

Burden of cancer death among adult population; findings from verbal autopsy mortality surveillance data

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Introduction

- Cancer is one of the leading causes of death worldwide in 2020 there were 10.0 million cancer deaths (GLOBOCAN, 2020).
- According to the GLOBOCAN 2020 report, lung cancer remained the leading cause of death, with an estimated 1.8 million deaths (18%), followed by colorectal (9.4%), liver (8.3%), stomach (7.7%) and female breast (6.9%) cancers (GLOBOCAN, 2020).
- In Africa, the top five causes of cancer death were breast cancer (85,787 deaths, 12.1%), cervical cancer (76,745 deaths, 10.8%), liver cancer (66,944 deaths, 9%), prostate cancer (47,249 deaths, 6.6%) and lung cancer (41,171 deaths, 5.8%).
- Breast cancer was the most common cause of cancer death in Ethiopia, accounting for 9,061 (22.6%) deaths, followed by cervical cancer, which had a share of 5,338 (9.3%) deaths; leukaemia, which accounted for 3,182 (6.1%) deaths; non-Hodgkin's lymphoma, which accounted for 2,514 (4.8%) deaths; and colon cancer, which accounted for 2,342 (4.5%) deaths (GLOBOCAN, 2020).

cont...

- Verbal autopsy method is a tool used for analyzing burial surveillance data.
- It is a reliable technique for assessing community diagnoses' causes of deaths for less developed countries **where most deaths happen outside health facilities without vital registration systems**
- WHO has developed a VA instrument for routine use to support compilation of national mortality statistics (WHO, 2009).
Verbal autopsy standards:

The 2012 WHO verbal autopsy instrument
Release Candidate 1



Aim

- To describe the burden of cancer mortality,
- To describe the socio-demographic and other characteristics of deceased adults (≥ 15 years) from cancer in Addis Ababa from 2007 to 2017.

Methods...

Study setting

- This analysis is a portion of the data collected by the Addis Ababa Mortality Surveillance Program, the burial surveillance has been running for over two decades
- Collects lay report of 20,000 deaths in a year
- In Addis Ababa, burials are conducted at religious- or municipality-based cemeteries
- There were about 73 burial sites in the city.

Methods...

Study design and period

- Using the surveillance design, the data were collected from January 2007 to December 2017
 - 2013 - 2014 year data were not available due to fund,
- Cemetery clerks register deaths at each site using a structured registration form.
 - Name, Date of funeral, Sex, Age, Address, Marital status, Region of birth, Ethnicity, Religion and lay reported cause of death

Methods...

- Verbal autopsy is applied by interviewing relatives or caregivers of the deceased about the signs, symptoms, lifestyle behaviors, general circumstances surrounding the death, and other pertinent features preceding the death (WHO, 2009).



Methods...

- Both the burial single and VA double data entries were implemented with the Microsoft Access, and both data sets were cleaned analyzed using STATA.
- Data collectors were extensively trained on the objective, on the questionnaire and abilities of an interview with family members.
- The completed VA questionnaire forms were checked by a VA research assistant in the programme office weekly.

Methods...

- Primarily, two physicians reviewed the VAs independently. Any inconsistency between the two was brought up to a third physician, who either agreed with the first or second physician.
- If the results of the three physicians were inconsistent, then the cause of death was labelled as 'undetermined'.

Verbal Autopsy Study - Addis Ababa
Physician Review Form
VA-110 1st Phy

Record Nr: | _ _ | - | _ _ _ _ |
 First Name: _____
 Father's Name: _____
 Age: | _ _ | 1 Days 2 Months 3 years Sex: M F
 Notes: _____

Physician's assessment:	Likelihood:					Unable to determine
	possible	probable	highly probable	probable	possible	
	1	2	3	4	5	9
Immediate COD: _____						
Underlying COD 1: _____						
Underlying COD 2: _____						
Contributing COD: _____						

Physician's name: _____ Signature: _____
 Date: | _ | | _ | | _ _ _ | (dd mm yyyy)

Final Diagnosis 1. _____ ICD 10 Code _____
 2. _____ ICD 10 Code _____

VA diagnosis 1 _____ VA code _____
 VA diagnosis 2 _____ VA code _____

Methods...

- We used the VA title along with the International Classification of Disease-10 code

Correspondence table: cause-of-death list for verbal autopsy with corresponding broad ICD-10 codes

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
VA-01	Infectious and parasitic diseases			<p>Important differences from ICD-10</p> <p>In ICD-10, meningitis is found in chapter I (Certain infectious and parasitic diseases) and in chapter VI (Diseases of the nervous system) depending on the underlying infection.</p> <p>Acute respiratory infections are assigned to chapter X (Diseases of the respiratory system).</p> <p>Some infectious diseases occur as a consequence of other infectious diseases. For relevant combinations there exist appropriate categories in ICD-10.</p>
VA-01.01	Intestinal infectious diseases (including diarrhoeal diseases)	A029	Salmonella infection, unspecified	<p>Relevant information</p> <p>Increased liquidity of stool for < 3 weeks Blood in stool Mucus in stool Fever Abdominal pain/tenesmus Weight loss Vomiting</p>
		A039	Shigellosis, unspecified	
		A049	Bacterial intestinal infection, unspecified	
		A059	Bacterial foodborne intoxication, unspecified	
		A069	Amoebiasis, unspecified	
		A079	Protozoal intestinal disease, unspecified	
		A084	Viral intestinal infection, unspecified	
		A09	Diarrhoea and gastroenteritis of presumed infectious origin	
VA-01.02	Typhoid and Paratyphoid	A014	Paratyphoid fever, unspecified	Diseases in VA-01.02 may be easily confused with other diarrhoeal diseases" in VA-01.0.

3. Applying ICD-10 to verbal autopsy

Activate Windows

Methods...

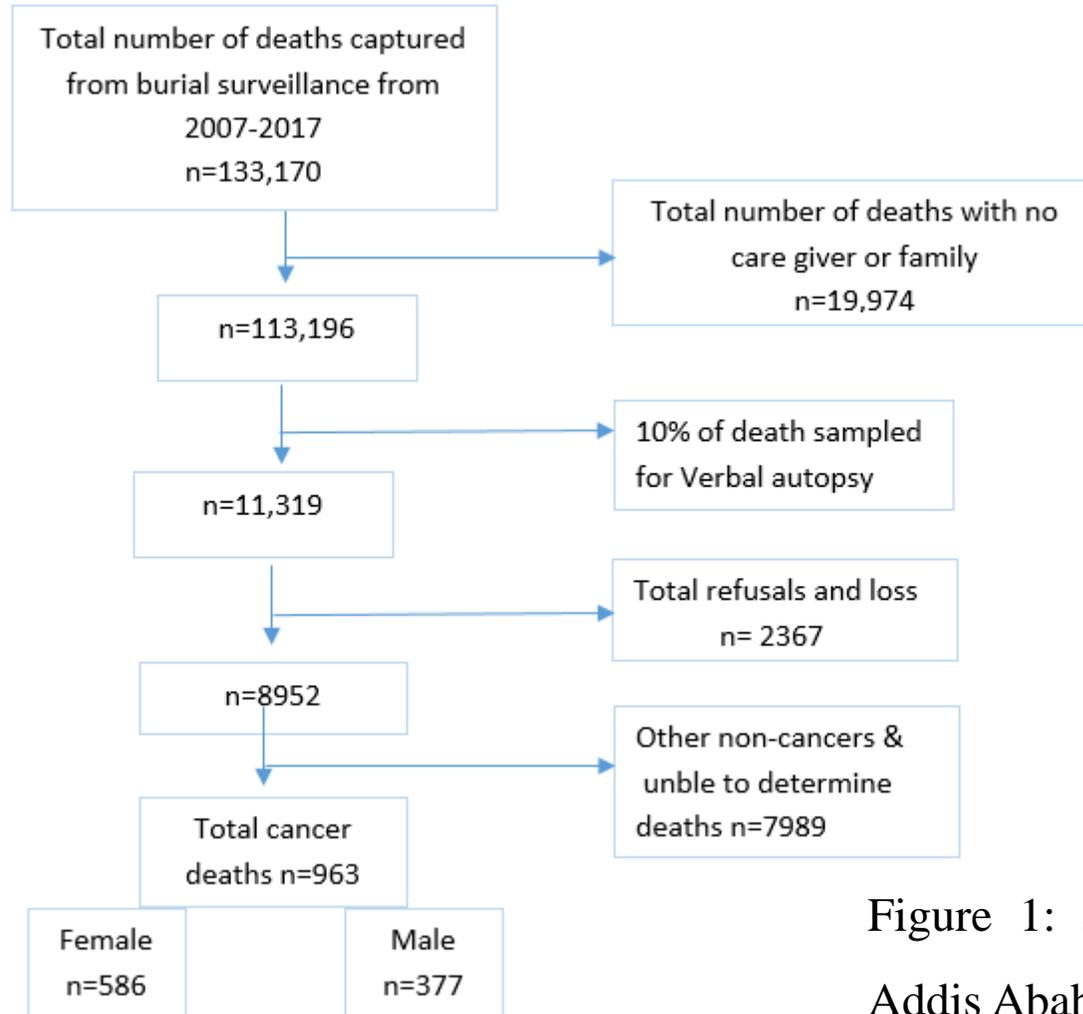


Figure 1: Schematic flow chart, 2007-2012 and 2015-2017, Addis Ababa, Ethiopia

Methods...

- Descriptive statistics, such as frequencies and proportions, were applied
- For continuous variables, such as age and bedridden time, we used median/Interquartile Range (IQR) after testing the assumptions of normality.

Result

- A total of 8,952 VA interviews were completed. Out of those, 963 (11%) died as a result of cancer
- More than half (586, 61%) of the deceased were female.
- Age median 60 (IQR; 47-70)
- 67% died prematurely.



Results...

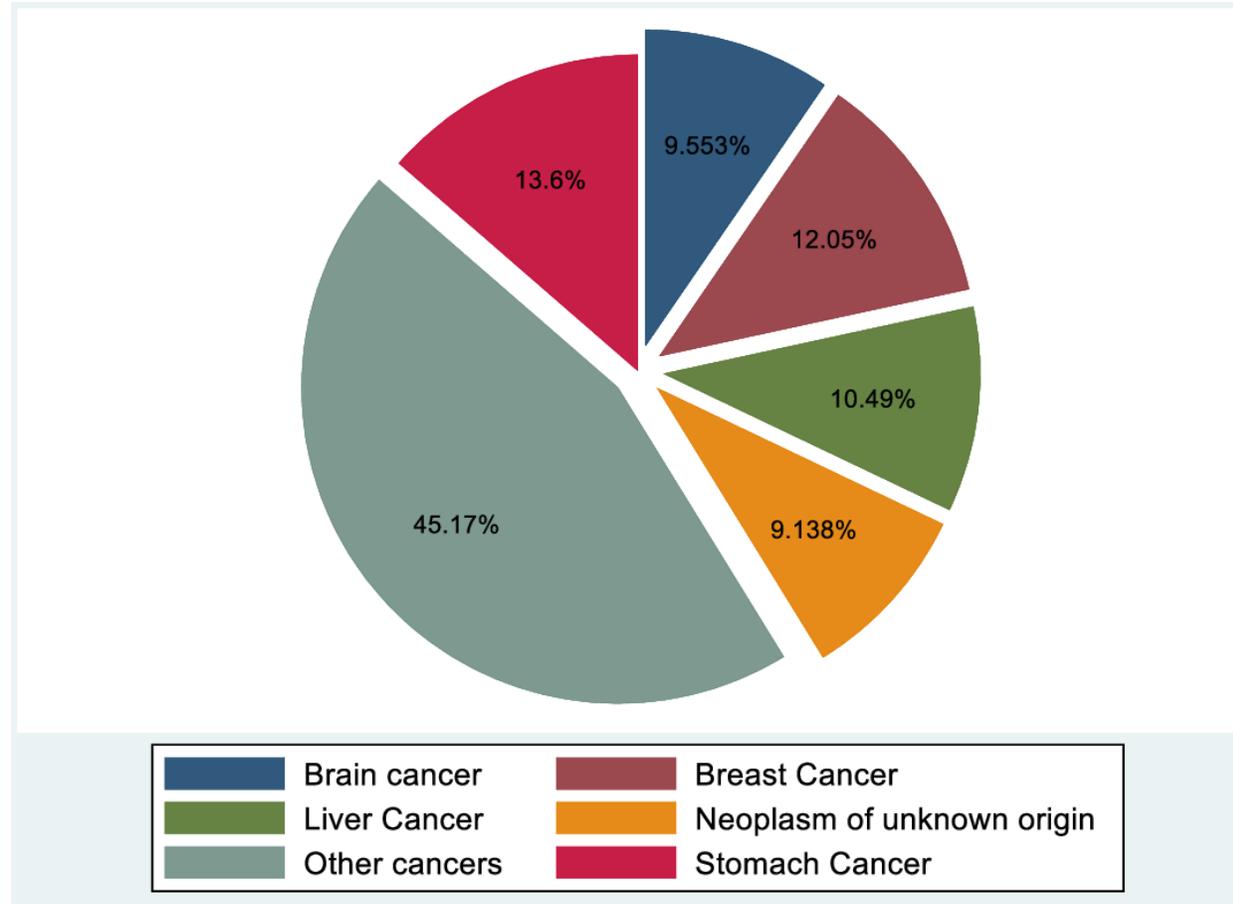
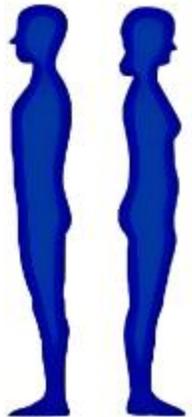


Figure 2: Proportion of deaths from cancer, 2007-2012 and 2015-2017, Addis Ababa, Ethiopia



Result...

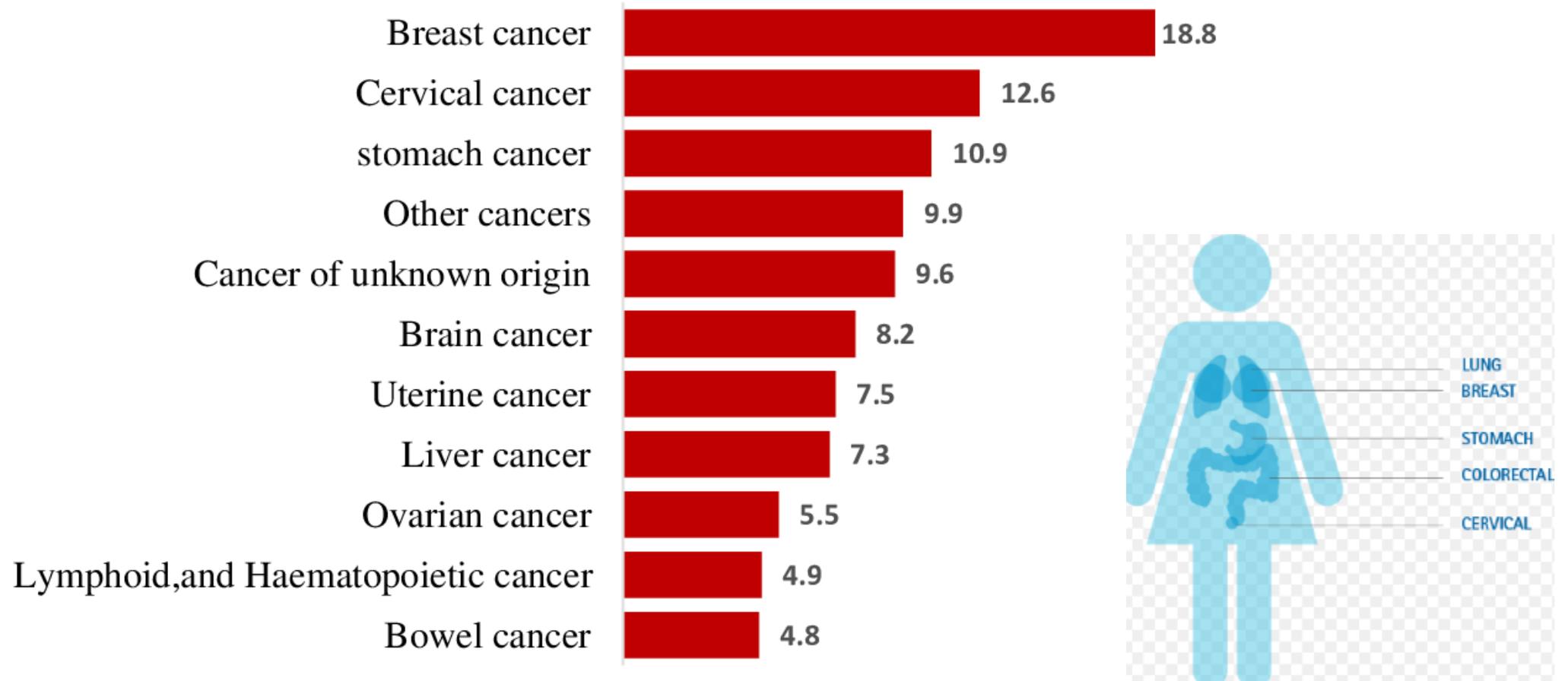


Figure 3: Proportion of female deaths from cancer, 2007-2012 and 2015-2017, Addis Ababa, Ethiopia

Result...

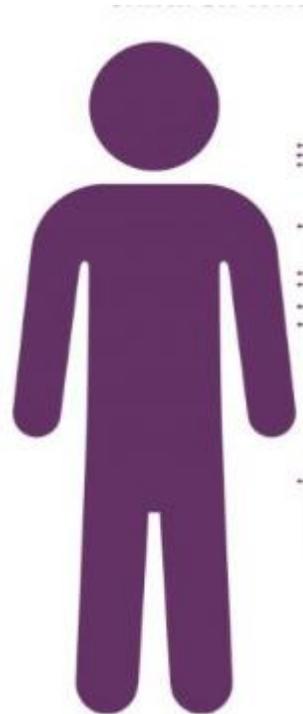
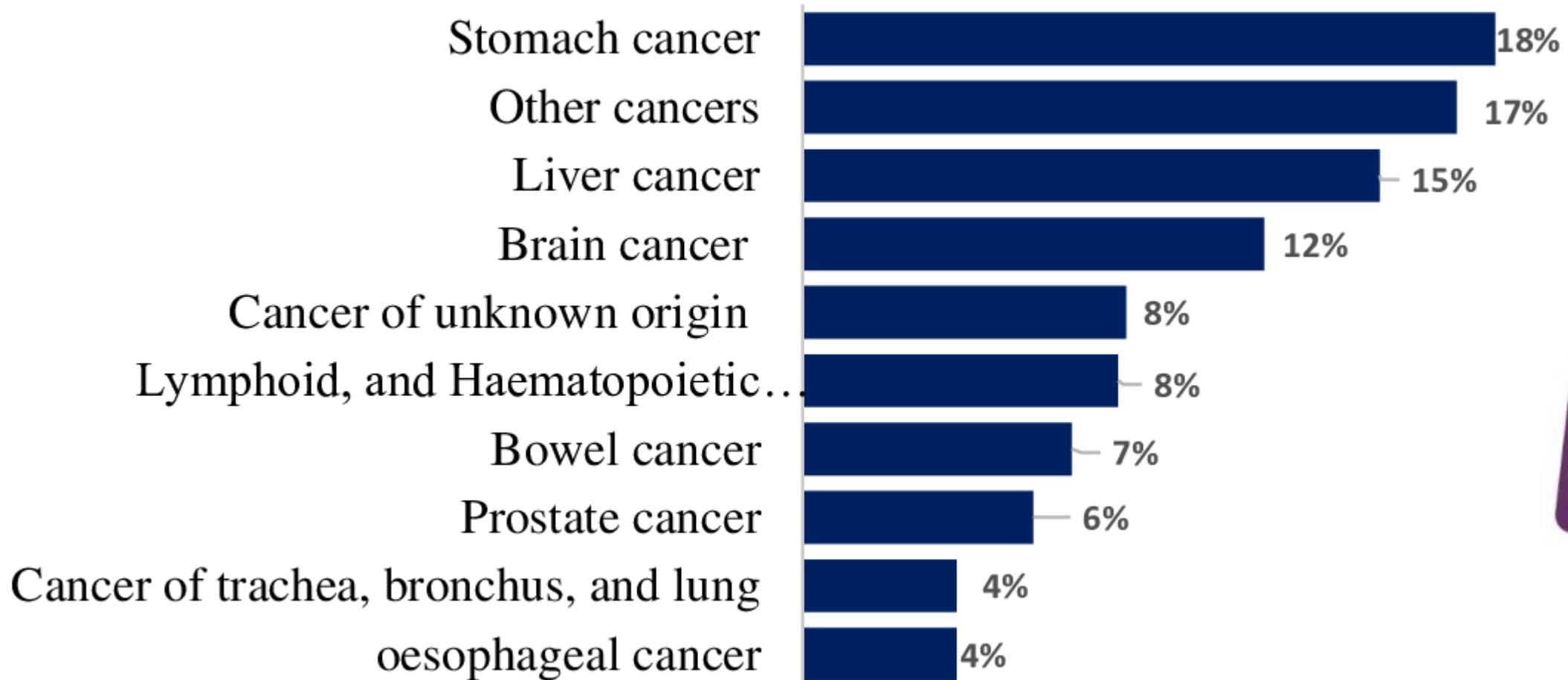


Figure 4: Proportion of male deaths from cancer, 2007-2012 and 2015-2017, Addis Ababa, Ethiopia

Result

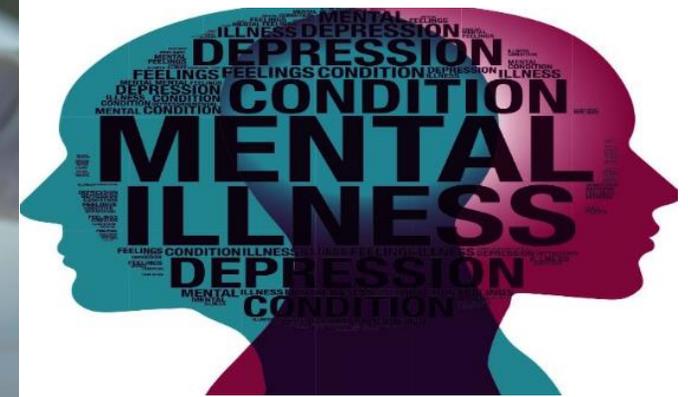
- Bed ridden median 2 months (0.7-5.6)
- Hx of alcohol consumption 272 (28%)
- $\frac{3}{4}$ died at their home.
- 279 (29%) of them didn't visit a health facility for their illness that caused death.
- 81 (8%) of them were discharged from hospitals they were admitted to while there were very ill.
- 63 (11%) visited a traditional healer while on tx.

Result...

Hypertension 108(11%)



Diabetes 61(6.3%) Mental illness 50(5.2%)



Limitations

- Our findings may not apply to the deceased who were omitted from the sampling frame because they lacked close relatives or friends and had inadequate information, such as addresses.
- Selection biases could have existed as non-residents' funerals might be in Addis Ababa and similarly, residents can have their funeral out of Addis Ababa.
- Social desirability bias might have been introduced regarding the deceased's behaviours/unhealthy lifestyle choices, which may have been underestimated.
- Effects of misclassification of causes of death by the VA method.

Challenge

- Donor dependent
- Sustainability/not institutionalized
- Financial constraint

Conclusion

- Cancer death contributed a significant proportion of death.
- Females were disproportionately affected.
- Premature deaths accounted for the majority of these deaths.
- Cancer deaths were most commonly caused by stomach, breast, and liver cancer.

Way forward

- A strengthened action to prevent, control, and treat the common female cancers in Ethiopia
- Cancer education, healthy lifestyle advocacy, effective cancer screening, vaccine programmes and strong alcohol-control regulations should be tailored to the country.
- Ownership and intergradation of the system to a routine services
- Strengthening vital registration system

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Burden of mortality from cancer among adults in Addis Ababa, Ethiopia, using verbal autopsy, 2007–2017

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Abstract

Background: Cancer is one of the leading causes of death; worldwide, there were 10.0 million cancer deaths in 2020. In Ethiopia, 51,865 people died from the disease in the same year. We aimed to describe the burden of cancer mortality, the socio-demographic and other characteristics of deceased adults in Addis Ababa from 2007 to 2017.

Methods: This study was part of the Addis Ababa Mortality Surveillance Programme. Based on the burial-based surveillance, there were 133,170 adult deaths from 2007 to 2017. The standard verbal autopsy questionnaire was applied to collect information on the causes of death of 10% of the randomly selected deaths.

Results: Cancer accounted for 11% of all deaths studied. The median age of death in years was 60 (range = 47–70). Stomach cancer was the leading cause of cancer death (131, 13.6%), followed by breast cancer (116, 12.0%) and liver cancer (101, 10.5%).

Conclusion: Cancer-related deaths accounted for a significant portion of all deaths. Premature deaths accounted for majority of the deaths. Cancer deaths were most commonly caused by stomach, breast and liver cancers. Advocating for a healthy lifestyle, effective cancer screening and effective alcohol-control regulations should be tailored to the

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