Evaluation of the prevalence of different types of cancer according to the Misrata Oncology Centre data during the period 2018-2022

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Abstract— **Cancer is a disease in which some of the body's cells grow out of control and spread to other body parts. cancer is an ongoing global challenge. It is a leading cause of disease worldwide. Most cancer deaths each year are related to lung, colorectal, stomach, and breast cancers. Detection of disease in early stages, enabling more effective treatment and reducing morbidity and mortality. This study aimed to assess the prevalence of different types of cancers in Libya. Methods: A retrospective study was carried out, the data was collected by visiting the Oncology Centre in Misrata, reviewing the records, and recording data on the prevalence of different types of tumours from 2018 to 2022. Results: The number of cases rises every year, the overall number of cancer cases is rising annually: 1198 cases were reported in 2018, 1143 cases in 2019, 1422 cases in 2020, 1533 cases in 2021, and 1640 cases in 2022. The breast cancer was the most prevalent type of cancer during the period 2018-2022, the following results were recorded 21.45%, 20.9%, 22.6% 24.9% and 23.7% respectively. Followed by colon cancer was recorded at 16.4%, 15.7%, 17.2%, 18.4% and 15.6 respectively, followed by lung cancer was recorded at 7.8%, 7.9%, 10.6%, 8% and 9%. the fourth to ten grades are often confined between lymphoma, ovary, prostate, leukemia, pancreas, sarcoma and brain tumor. According to our results, we concluded that there is a clear increase in the number of cases of various types of cancer in Libya every year. Early detection is the first line of defence against this dangerous disease. People need to be sensitised to regular check-ups. The government should provide the requirements for detection and treatment.**

Keywords— *Breast cancer, Colon cancer, Lung cancer, Lymphoma, Ovary cancer, Prostate cancer, Leukemia, Pancreas cancer, Sarcoma and Brain tumor, Prevalence of cancer in Libya.*

INTRODUCTION

Cancer is a complex disease characterised by the uncontrolled growth and spread of abnormal cells. These cells can invade and destroy healthy tissues and organs. (WHO 2024). Twenty million new cancer cases were estimated in 2022, and 9.7 million deaths worldwide. (WHO 2024). Cancer occurs more commonly in males, and males die more rapidly of their disease compared with females (Rubin, et al 2020).

The cancer types are usually named by the body part from which they originated. The main cause of cancer is genetic, 90-95% are due to genetic mutations from environmental factors (tobacco, obesity, radiation, infection, stress, and air pollution) and 5-10% are due to inherited genetics (Anand et al., 2008; Rubin et al. 2024)
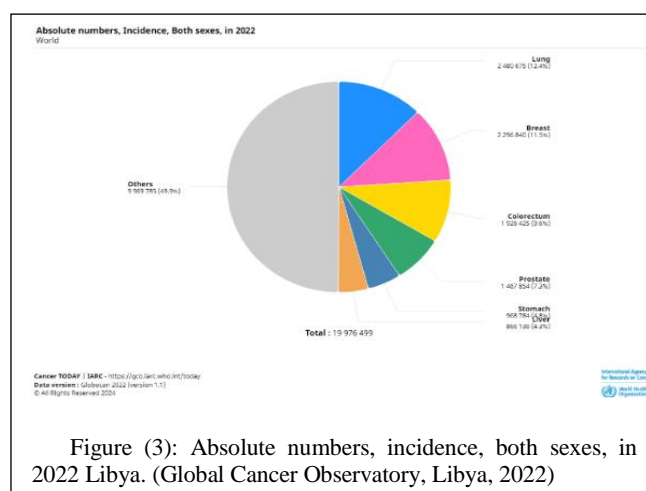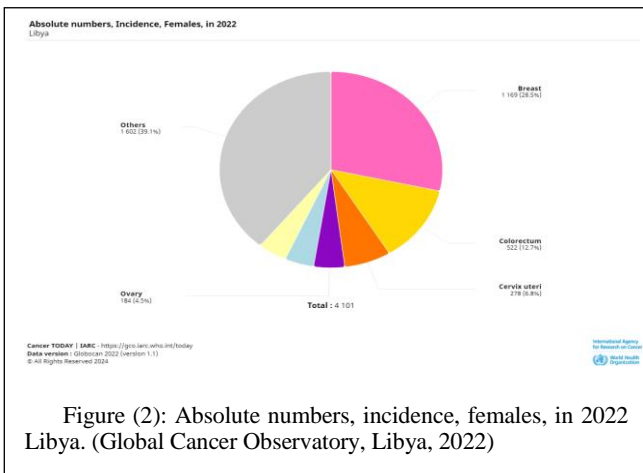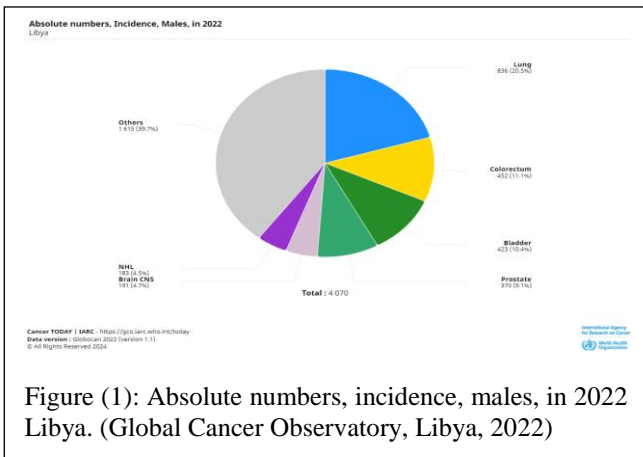

Figure (3): Absolute numbers, incidence, both sexes, in 2022 Libya. (Global Cancer Observatory, Libya, 2022)

In developing countries, patients with cancer generally have a poor prognosis due to a lack of cancer awareness, delay in diagnosis and lack of treatment including targeted therapy, radiation therapy and chemotherapy. (Dhillon et al 2018)

In countries with a low human development index (HDI), 1 in 27 women is diagnosed with breast cancer in their lifetime, and one in 48 women will die from it, but in countries with a high HDI, 1 in 12 women will be diagnosed with breast cancer in their lifetime and 1 in 71 women die of it. (Global Burden of Cancer: WHO 2024)

Cancer remains an ongoing global challenge. In 2022, there were an estimated 20 million new cancer cases and over 9.7 million deaths from cancer. (Bray et al. 2024) When cancer is diagnosed at an early stage the likelihood of a cure is much higher, so developing new and effective tests for the early detection of cancer types are needed. Additionally, intensive research is very important to uncover currently unknown biological drivers of cancer initiation and progression to improve therapeutic options (AACR Cancer Progress Report 2024). 4th February every year is World Cancer Day an international awareness day led by the Union for International Cancer Control (UICC).

In Libya, Global Cancer Observatory, Libya, Statistics at a Glance, 2022 recorded the number of new cancer cases, male 4070, female 4101, and a total of 8171. the most frequent cancers are breast cancer followed by colorectum and lung. (Global Cancer Observatory, Libya 2022). Figure (1,2, 3)

Figure (1): Absolute numbers, incidence, males, in 2022 Libya. (Global Cancer Observatory, Libya, 2022)

Figure (2): Absolute numbers, incidence, females, in 2022 Libya. (Global Cancer Observatory, Libya, 2022)

METHOD
Study area
This study was conducted in the Misrata Oncology Centre in northwestern Libya.
Data collection
A retrospective study was carried out, the data was collected by visiting the Oncology Centre in Misrata, reviewing the records, and recording data on the prevalence of different types of tumours from 2018 to 2022.

Data analysis
Microsoft Office Excel with descriptive statistics used for analyzing the collected data and determining the actual incidences of cancer.

RESULTS
After analysing the collected data, we obtained the following results.
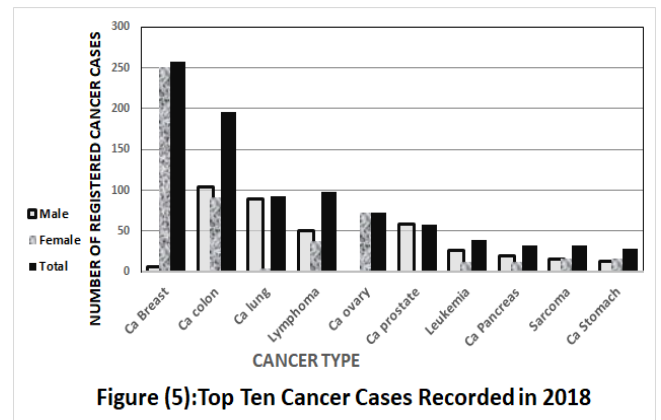
1- Total number of cancer cases registered each year
The total number of cancer cases is increasing every year, with the following number of cases recorded based on the years 2018 (1198 cases), 2019 (1143 cases), 2020 (1422 cases), 2021 (1533 cases) and 2022 (1640 cases). Data illustrated in Figure (4)

Figure (4): Total number of cancer cases registered each year
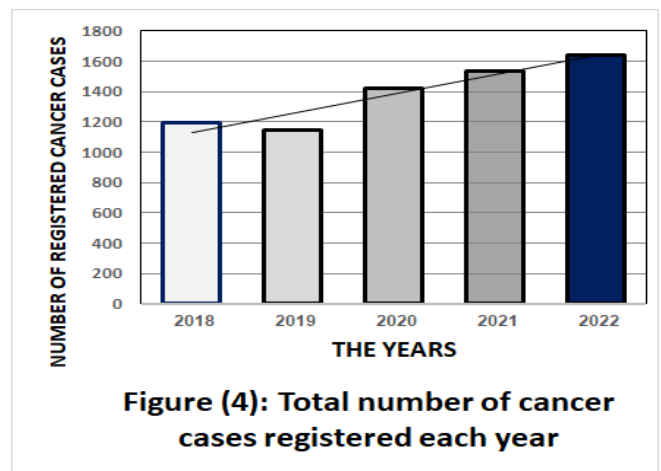
2- Top Ten Cancer Cases Recorded in 2018
In 2018, the total number of registered cases was 1198, the top 10 cancer-recorded cases from the highest to the lowest are Breast, Colorectum, lung, Lymphoma, ovary, prostate, Leukemia, Pancreas, Sarcoma and Stomach cancer where the following results were recorded 257 (21.45%), 196 (16.4%), 93 (7.8%), 89 (7.4%), 73 (6.1%), 58 (4.8%), 39 (3.3%), 32 (2.6%), 32 (2.6%), and 29 (2.4%) respectively. Data illustrated in Figure (5)

Figure (5): Top Ten Cancer Cases Recorded in 2018

3- Top Ten Cancer Cases Recorded in 2019
Figure (6) shows the total number of registered cases reported from 2019 was 1143 cases. Breast cancer was the

most prevalent type 239 cases (20.9%), followed by colorectum 180 (15.7%), lung 91 (7.9%), lymphoma 83 (7.3%), prostate 56 (4.9%), ovary 53 (4.6%), Myeloproliferative 41 (3.6%), Leukemia 40 (3.5%), Pancreas 39 (3.4%) and sarcoma cancer 39 (3.4%).
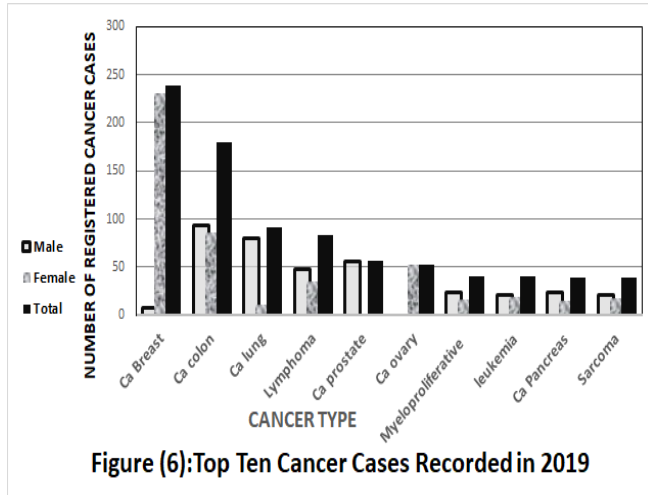

Figure (6):Top Ten Cancer Cases Recorded in 2019

4- Top Ten Cancer Cases Recorded in 2020

Of the 1422 cancers registered in 2020, breast cancer was the most accounted for 322 (22,6%) of all cancers, followed by colorectum 244 (17.2%), lung 151 (10.6%), lymphoma 86 (6%), prostate 54 (3.8%), endometrial 45 (3.2%), sarcoma cancer 39 (2.7%), stomach 39 (2.7%), ovary 38 (2.67%), and brain tumor 32 (2.25%). Data illustrated in Figure (7).
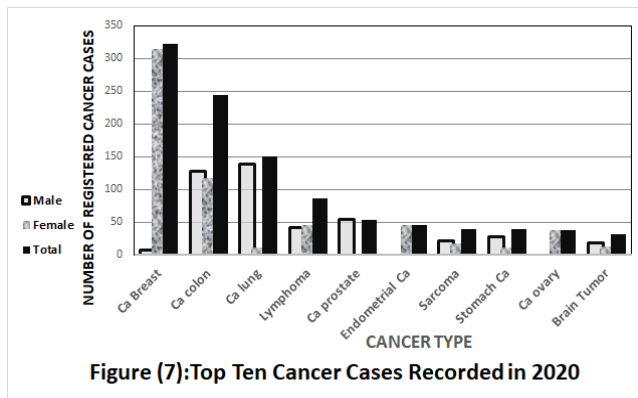

Figure (7):Top Ten Cancer Cases Recorded in 2020

5- Top Ten Cancer Cases Recorded in 2021

In 2021, the total number of registered cases was 1533, the top 10 cancer-recorded cases from the highest to the lowest are breast, colorectum, lung, ovary, prostate, lymphoma, pancreas, myeloproliferative disorder, brain tumor, and sarcoma where the following results were recorded 382 (24.9%), 282 (18.4%), 123 (8%), 113 (7.37%), 87 (5.67%), 76 (5%), 60 (3.9%), 55 (3.6%), 53 (3.45%), and 40 (2.6%) respectively. Data is illustrated in Figure (8).
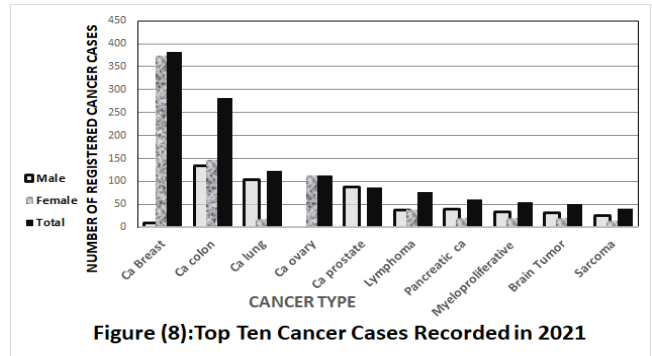

Figure (8):Top Ten Cancer Cases Recorded in 2021

6- Top Ten Cancer Cases Recorded in 2022

Figure (9) shows the total number of registered cases reported from 2022 was 1640 cases. Breast cancer was the most prevalent type 389 cases (23.7%), followed by colorectum 256 (15.6%), lung 149 (9%), prostate 120 (7.3%), ovary 113 (6.9%), lymphoma 84 (5.1%), pancreas 42 (2.56%), sarcoma 36 (2.2%), brain tumor 34 (2.1%), stomach 33 (2%) and nasopharynx 33 (2%).
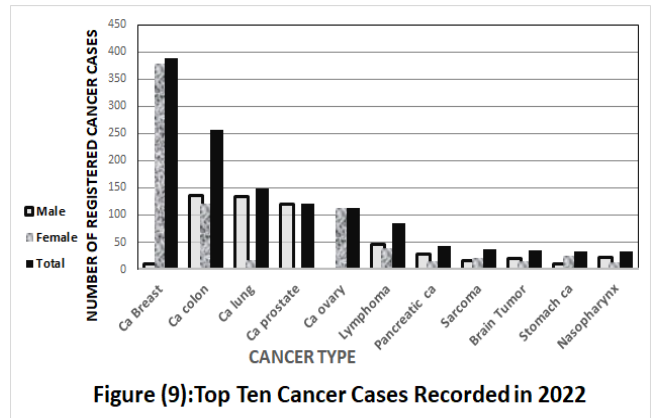

Figure (9):Top Ten Cancer Cases Recorded in 2022

7- The relationship between the number of most common cancers and years

Through the linear relationship between the number of different types of cancer cases and the time, it is clear that every year the number of cases increases. Data is illustrated in Figure (10).

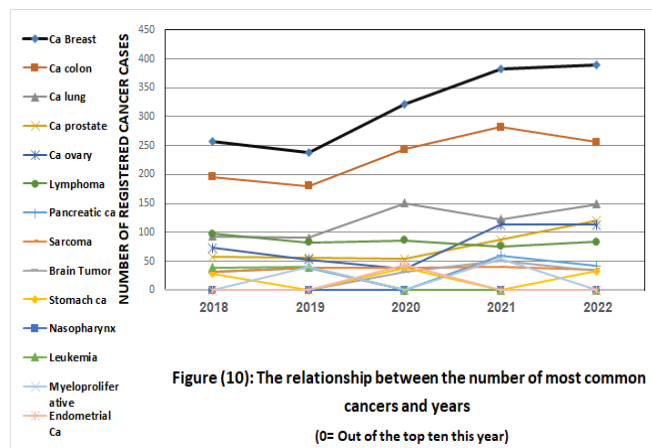**Figure (10):The relationship between the number of most common cancers and years**

(0= Out of the top ten this year)

DISCUSSION

The public health problems caused by cancer will increase significantly over the next few decades. This retrospective

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study assessed the prevalence of different types of cancers in Libya between 2018 and 2022. The data from the Oncology Centre in Misrata show an annual increase in cancer cases, rising from 1,198 in 2018 to 1,640 in 2022. Breast cancer was the most prevalent type, accounting for approximately 21–25% of cases annually, followed by colon and lung cancers.

According to the results of the present study, it is obvious from the linear association between the number of instances of various cancer kinds and time that the number of cases rises every year, the overall number of cancer cases is rising annually: 1198 cases were reported in 2018, 1143 cases in 2019, 1422 cases in 2020, 1533 cases in 2021, and 1640 cases in 2022. The present results are in harmony with the report of Global Burden of Cancer: WHO 2008, which reported that the rapidly growing global cancer burden reflects both population ageing and growth, as well as changes to people's exposure to risk factors, several of which are associated with socioeconomic development. These results may be in Libya patients lack cancer awareness, delay in diagnosis and lack treatment.

The results of the present work showed that breast cancer was the most prevalent type of cancer during the period 2018-2022, the following results were recorded 21.45%, 20.9%, 22.6% 24.9% and 23.7% respectively. Followed by colon cancer was recorded at 16.4%, 15.7%, 17.2%, 18.4% and 15.6 respectively, followed by lung cancer was recorded at 7.8%, 7.9%, 10.6%, 8% and 9%. These findings go in line with the result of the Global Cancer Observatory, Libya, 2022, which reported that during 2022 in Libya, breast cancer ranked first, followed by colon cancer, followed by lung cancer. On the contrary, (AACR Cancer Progress Report 2024) and (Cancer in South Africa, 2008 – 2019) reported that Prostate cancer ranks second in prevalence in the USA. And WHO (2020), reported that the most common cancers diagnosed globally were breast cancer followed by lung cancer followed by prostate cancer.

The present work revealed that the fourth to eighth grades are often confined between lymphoma, ovary, prostate, leukemia, pancreas, sarcoma and brain tumor. This is in agreement with the observations of (Global Cancer Observatory, Libya, 2022) (Communicable Diseases Communiqué. 2021).

Stomach cancer observed in this study did not make the top ten in 2019 and 2021, ranked 10th in 2018 and 2022 and 8th in 2020. Similar results were shown by (the AACR Cancer Progress Report 2024) and (the Global Cancer Observatory, Libya, 2022), which noted that stomach cancer did not make the top ten. On the contrary, WHO (2020), reported that stomach cancer ranks fifth. Possible due to no alcohol consumption in Libya.

Major expenditures are urgently needed to address worldwide disparities in cancer outcomes and guarantee that everyone, regardless of geography or socioeconomic background, has access to reasonably priced, high-quality cancer care.

This alarming increase in the number of cancer cases may be due to the unregulated use of pesticides in the cultivation of vegetables and fruits and the indiscriminate use of drugs and hormones in chicken meat.

CONCLUSION

The present results disclose a clear increase in the number of cases of various types of cancer in Libya every year. This study highlights the urgent need for early detection programs, regular check-ups, and better healthcare resources to combat the growing cancer burden in Libya. The authors recommend raising public awareness and improving government support for cancer prevention, diagnosis, and treatment. Further research is needed to determine the reason behind the alarming rise in cancer incidence.

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