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Economic Cost of Youth Suicide

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Executive Summary

The government has found a rising trend in suicide among youths in Malaysia. It is estimated that in 2019, 512 youths ended their lives by suicide (74.3% of whom were young males). Besides the immeasurable emotional toll due to suicides on families, suicides have an economic impact on communities, societies and the nation, with loss of manpower and income for families, employers and the government. This paper estimates the economic cost of youth suicide in 2019 based on the economic loss due to foregone income and the loss of potential government revenue due to foregone personal taxes. In 2019, youth suicide is estimated to cost the Malaysian economy a high price of RM346.2 million or RM676,165 per suicide. The investment in Malaysia's economy must include an investment in the mental health of young people, including the development of effective suicide prevention strategies.

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Introduction

Suicide is a leading cause of death in Malaysia among young people aged between 15-to-29 years old.[1] In 2019, Befrienders estimated that 35% of the 30,075 calls to its 24-hour crisis hotline, in that year, thought about ending their lives (suicidal ideation).[2] Of those callers, 1-in-3 were aged between 15-to-29 years old. During the COVID-19 pandemic,[3] Bukit Aman Management Director Datuk Ramli Din reported that, between March 18 to October 30, 2020, 266 people ended their lives by suicide, of which 60 were teenagers aged between 15 and 18 (23%), and 141 were aged between 19 and 40 (53%).[4] Predictably the pandemic has taken its toll on people's psychological and emotional health.

The emotional and financial impact of deaths by suicide have a ripple effect on families and communities. This paper focuses on estimating the 2019 indirect economic cost of youth suicide in Malaysia to highlight the tremendous financial cost of such tragedies and, accordingly, the benefits of investing in a long-term suicide prevention strategy for youth in Malaysia.[4]

Prevalence of youth suicide in Malaysia

The crude suicide mortality rates (per 100,000) estimated by the World Health Organization (WHO) is used to calculate the prevalence of suicide among Malaysian youths aged between 15 and 29 years (Table 1). Based on the 2019 youth population in Malaysia, it is estimated that 512 youths ended their lives by suicide (74.3% of whom were young males).

Table 1. Estimated suicide deaths for Malaysian youths (ages 15 to 29 years) in 2019.

Gender	WHO crude suicide mortality rate per 100,000[6]	Population aged 15 to 29 years[7]	Estimated number of deaths due to suicide[1]
Males	7.8	4,902,200	382
Females	3.2	4,407,000	141
Persons	5.5	9,309,200	512

Notes: Note 1 mortality rate is multiplied by population; Sources from notes 1, 6 and 7.

Key parameters of economic impact

The economic cost of youth suicide is measured using 'years of life lost (YLL)', 'years of productive life lost (YPLL)' and 'lost economic productivity'.

1. **Years life lost (YLL).** Given the lack of specific data on suicide mortality rates in Malaysia, we took the mid-point of the 15 to 29 age bracket, 22 years, as the average age of death by suicide. YLL is estimated by subtracting the average age of death by suicide from the average life expectancy at birth, 78.2 years for females and 74.1 years for males, as reported by United Nations Development Programme.
2. **Years of productive life lost (YPLL).** YPLL is estimated by subtracting the average age of death by suicide from the retirement age of 60.[8] We accounted for the probability of employment by using the unemployment

rate in 2019 (19.2% for males and 44.4% for females).[20] The other parameter to consider is that the unemployment rate among those with mental ill-health is significantly higher than those without mental ill-health.[21] Thus, we increased the unemployment rate by 8.9%, which is the average unemployment rate among working age people with mental health problems in OECD countries in 2015. This is comparable with the unemployment rate among individuals with mental health problems in Singapore of 8.3%.[22]

3. **Lost economic productivity**. The lost economic productivity is estimated using the human capital method, which calculates the value of an average individual's future earning until retirement age. The total productivity cost is the product of the total number of lost hours based on the mean monthly wage. Adjustments were made to the cost based on the probability of survival to retirement age and using the parameters listed in Table 2.[9-10]

Table 2. Key cost parameters of lost economic productivity.

Category	Cost	Reference
Average monthly salary	RM1,802 (female) RM1,886 (males)	Monthly salary of males and females between ages 20 to 24 years. Salaries and Wages Survey Report 2019, Department of Statistics Malaysia.[11]
Opportunity cost	2.98%	Average rates of return from 25 Aug 2009 to 5 November 2019; Bank Negara.[12]
Inflation rate	1.99%	Average of annual inflation rate from 2009 to 2019; World Bank.[13]
Productivity growth rate	2.02%	Annual increase in average labour productivity from 2010 to 2019; Malaysia Productivity Corporation.[14-16]
Tax for foregone earnings	Variable	Payable personal income tax according to potential future earnings[17-18]; Inland Revenue Board of Malaysia.[19]

Notes. The lost economic productivity adjusted for the probability of survival to retirement age, increased by an annual productivity factor of 2.02% and opportunity cost of savings of 2.98%, discounted to present value using the rate of inflation of 1.99%.[5] The productivity factor is based on annual labour productivity from 2009 to 2019; opportunity cost of saving money is based on rates of return from Bank Negara from 2009 to 2019; and inflation rate is based on annual inflation rates from 2009 to 2019. Potential tax losses due to foregone income is calculated by estimating annual tax payable based on the current personal income tax structure,[17] assuming income tax reliefs (under the individual, parents, lifestyle and insurance categories) were fully claimed.[18] The present value of tax losses is imputed, adjusted for the probability of survival to retirement age.

The total estimated cost of youth suicide in Malaysia in 2019 is 27,847 years of life with a high potential economic loss of RM346.2 million (Table 3). The economic cost of youth suicide consists of the economic loss due to foregone income and the loss of potential government revenue due to foregone personal taxes. The mean cost of a single youth suicide is RM676,165 in 2019 (RM719,775 for males and RM503,313 for females).

Table 3. The economic cost of youth suicide in 2019 by gender.

Gender	Life expectancy at birth (years)[23]	Total YLL	Total YPLL (adjusted)	Present value of total foregone income (RM)	Present value of personal taxes for foregone income (RM)	Total economic cost (RM)
Males	74.1	19,922	10,447	262,700,540	12,521,053	275,221,593
Females	78.2	7,926	2,503	68,038,435	2,940,761	70,979,196
Persons	76.0	27,847	12,950	330,738,975	15,461,814	346,200,789

Notes. YLL = years of life lost; YPLL = years of productive life lost.

This is a conservative estimate as it does not account for direct costs (e.g. medical cost, police costs) and intangible costs (each suicide may impact up to 20 people).[24]

Call to action

In 2019, on average, two Malaysian youths died by suicide at a daily cost of RM1.35 million. For every death by suicide, it is estimated that 10 to 20 more people will attempt suicide. Yet there is no comprehensive suicide prevention strategy in Malaysia. The WHO proposed nine strategic actions for suicide prevention, according to current levels of activity and implementation (Table 4).[25] The barriers in Malaysia to developing an effective national suicide prevention strategy includes the lack of quality data of suicide cases, the stigma of help-seeking behaviors (including the criminalization of suicide), the lack of effective public awareness campaigns and the lack of regulations restricting access to lethal means.

Youth suicide is a public health issue that requires a long-term sustainable strategy. The 2021 budget only allocated RM313 million, less than 1% of the health budget, to mental health resources.[26] The current investment in mental health systems in Malaysia is simply insufficient to build a healthy society. With the rising

trend of youth suicide in Malaysia[27], and with an economic cost that already exceeds the financial investment within an aging population, urgent action from decision makers and community leaders is crucial to prevent the costly deaths of young people in Malaysia.

There is a growing awareness of the need for suicide prevention, but the worrying trends can only be reversed through committed action from stakeholders who should be invested on bold proactive measures to adequately educate the nation on suicide prevention, and to provide adequate support and services for people who are suffering greatly. They also need to work to end the stigma of suicidal ideation and attempts by decriminalizing an action which should be recognised, at its core, as the result of psychological distress rather than criminal intent.

Table 4. Proposed strategic actions for suicide prevention by implementation levels (table taken from WHO).[26]

Areas of strategic action	Lead stakeholders	No activity (currently there is no suicide prevention response at national or local level	Some activity (some work has begun in suicide prevention in priority areas at either national or local level)	Established suicide prevention strategy exists at national level
Engage key stakeholders	Ministry of Health as lead, or other coordinating health body	Initiate identification of and engagement with key stakeholders on country priorities, or where activities already exist	Identify all key stakeholders across sectors and engage them comprehensively in suicide prevention activities. Assign responsibilities.	Assess the roles, responsibilities, and activities of all key stakeholders on a regular basis. Use the results to expand sector participation and increase stakeholder involvement.
Reduce access to means	Legal and judicial system, policy-makers, agriculture, transportation	Begin efforts to reduce access to means of suicide through community interventions.	Coordinate and expand existing efforts to reduce access to the means of suicide (including laws, policies and practices at national level).	Evaluate efforts to reduce access to the means of suicide. Use the evaluation results to make improvements.
Conduct surveillance and improve data quality	Ministry of Health, Bureau of Statistics, all other stakeholders, and particularly the formal and informal health	Begin surveillance, prioritizing mortality data, with core information on age, sex and methods of suicide. Begin identification of	Put a surveillance system in place to monitor suicide and suicide attempts at national level (including additional disaggregation) and ensure the data is reliable, valid and publicly	Monitor key attributes such as quality, representative-ness, timeliness, usefulness and costs of the surveillance system in a timely manner. Use the results to improve the

	systems to collect data	representative locations for development of models.	available. Establish feasible data models that are effective and can be scaled up.	system. Scale up effective models for comprehensive data coverage and quality.
Raise awareness	All sectors, with leadership from the Ministry of Health and the media	Organize activities to raise awareness that suicides are preventable. Ensure that messages reach some of the regions or populations targeted and are delivered through at least one widely accessed channel.	Develop strategic public awareness campaigns and implement them using evidence-based information at national level. Use methods and messages that are tailored to target populations.	Evaluate the effectiveness of public awareness campaign (s). Use the results to improve future campaigns.
Engage the media	Media and Ministry of Health in partnership	Begin dialogue with the media on responsible reporting of suicide.	Approach major media organizations within the country to support the development of their own standards and practices to ensure responsible reporting on suicide. Work with media stakeholders to promote prevention resources and appropriate referrals.	Evaluate media reporting of suicide events. Engage and train all media about responsible reporting. Establish timely training for new workers in the media.

Mobilize the health system and train health workers	Formal and informal health systems, education sector	Begin planning and implementing care for people who attempt suicide, and train health workers.	Provide accessible evidence-based crisis care, clinical care and postvention services at national level. Provide refresher training to health workers. Adapt curricula for health workers.	Implement regular monitoring and evaluation of existing services. Use the results to improve ongoing care.
Change attitudes and beliefs	Media, health services sector, education sector, community organizations	Begin implementation of activities to reduce stigma associated with seeking help for suicide. Increase help-seeking behaviour.	Change attitudes towards the use of mental health services, and reduce discrimination against users of these services.	Conduct periodic evaluations to monitor changes in public attitudes and beliefs about suicide, mental and substance use disorders and help-seeking.
Conduct evaluation and research	Relevant community health services, education sector and Ministry of Health	Begin planning and prioritizing the required suicide prevention research, and collate the existing data (e.g. suicide deaths).	Expand existing research, assigning resources to inform and evaluate efforts to prevent suicide at regional and/or national level.	Conduct periodic assessment of the portfolio of research to monitor scientific progress and identify knowledge gaps. Redirect resources on the basis of the evaluation.

Develop and implement a comprehensive national suicide prevention strategy	Ministry of Health	Begin to develop a national suicide prevention strategy to serve as a rallying point, even if data and resources are not yet available.	Continue to develop the national strategy to ensure it is comprehensive, multisectoral and covers all gaps in service and implementation.	Evaluate and monitor strategy implementation and outcomes in order to identify the most effective components. Use the results to update the strategy continuously.

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