

Suicide trends among patients with cancer in India over the past 24 years

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INTRODUCTION

Suicide is a significant global public health concern, claiming over 0.7 million lives annually. It is seen in all age groups and is the fourth leading cause of mortality in the 15–29 year old age group. Three-quarters of suicides are reported in low-income and middle-income countries.¹ Notably, India significantly contributes to this global burden, reporting 164 000 suicides in 2021.²

Cancer is one of the factors leading to suicide. In India, new cancer cases are estimated to increase by 58.3% by 2040 compared with 2020. The most common cancer among males in India is oral cancer, while breast cancer ranks as the most common type of cancer among females.³

A cancer diagnosis can lead to severe mental and physical distress, raising the likelihood of suicide. Patients with cancer commonly face depression, anxiety, social stigma, lack of moral support, the chronic nature of the illness, financial burden and painful treatment, all of which significantly impact their mental health and can lead to suicidal tendencies.

Research indicates that the risk of suicide is significantly greater among those affected by cancer compared with the general population.⁴ However, the psychosocial challenges of patients with cancer remain insufficiently explored.^{5 6} In particular, there is limited research on recent suicide trends among patients with cancer in India. Studying these trends will provide insights into the complexities of suicide risk in this specific population.

The aim of the study was to find trends of suicidal deaths among individuals with cancer in the Indian population based on secondary data.

METHODS

The number of suicides among patients with cancer from 1997 to 2020 was extracted from the National Crime Records Bureau, along with state-specific and gender-specific

suicide data. National population estimates for the same years were collected from World Bank data. The yearly estimate of nationwide cancer cases was obtained from the National Cancer Registry Programme, Indian Council of Medical Research.

Data on nationwide cancer incidence were obtained to calculate the number of suicides per 10 000 patients with cancer in the most recent 5 years (2016–2020). A line diagram was plotted to compare suicide trends between the general population and patients with cancer. Statistical analysis was performed using SPSS V.21 and R V.4.3.1 software. We developed a map illustrating the state-wise distribution of the percentage of suicides using the QGIS software (Quantum Geographic Information System; QGIS Association).

RESULTS

The total number of suicides in the general population in India over the 24 years from 1997 to 2020 was 2.96 million, of which 0.67% were cancer-related. Seven in every thousand suicidal deaths were attributed to cancer. The total number of suicides among patients with cancer during the same period was 19 845. Suicide among patients with cancer increased by 53% during this period.

The median suicide rate among patients with cancer in India was 787 individuals per year (interquartile range (IQR): 689–872). Statistical analysis demonstrated a significant increase in suicide rates among patients with cancer (Mann-Kendall trend test, tau=0.319, p=0.031). The median suicide rates among male and female patients with cancer per year were 553 (IQR: 446–590) and 247 (IQR: 232–286), respectively. Suicide among male patients with cancer was more common than in female patients, accounting for 70% of cases. There was a significant difference between suicide rates among males and females (Mann-Whitney U test, U=300, z=5.939, p<0.001).

Table 1 Suicides among patients with cancer in India in the last 5 years (2016–2020)

Year	Total estimated cancer cases	Suicides among patients with cancer	Suicides among patients with cancer per 10000 cancer cases
2016	1260427	875	6.94
2017	1292534	1175	9.09
2018	1325232	1267	9.56
2019	1358415	1174	8.64
2020	1392179	1260	9.05

In the last 4 years, approximately 9 individuals per 10000 patients with cancer died by suicide (table 1). There has been a rising trend of suicide rates among patients with cancer in India in the last 5 years, particularly among males. The spatial distribution shows that the states of Maharashtra, Kerala and West Bengal had the highest incidence of suicide among patients with cancer (online supplemental figure 1).

DISCUSSION

We conducted an analysis on suicide rates among patients with cancer in India from 1997 to 2020, based on secondary data that are freely accessible on the National Crime Records Bureau’s website. We found an increasing trend in suicide among individuals affected by cancer in India (figure 1), and 7 in 10 suicides were among male patients with cancer.

Suicide rates in both the general population and among patients with cancer have varied over the last two

decades in India. From 1997 to 2020, the suicide rate among patients with cancer increased faster than in the general population, with more than a 50% rise in suicide among patients with cancer. In India, the suicide incidence among patients with cancer increased substantially in the last 5 years. We found that suicide rates among patients with cancer were higher than in the general population, which is consistent with many previous global studies.^{4 7} For example, in a population-based cohort study of cancer survivors in the USA, it was observed that suicide rates among patients with cancer were higher than those in the general population.⁸ However, in contrast, other studies have reported a reduced trend of suicide among individuals with cancer.⁹ This disparity may be attributed to various factors, including cancer type and patient characteristics.

In India, the majority (70%) of suicides among patients with cancer occurred among males. A similar pattern is observed in the USA, with one study reporting that 83% of suicides among patients with cancer were males.^{8 10} This finding emphasises the urgent need to address and prioritise the mental health needs of male patients with cancer. Further research is needed to identify the contributing factors to the higher suicidal tendencies among this group.

Head and neck cancer, which includes oral cavity cancer, oropharynx and larynx, has been identified as a significant factor leading to suicide among patients with cancer.¹¹ In India, oral cancer is the most common type of cancer among males, whereas oral cavity cancer is not among the top 10 types of cancer in the USA.³ As oral cancer is associated with a higher rate of suicide, this may

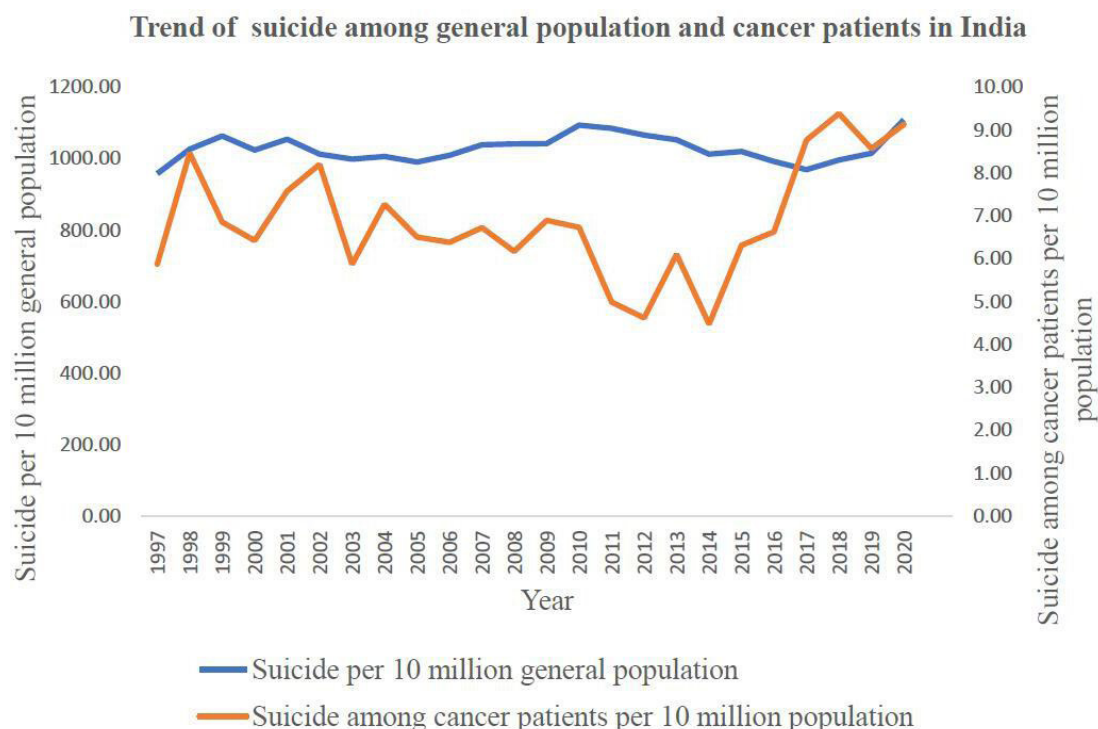


Figure 1 Trends of suicide among the general population and patients with cancer in India.

be a contributing factor to the higher suicide rate among patients with cancer in India when compared with the USA. This may be one of the reasons for the difference in the current suicide rates among patients with cancer between the two countries.

Increased suicidal tendencies are linked to certain risk factors among patients with cancer, including poor prognosis,^{7, 12} the severity of cancer and the early post-diagnosis period.⁷ Additionally, some socioeconomic and psychosocial factors, such as poverty, financial strain, limited access to healthcare services, poor quality of life and social isolation, are associated with an increased risk of suicide.^{4, 12} Some patients with cancer die by suicide due to these factors as they may not have stress-bearing abilities. Conversely, some survivors of childhood cancer develop psychological stress-coping abilities over time.¹³ The ability to cope with stress is the deciding factor for suicide. If stress becomes unbearable, it leads to suicide. Patients with cancer need to be treated in an empathetic environment, considering their mental health needs. Multisectoral interventions are required to prevent deaths by suicide among patients with cancer.

India has taken several significant steps to enhance mental health and reduce suicide rates, including the National Suicide Prevention Strategy, National Programmes on Mental Health, National Mental Health Policy (2014), Mental Healthcare Act (2017), and the establishment of health and wellness centres under the Ayushman Bharat Programme.¹⁴ On a global level, the World Health Organization (WHO) has introduced a manual for surveillance of suicide and self-harm in communities via key informants. This assists in identifying the triggers and key factors behind suicide attempts and self-harm. The early identification of self-harm aids in providing prompt treatment and counselling for improved psychosocial health. Individuals identified as high risk must be screened by an oncologist and referred to a psychiatrist for counselling. Additionally, communication skills training has been integrated into doctors' training to counsel these patients effectively.¹⁵

Many mental health programmes are in operation, yet a comprehensive policy dedicated to addressing the mental health challenges of individuals affected by cancer is absent. The mental health concerns of this group remain overlooked. Given the emphasis on early cancer detection, there is an urgent need for the healthcare system to pay attention to the mental health of cancer survivors. The quality of life of cancer survivors is highly connected to their mental health, underscoring the importance of addressing this critical challenge.

Limitations

This review is based on secondary data, which introduces several limitations. Specific details on cancer-related suicides were not accessible, preventing in-depth analysis of factors, such as cancer types and individual risk factors. Additionally, it is possible that some deaths were related

to the overuse of opioids. Furthermore, under-reporting may influence the study's findings.

CONCLUSIONS

There has been a rising trend of suicide among patients with cancer in India in the last 5 years. With the expected rise in cancer incidence, it is foreseeable that suicide among patients with cancer will also increase. Therefore, there is a pressing need to integrate mental healthcare with cancer care across all healthcare facilities. Moreover, further research is needed to better understand the causes and the epidemiology of suicidal behaviour among patients with cancer, with a specific focus on males in India.

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