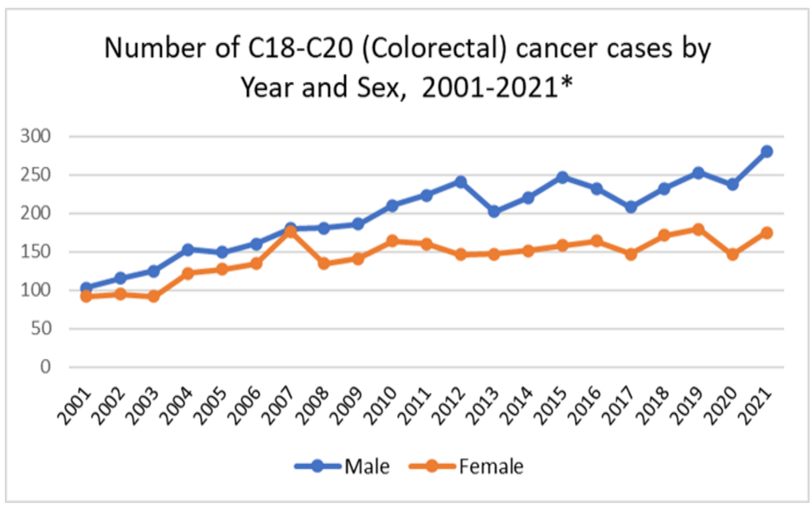
- This study was based on a retrospective, secondary data analysis of colorectal cancer (CRC) cases recorded in the Cyprus Cancer Registry (CyCR) from 2001 to 2021.
- Data were extracted and organized using Microsoft Excel for descriptive statistics, trend analysis, and cross-tabulation techniques. Incidence and mortality rates were calculated per 100,000 population.
- Key parameters analyzed:
  - Incidence and mortality rates by year
  - Age- and gender-specific distributionStage at diagnosis (based on TNM classification)
  - Geographic distribution across Cypriot districts
  - Screening participation rates (2017–2019)
- Comparative analysis was conducted using European Cancer Information System (ECIS) data as a benchmark, identifying deviations in Cyprus's CRC epidemiology from the EU average.
- Emphasis was placed on understanding the impact of the absence of an organized screening program, and the analysis sought to identify potential areas for intervention based on observed gaps.

RESULTS

- Colorectal cancer (CRC) cases in Cyprus increased significantly over the past two decades, rising from **195 in 2001** to **455 in 2021**, marking a **133% increase** in incidence. Gender distribution revealed a higher prevalence among **males (57.8%)** compared to **females (42.2%)**, a trend consistent throughout the study period. The most affected age group was **70–74 years**, with incidence rates increasing steadily from the age of 50 onwards. An emerging upward trend was also noted among younger adults aged **45–49**, raising concerns about early-onset CRC.
- Despite the increasing burden, presymptomatic screening rates remained extremely low, at only 3.3% between 2017 and 2019, significantly lower than the EU average of 33.3%. This reflects the absence of an organized national screening program in Cyprus and highlights the need for urgent public health intervention.
- Healthcare Reforms are performed (GHS) rather than cancer-specific screening or prevention efforts.
- Geographical analysis demonstrated clear regional disparities. Nicosia recorded the highest number of cases (39%), followed by Limassol (26%), Larnaca (16%), Paphos (11%), and Famagusta (8%). Notably, rural districts reported more advanced-stage diagnoses, suggesting limited access to early detection services.
- In terms of stage at diagnosis, the majority of patients were diagnosed in Stage III (34%) and Stage II (28%), while only 17% were identified at Stage I, emphasizing the late detection patterns. This staging profile reinforces the pressing need for effective population-level screening and early diagnosis mechanisms.
- CRC-related mortality followed an increasing trend until 2015, after which it appeared to plateau, potentially due to broader healthcare system.







CONCLUSIONS

- This study highlights critical gaps in colorectal cancer (CRC) prevention and early detection in Cyprus, underscoring the consequences of lacking a national screening program. Despite the rising incidence and high mortality, **screening participation remains extremely low**, with **late-stage diagnoses predominating**. The findings stress the need for **urgent public health interventions** targeting early detection and equitable access to care.
- There is a compelling case for the **implementation of a structured national screening strategy**, utilizing cost-effective methods such as the **Fecal Immunochemical Test (FIT)**, combined with follow-up colonoscopies. **Public awareness campaigns** should be launched to improve participation, especially in underserved rural populations.
- Strengthening the **Cyprus Cancer Registry (CyCR)** is also essential to enhance data quality and support evidence-based policymaking. Lessons learned from EU countries such as **Finland, Germany, and the Netherlands**, which achieved significant reductions in mortality through organized screening, should guide future policies.
- A shift towards **personalized prevention strategies**, alongside improved epidemiological monitoring, could significantly reduce CRC incidence and mortality in Cyprus.

REFERENCES

Cyprus Cancer Registry (CyCR), 2001–2021 Data.Comparative European Data on Colorectal Cancer Epidemiology

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