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Research Article

Status of Stillbirths and Main Causes in South Africa: 1997-2018

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Abstract

Objective: To evaluate stillbirth trends in South Africa by geographic, population group and broad and main causes of stillbirth.

Methods: National causes of deaths statistics were used to analyse the 1997 and 2018 causes of data in South Africa. Data from the WHO Globocan was used to report stillbirth rate changes over time for South Africa and data was compared against regional SBR. Changes in the number of stillbirths and percent2 distribution of stillbirths are reported.

Results: In 1997 and 2018, the overall number of stillbirths was 297,585 (3%) of total deaths happening in the same period. The stillbirth rate has declined from 2000 to 2019, with 21.1% decline, and 1.2% Annual rate of reduction (ARR). This decline is much less than the regional sub-Saharan decline of 22.9% and world decline of 35.1%. Sixty-nine percent (205,891) of stillbirth were of Black African population; 22% (66,342) were unspecified and 6% (16,971) were coloured (mixed race) population. Most stillbirth occurred in KwaZulu-Natal province with 26% of stillbirth in the period, Gauteng province with 23% of stillbirths, Western Cape province with 10% of stillbirth and Mpumalanga province with 8% of stillbirths over the period. The top four ascertainment of still birth were unspecified (31%); 28% did not have an autopsy performed; 16% had a post-mortem examination and 13% had an opinion of attending medical practitioner. The top four broad groups of underlying cause of stillbirth included other disorders originating in the perinatal period (69%); 13% maternal factors and complications (13%); respiratory and cardiovascular disorders (7%) and disorders related to length of gestation and foetal growth (5%). The top five main groups of underlying causes of stillbirth are: perinatal conditions; conditional malformations; certain infections and parasitic infections; external causes of morbidity and mortality, symptoms, and sign not elsewhere classified.

Conclusion: The slight changes in the number of stillbirth and SBR over years indicate suggests potential benefits in investigation of stillbirth and address causes. Additionally, medical observed deliveries and the importance of routine antenatal care visits re essential for early identification of maternal related risk to implement appropriate management. It is also important to address health systems issues associated with the main causes of stillbirth to prioritise health practices and urgent health systems related interventions needed to decrease stillbirths across provinces in South Africa.

Keywords: *South Africa; Stillbirths; Stillbirth Rate; Deaths; Pregnancy*

Introduction

Stillbirths remain a critical global health equity challenge, causing major stress on women and families, with WHO Globocan reporting two million stillborn annually, which translates into 5,400 stillbirth every day. In Sub-Saharan Africa (SSA), there are three in four stillbirths recorded in the region, accounting for 42% of global stillbirth burden. Hug, eastern and southern Africa and south Asia had the second and third highest stillbirth rates in 2019 [1-5].

Although there was a 23% decline in still birth in the SSA region since the year 2000, however, Globocan reported that over 66% of the forty-four countries without any reductions were in SSA region. In this region, the stillbirth rate was reduced from 28 to 21.7 per one

thousand livebirths between the years 2000 and 2019 (i.e. in 19 years the reduction is only 6%), as compared to other regions [6]. The current birth rate for South Africa in 2023 is 18.994 births per one thousand people, a 1.73% decline from 2022 [7].

Every Newborn Action Plan (ENAP), endorsed by 194 WHO Member States, has set stillbirth reduction target at a rate of twelve stillbirths or fewer per 1,000 total births by 2030 and prevent 2.9 million stillbirths within this period. It is estimated that of the 194 WHO member states, 56 countries will be unable to achieve this target by 2030 [UNICEF, 2019,2020]. The 2016 census recorded 55.7 million population in South Africa and the top four most populous provinces are Gauteng at 13.4 million (24%); KwaZulu-Natal at 11.1 million (19%), Eastern Cape at 7 million (12.6%) and the Western Cape at 6.3million (11.4%). The Statistics South Africa report that the current life expectancy for South Africa in 2023 is 64.88 years, a 0.39% increase from 2022 [7].

The reasons published for causes of still births, which could also be preventable, by increasing access to antenatal and labour care for feal growth monitoring, increasing the number of health workforce, and improved quality of care and mother nutrition. These include intrapartum complications (including hypoxia), antepartum haemorrhage (including placental abruption), infections and maternal conditions such as hypertensive disorders of pregnancy [8-11].

Objective of the Study

The objectives are to:

- Outline stillbirth trends over a 21-year period (1997-2018) by selected socio-demographic and geographic.
- Present frequency of the broad and major causes of stillbirth occurred over the period.

Materials and Methods

The data is extracted from the death notification database collated by Statistics South Africa. The data collected from 1997 to 2018, documented on the death notification from the civil registration system maintained by the Department of Home Affairs. The cause-of-death statistics in this publication are compiled using the International Classification of Diseases (ICD), 10th Revision 2016 Edition, the coders use the ICD-10 for categories of causes of death coded in the ICD- 10 manual. Descriptive and summary data analysis using SPSS version 28 was conducted. Descriptive data analysis using frequency distributions and cross-tabulations were conducted. Additionally, information on causes of death, are ranked based on highest frequency to lowest, with the top-ranking causes determine the leading causes of death. Data collection and verification processes are further outlined by the Causes of Death Reported 2018 produced by Stats South Africa [13].

Results

South Africa Stillbirth rate (SBR) (per 1,000 total births) from 2000, 2010 and 2019. The table also includes the percentage decline 2000-2019 and the annual rate of reduction (ARR) 2000-2019 (per cent).

SBR	2000	2010	2019	Percentage decline 2000–2019 (per cent)	Annual rate of reduction (ARR) 2000–2019 (per cent)	Lower bound	Upper bound
South Africa	20.8	17.3	16.4	21.1	1.2	0.3	2.8
Estimates of stillbirths by WHO region							
Sub-Saharan Africa (SSA)	28.1	24.4	21.7	22.9	1.4	0.9	1.9
Estimates of stillbirths by UNICEF region							
Eastern and Southern Africa	27.3	23.7	20.5	24.9	1.5	0.9	2.2
World	21.4	16.8	13.9	35.1	2.3	1.7	2.7

Table 1*: Stillbirth rate (SBR) (stillbirths per 1,000 total births): Hug (2021) [4].*

Number of stillbirth by year

Out of the 11,265,352 reported causes of deaths, there were 10,967,760 individual deaths, 297,585 (3%) stillbirths and seven unspecified deaths between 1997 and 2018 in South Africa. The number of stillbirths were highest in year 2004 than in other years. There was a decline by 1046 (8%) in the number of stillbirths in 2018, as depicted in figure 1 below.

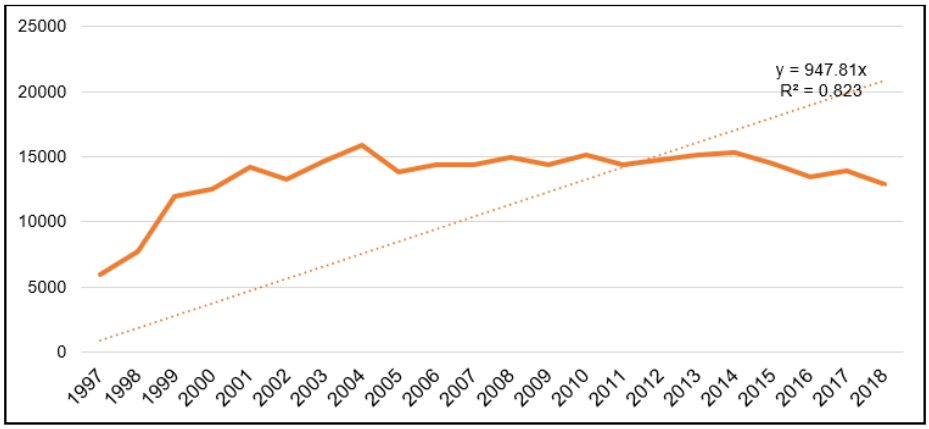

Figure 1: *Number of stillbirth by year, n = 297,585 (1997-2018).*

Stillbirth by population group

Of the 297, 585 stillbirth, 205,891 (69%) were Black African; 66,342 (22%) were unspecified; 16,971 (6%) were of mixed racial group; 4,551 (2%) of white and 2,203 (1%) Asian/Indian population group, as shown in figure 2 below.

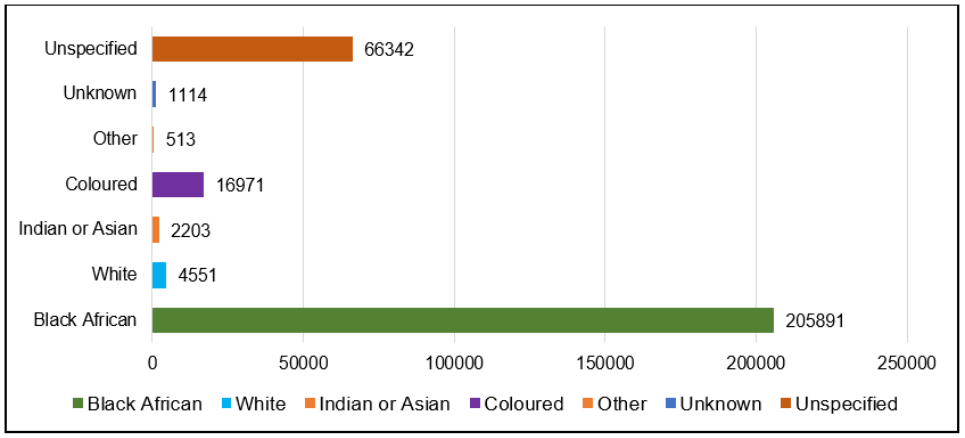

Figure 2: Stillbirth by population group, n = 297,585 (1997-2018).

Number of stillbirths by province

Of the 297 585 stillbirths in South Africa, the top four provinces with majority of stillbirths were KwaZulu-Natal, Gauteng, Western Cape and Free State provinces, as shown in figure 3 below.

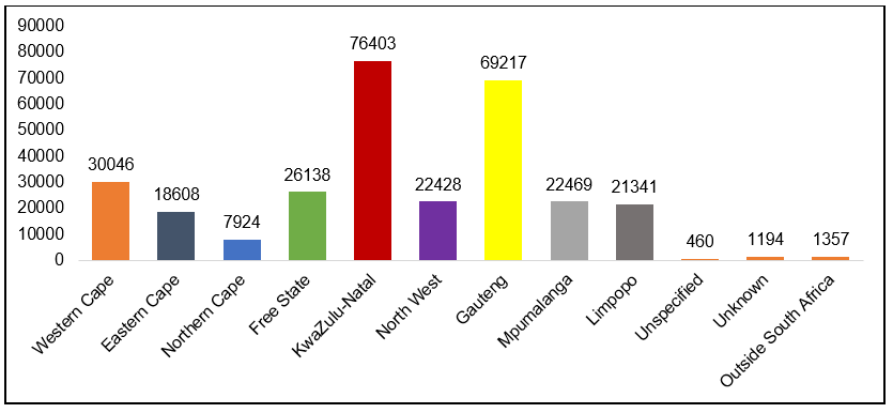

Figure 3: *Stillbirth by geography, n = 297,585 (1997-2018).*

Ascertainment of causes of stillbirth

The top four ascertainment of still birth were unspecified (31%); 28% did not have an autopsy performed; 16% had a post-mortem examination and 13% had an opinion of attending medical practitioner, as depicted by figure 4 below.

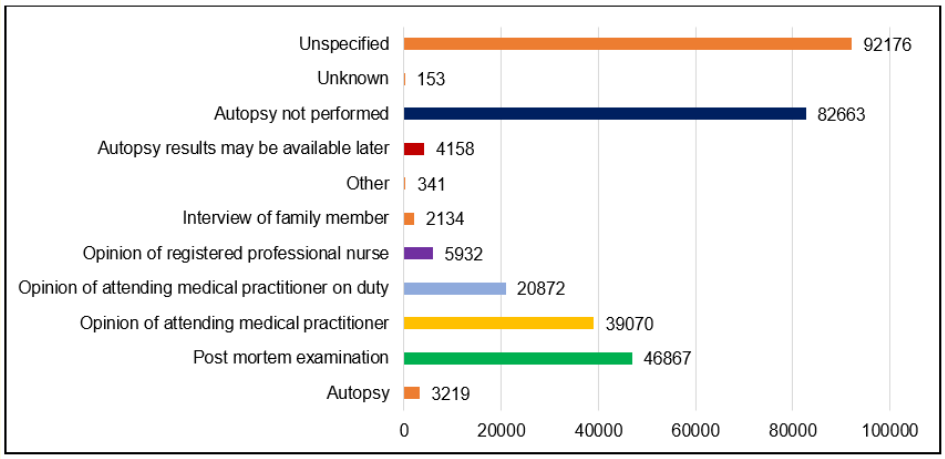

Figure 4: *Ascertainment of causes of stillbirth, n = 297,585 (1997-2018).*

Broad and Main groups of the underlying causes of stillbirth

The top four broad groups of underlying cause of stillbirth, shown in figure 5 below, included other disorders originating in the perinatal period (69%); 13% maternal factors and complications (13%); respiratory and cardiovascular disorders (7%) and disorders related to length of gestation and foetal growth (5%). The top five main groups of underlying causes of stillbirth, outlined in figure 6 below, are perinatal conditions; conditional malformations; certain infections and parasitic infections; external causes of morbidity and mortality, symptoms, and sign not elsewhere classified.

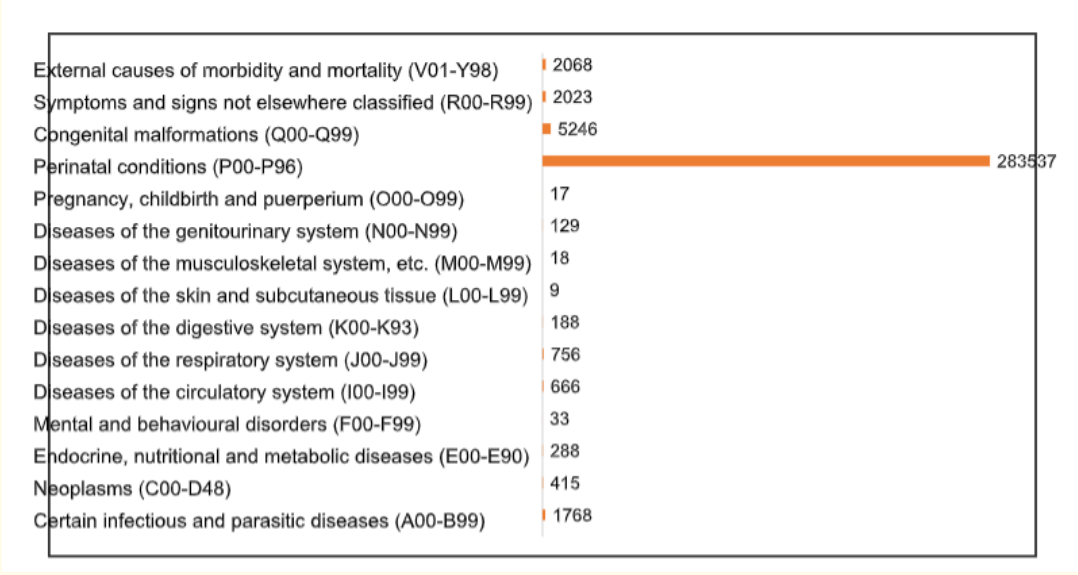

Figure 5: *Main and broad groups of the underlying causes of stillbirth, n=297,585 (1997-2018)*

Discussion

The stillbirth data for shows slow progress in reducing stillbirths in South Africa when compared to the overall declines from the Sub-Saharan and Southern and Eastern African regions, reflected in table 1, from WHO Globocan data [3,4].

In this paper, a descriptive approach was used to determine and categorise stillbirths using socio-demographic and using ICD10 disease code to identify the broad and main causes of stillbirths. The number of stillbirths in South Africa across 21-year period have been between 2% and 3% of the overall total number of deaths in the same period. Two-thirds of the total number of stillbirths in this period occurred among the Black African population and in KwaZulu-Natal province of South Africa. In 2007, it was reported that Amajuba (KZN) rural district one of the nine districts in KwaZulu-Natal provinces had the highest number of stillbirth rates with 34.6 per 1000 births, while eThekwini metropolitan city (largest and only metropolitan city in the same province) recorded stillbirth rate of 26.2 per 1000 births during the same period [12]. This indicated that little progress towards addressing challenges and root causes of stillbirth in the province.

The literature assert that the causes of stillbirth are either preventable, travels or can be avoided with improved health systems, clinical practice and patient behaviour. Noting the persistent perinatal conditions as the main causes of death over 21 years in South Africa, indicate the need for greater effort in addressing causes such as intrapartum asphyxia, hypertensive disorders and spontaneous preterm labour [8-11].

The main and broad underlying causes of stillbirth were aligned, based on the ICD 10 coding. The Stats SA 2018 report identified the top 10 underlying causes of stillbirth in the perinatal period as, including the proportion to the total deaths in 2018 as:

- Respiratory and cardiovascular disorders specific to perinatal period (14%);
- Influenza and pneumonia (8%);
- Intestinal infectious diseases (7%);

- Disorders related to length of gestations and foetal growth (5%);
- Other disorders originating in the perinatal period (5%);
- Infections specific to the perinatal period (5%);
- Foetus and new-born affected by maternal factors or pregnancy, labour or delivery complications (4%);
- Congenital malformations of the circulatory systems (3%);
- Malnutrition (2%); and
- Haemorrhagic and haematological disorders of the foetus and new-born (2%).

Congenital malformation was the second main causes of stillbirth in South Africa. The factors associated with congenital malformation include genetics, chromosomal problems, exposures to medicines, chemicals, or other toxic substances, infections during pregnancy and lack of certain nutrients. The need for appropriate and consistent prenatal and antenatal counselling coupled with screening for infections and growth monitoring during antenatal visit cannot be overemphasised.

Limitations of the Study

The use of secondary data from death notification forms and the ascertainment of stillbirth conducted subjectively, without any indication of the critical tests that are a gold standard to determine the main causes of deaths. Less than 5% of stillbirths had an autopsy done. Secondly, the majority of main or board causes of stillbirth were unspecified. This points to the quality of documentation on the death notification forms and inaccurate classification of the main causes of stillbirth. In addition, there is no indication that further investigations to verify the causes of stillbirth were documented before data was captured such as verification through medical records or tests done. In addition, the total number of stillbirths may have been under-reported since not all stillbirths are reported and captured in the national system.

In addition, there were 2,528 forms with no information on the cause of death, hence, the records were coded to "other ill-defined and unspecified causes of mortality (R99) or other conditions originating in the perinatal period (P96)", especially when the age of the deceased was 28 days or younger [13].

However, the study does provide valuable information in terms of demographics, geographic and broad base causes that may be verified by deep dive analysis to further identify the root causes of the stillbirth within specific population groups in the geographic area.

Conclusion and Recommendations

The number of stillbirths in South Africa has remain stagnant over 21-year period (two decades). This is concerning noting that South Africa continues to implement the evidence-based interventions to improve perinatal, antenatal and postnatal care. Hence, there is a need to track investments directed at quality improvements to identify bottlenecks. Persistence and incremental health systems strengthening including equitable access to antenatal services, community engagement, addressing structural and socio=economic needs and client counselling coupled with localisation of stillbirth targets and accountability measures will go a long way to arrest the number of stillbirth trough prioritised interventions.

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