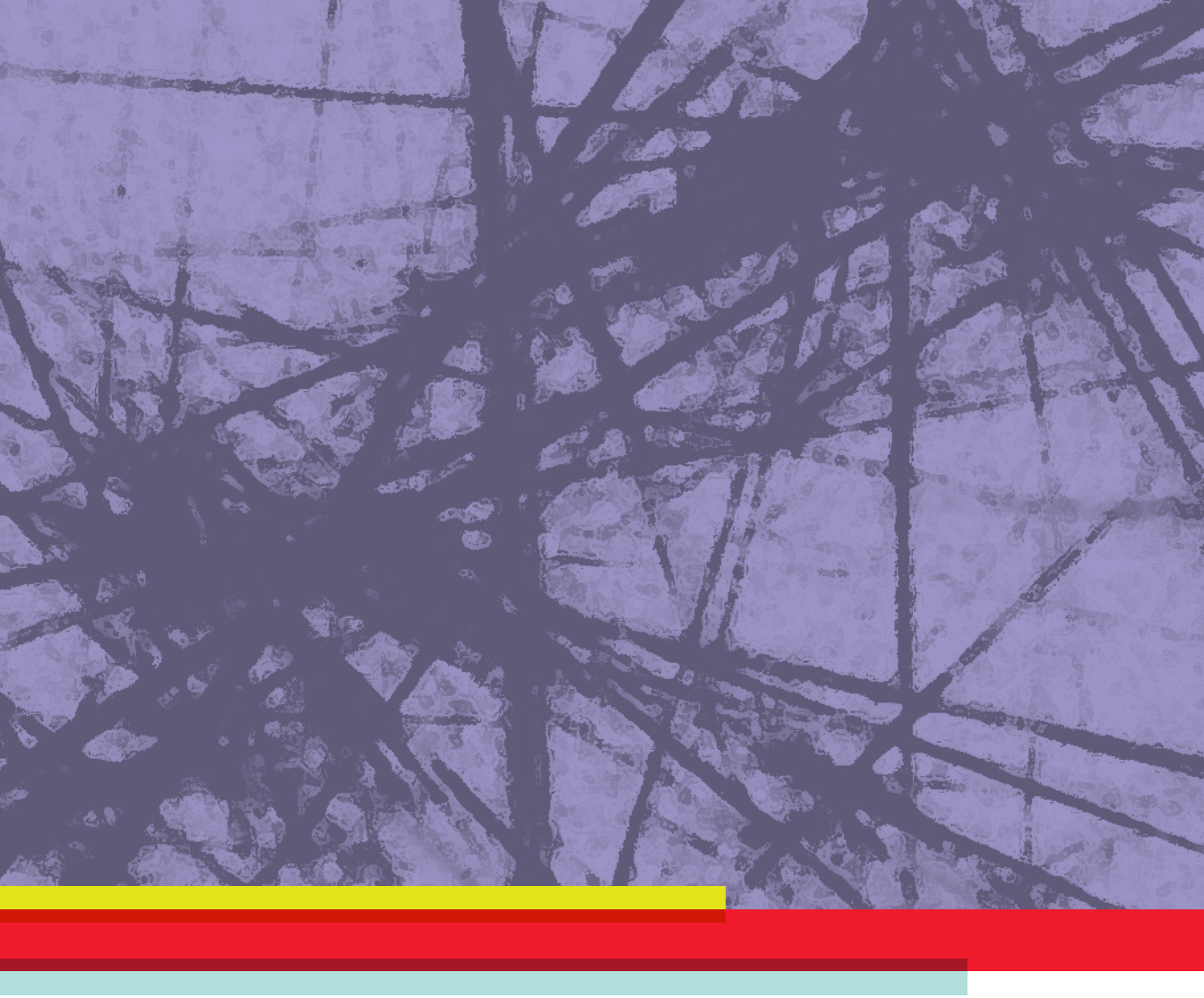

Ella Arensman
Diego De Leo
Jane Pirkis
(Editors)

Suicide and Suicide Prevention From a Global Perspective

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Ella Arensman
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Suicide and Suicide Prevention From a Global Perspective

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Abstract. In this introductory chapter, we provide the background and rationale for the compilation of overviews of national suicide prevention strategies from all geographic regions globally. Currently, suicide is the second leading cause of death among young people aged 15–29 years at global level. Overall, suicide rates in low- and middle-income countries (LMIC) are lower than the rates in high-income countries (HIC) of 11.2 per 100,000 compared with 12.7 per 100,000 population, but the majority of suicide deaths worldwide occur in LMICs. However, there are ongoing challenges in relation to the accuracy of suicide figures in many countries. The rationale for the global approach to suicide prevention is linked to major strategic documents provided by the WHO, including the Global Mental Health Action Plan, 2013–2020, the WHO report Preventing Suicide: A Global Imperative, in 2014, and the United Nations Sustainable Development Goals (SDGs) for 2030, including a target of reducing premature mortality from noncommunicable diseases by one-third, with suicide mortality rate identified as an indicator for this target. In addition, a review is provided of the evidence base and best practice of suicide prevention programs.

Keywords: suicide, prevention, global

Suicide and nonfatal suicidal behavior (suicide attempts/self-harm) are major, global public health challenges, with an estimated annual number of 793,000 deaths worldwide and up to 20 times as many episodes of suicide attempts and of self-harm (World Health Organization [WHO], 2014). Currently, suicide is the second leading cause of death among young people aged 15–29 years at global level (WHO, 2018b). Although, overall, suicide rates in low- and middle-income countries (LMIC) are lower than the rates in high-income countries (HIC) at 11.2 per 100,000 compared with 12.7 per 100,000 population, respectively, the majority of suicide deaths worldwide occur in LMICs (approximately 79 %; WHO, 2018b). However, it must be noted that there are ongoing challenges in relation to the accuracy of suicide figures obtained from many countries (Varnik, 2012; WHO, 2018a).

Global Policies and Initiatives

The World Health Organization *Global Mental Health Action Plan, 2013–2020*, has been a major step forward in pushing the agenda of suicide prevention globally (Saxena, Funk, & Chisholm, 2013; WHO, 2013). This plan was adopted by Health Ministers in all 194 WHO member states to formally recognize the importance of mental health, a move that represented a remarkable achievement. Among these WHO member states, there are 25 countries where suicide is currently still criminalized and an additional 20 countries where according to Sharia law suicide attempters may be punished with jail sentences (Mishara & Weisstub, 2016). The Action Plan covers specified activities to improve mental health and to contribute to the attainment of a set of agreed

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global targets, in particular aimed at reaching (a) a 20% increase in service coverage for severe mental disorders, and (b) a 10% reduction of the suicide rate in countries by 2020.

The subsequent publication of the WHO Report *Preventing Suicide: A Global Imperative,* in 2014 (WHO, 2014), was strategically a major and timely next step toward increasing the commitment of national governments and Health Ministers to reinforce action in relation to suicide prevention. Many members of the International Association for Suicide Prevention (IASP), representing all regions in the world, were involved in preparing this report (Arensman, 2017).

At the 29th IASP World Congress in Malaysia, the IASP Special Interest Group (SIG) was launched to support the development and implementation of national suicide prevention programs at global level (Platt, Arensman, & Rezaeian, 2019). This SIG aims to establish an active forum of international experts who will collaborate with relevant organizations, ministries, and nongovernmental organizations (NGOs) in the development of suicide prevention strategies in countries (especially LMICs) where, historically, there has been little or no suicide prevention activity. It is tasked with developing guidance for establishing, implementing, and evaluating community-level suicide prevention activities in countries where a national strategy is not currently feasible. Since 2017, this SIG has organized many workshops and seminars facilitating professionals and volunteers working in suicide prevention to develop and implement national suicide prevention programs. In addition, annually, both the IASP and the WHO underline the importance of national suicide prevention programs on World Suicide Prevention Day.

The WHO report (WHO, 2014) provides guidance in developing and implementing national suicide prevention programs while taking into account the different stages at which a country is (i.e., countries where suicide prevention activities have not yet taken place, countries with some activities, and countries that currently have a national response). Within geographic regions, countries that have adopted a national suicide prevention program can impact positively on surrounding countries and increase prioritization of suicide prevention in countries that do not yet have a national program, a development that is illustrated in the chapters by Pompili, O'Connor, & van Heeringen (2020), Vijayakumar, Daly, Arafat, & Arensman (2020), Silverman, Barnaby, Mishara, & Reidenberg (2020), Osafo, Asante, & Akotia (2020), Rezaeian & Khan (2020), and Pirkis, Amadeo, Beautrais, Phillips, & Yip (2020) this monograph. In terms of the content of a national suicide prevention program, the WHO report recommends a systematic approach and summarizes typical components (WHO, 2014). Even though these components are supported by evidence, the strength and consistency of the evidence for some of the components/interventions in reducing suicide and attempted suicide or self-harm vary (see chapter by Platt & Niederkrotenthaler, 2020).

An encouraging incentive is the fact that the WHO report has been translated into all six United Nations (UN) languages, and regional launches have been held in Mexico (with representatives from Spanish-speaking countries), in Cairo (with representatives from the WHO Eastern Mediterranean Region), and in Tokyo (with representatives from the WHO Western Pacific Region). Furthermore, a growing number of countries have recently completed their second national suicide prevention program, including England (Department of Health and Social Care, 2012), Scotland (The Scottish Government, 2013), Ireland (Department of Health, 2015), and the United States (US Department of Health & Human Services, 2012). In this regard, it is worth noting that the WHO Country Office and the Ministry of Health and Social Services (MoHSS) in Namibia have also initiated the development of the Second National Suicide Prevention Strategy.

The ongoing global priority of suicide prevention is highlighted by the UN Sustainable Development Goals (SDGs) for 2030, which include a target of reducing by one-third premature mortality from noncommunicable diseases, with the suicide mortality rate identified as an indicator for this target (UN, 2015). SDG

matter that can result in underreporting of suicide in particular age brackets, gender, and racial/ethnic groups. Consequently, this chapter will focus on suicide prevention within North America (United States and Canada), some countries in the Caribbean region, and some countries in South America.

The Extent of Suicide and Self-Harm in the Region

Suicide

United States of America

Suicide is the leading cause of injury death in the United States, with an increased rate in recent years (Centers for Disease Control and Prevention [CDC], 2016). There are 117 suicides every day in the United States (90 males/26 females) that resulted in 42,773 deaths by suicide in 2014. Suicide is the 10th leading cause of death in the country.

The majority of people who die by suicide have a mental health problem (Cavanaugh, et al., 2003; CDC, 2016). Hence, it is not surprising that the primary approach to preventing suicide has been to try to improve mental health treatment. However, large differences in suicide rates across US regions, states, and cities are not associated with differences in rates of mental illness, depression, suicide ideation, or even suicide attempts (Miller, Barber, White, & Azrael, 2013). Instead, the differences are largely associated with differences in levels of household gun ownership (Miller, Azrael, & Barber, 2012).

On average, a suicide death occurs every 12.3 min in the United States. In 2014, suicide took the lives of nearly 43,000 Americans, with men 3.5 times more likely to take their own life than women (77 % of total). More people die by suicide than from road traffic accidents (CDC, 2016), and half of all suicides involve the use of a firearm.

The suicide rate has been rising over the past 15 years. From 1999 to 2014, the age-adjusted suicide rate for all ages in the United States increased 24 % from 10.5 to 13.0 per 100,000 with much of the increase driven by suicides in the midlife age range (ages 35–64), of which the majority of all suicides in the United States occurred in 2014. However, suicide was the second leading cause of death for young people aged between 10 and 34. The highest rate of suicide (suicides per 100,000) occurred among men aged 75 and older and among women aged 45–54 (CDC, 2016).

The most critical risk factors associated with suicide are previous suicide attempts, mood disorders (such as depression), alcohol and drug use, and access to lethal means. In 2013, among suicide decedents tested in 17 states ($n = 2{,}720$, 38.2 %), blood alcohol content was over the legal limit in more than 70 % of cases (Lyons et al., 2016).

The most common method of suicide in the United States is by firearm discharge, followed by suffocation and then poisoning. In total, 57 % of suicides among males involve a firearm. Among women, a greater percentage of suicide deaths involve poisoning than firearms. Yet, almost one third of suicide deaths (32 %) among women involve the use of firearms. Firearms are the most common method of suicide used by men of all ages, especially among men ages 65 years and older. Among women, suffocation is the most common method (26 %) among 15- to 24-year-olds, while poisoning is the most common method (16 %) among 24- to 64-year-olds.

The following groups have demonstrated a higher risk for suicide or suicide attempts than the general population:

- American Indians and Alaska Natives;
- People bereaved by suicide;
- People in justice and child welfare settings;
- People who intentionally hurt themselves (non-suicidal self-injury);
- People who have previously attempted suicide;
- People with medical conditions;
- People with mental and/or substance use disorders;
- People who are lesbian, gay, bisexual, or transgender;

- Members of the military and veterans; and
- Men in midlife aged 35–64 and older men (75+ years).

Canada

Canada is a federation of 10 provinces and three territories, with a national suicide rate of 10.4/100,000 population per year in 2018 (Statistics Canada, 2019). However, there are significant regional variations within Canada.

In comparison with the global age-standardized suicide rate of 11.4/100,000 population per year (15.7 for men and 8.0 for women) (WHO, 2014), the suicide rate in 2018 was slightly lower, at 10.4, but higher for men and much lower for women (16.0 for men and 5.0 for women). The rate in Canada declined by 11.1% between 2000 and 2018 (−3.8% for women and −14.68% for men). The category of *hanging–strangulation–suffocation* is the most common means of deaths by suicide in Canada, accounting for almost half of suicide deaths. Death by firearms accounted for 16% of suicides in Canada between 2000 and 2009 and more than six times more men died by suicide from firearms compared with women.

Canadian statistics indicate that in 2018, compared with the 10 provinces, there were much higher suicide rates in the Yukon, Northwest Territories, and Nunavut, with the Nunavut rate over four times higher than the national average. In the Yukon and Northwest Territories, the higher overall rates are due to the disproportionately higher rates in men compared with women, although the rate for women is higher than in the rest of Canada. Suicide rates in Canadian First Nations and Inuit communities are much higher than for the rest of Canada according to several studies.

Caribbean Nations and South America

Suicidal behavior has been shown to be increasing over the decades in most studies within the English-speaking territories of the Caribbean. The landmark WHO publication *Preventing Suicide: A Global Imperative* (WHO, 2014) and the 2012 world figures (WHO, 2014) indicate that Guyana, Suriname, Trinidad, and Tobago have severe issues with pesticide suicide, while other nations within the region grapple with hanging and the increasing use of firearms for suicides and murder–suicides. This region has the highest suicide rate in the world (i.e., Guyana) as well as some of the lowest (e.g., Jamaica).

In Cuba, a retrospective descriptive study of suicide (Corona-Miranda, Alfonso-Sagué, Hernández-Sánchez, & Lomba-Acevedo, 2016) between 1987 and 2014 was performed via analysis of suicides from Cuba's Ministry of Public Health Statistics Division database. The age-standardized suicide rates decreased from 23.9 to 10.8/100,000 population (54.8% reduction). The group aged ≥60 years had the highest average age-standardized rate, 44.6/100,000 population. The highest suicide burden by age was in the group aged 20–59 years (60.5%). The most commonly used method was hanging (59.4%).

A number of epidemiological studies have been done in Guyana. The age group most affected by suicide deaths is 20–49 years (50%). Males die by suicide more frequently, with a male–female ratio of almost 4:1. The most commonly used methods are poisoning (pesticide/herbicide), accounting for than 65% of cases, followed by hanging (>20%). East Indians account for >80% of cases (Balseiro, Harry, Rajkumar, & Schultz, 2015).

Sitchao et al. (2015) examined a sample of 264 cases in Guyana, 135 of whom had died by suicide and the other 129 had attempted suicide. The age group and gender most affected were males aged 20–44 years (81.5%). The most commonly used methods were poisoning 60%, followed by hanging 33.3%. East Indians accounted for 69.2% and the majority of the suicide cases were geographically concentrated in the same regions (Regions 2, 3, 4, and 6) as found by Balseiro et al. (2015).

Table 1 gives a listing of the countries with suicide data for 2012, the average rates/100,000 (in rank order), and their global rank.

Self-Harm

Self-harm figures are often difficult to generate given the lack of a uniform definition of *self-*

harm and consistent and dependable surveillance sources.

United States of America

Having serious thoughts of suicide increases the risk of a person making an actual suicide attempt. There are more than 25 attempted suicides for each suicide death, with approximately 1.7 million suicide attempts each year. For every suicide death, there are approximately three hospitalizations and 10 emergency department visits for every suicide attempt, and an estimated 33 attempts that do not result in hospitalizations or emergency department visits. Women are at a greater risk for suicidal ideation, attempts, and medically treated attempts than men are. Suicide thoughts and attempts are higher among high school students than among adults in general, although deaths are lower among adolescents than among adults. Data also show that more than 40 % of lesbian, gay, and bisexual students seriously considered suicide and 29 % reported attempting suicide in the past year.

A 2014 report on *Suicidal Thoughts and Behaviors Among Adults* from the 2014 National Survey on Drug Use and Health (CBHSQ, 2015) indicated that an estimated 9.4 million adults (3.9 %) aged 18 or older had serious thoughts of suicide in the past year. The percentage was highest among people aged 18–25, followed by people aged 26–49, and then by people aged 50 or older. Additionally, 1.1 million adults made a suicide attempt. According to the CDC's Youth Risk Behavior Survey in 2015 (CDC, 2015), among high school students, 17.7 % (approximately 2.5 million 9- through 12-graders) have seriously considered suicide, 14.6 % have made a suicide plan, and 8.6 % attempted suicide in the previous 12 months.

Canada

It is difficult to accurately determine suicide attempt rates in Canada since the data come from hospital coding of types of injury, where often the nature of the injury (e.g., poisoning) is noted, but it is not stated whether the injury was self-inflicted.

Table 1. Countries sorted by average suicide rates and global rank

Country	Average rates/100,000	Global rank
Guyana	44.2	#1
Suriname	27.8	#5
El Salvador	13.6	#38
Trinidad and Tobago	13.0	#41
Chile	12.2	#48
Bolivia	12.2	#48
Uruguay	12.1	#50
Cuba	11.4	#56
Argentina	10.3	#56
Nicaragua	10.0	#69
Ecuador	9.2	#77
Guatemala	8.7	#84
Costa Rica	6.7	#101
Paraguay	6.1	#107
Brazil	5.8	#112
Honduras	5.5	#115
Columbia	5.4	#117
Panama	4.7	#128
Mexico	4.2	#137
Dominican Republic	4.1	#139
Peru	3.2	#144
Haiti	2.8	#153
Belize	2.6	#155
Venezuela	2.6	#155
Barbados	2.3	#158
Bahamas	2.3	#158
Jamaica	1.2	#166

However, hospitalizations for intentional self-harm are most likely from poisoning, which is 10 times more likely to be the method used for people seen in hospital for intentional injury than the second most common method: self-harm with a sharp object (14,007 hospitalizations for poisoning, 1,414 self-harm with sharp object, 493 hanging–strangulation–suffocation).

Caribbean Nations

Suicide attempts and nonfatal self-harm far outweigh deaths by suicide. Females outnumber

Appendix A

Table A1. Suicide prevention activities in Canada

1. Does this country have a national suicide prevention strategy?	No, there is a national *framework* and provincial and territorial strategies
If yes, has it been evaluated?	Implementation evaluations of Quebec and Nunavut strategies
If no, which of the below does this country have? A) A national program B) A setting-specific comprehensive program C) Scattered programs D) An integrated program E) Other, please describe F) None	Health and mental health are provincial and territorial responsibilities, and most have strategies
If no, is a national strategy under development?	
Availability of training regarding suicidal behavior	
2. Does this country have a training program on suicidal behavior, assessment, and intervention for general practitioners (GPs), health-care professionals (HCPs) or non-health workers?	GPs, HCPs, and non-health: provincial and territorial programs
Entities dedicated to the prevention of suicide	
3. In this country is there an entity (governmental or nongovernmental) dedicated to suicide prevention?	Public Health Agency of Canada mandated to implement the national framework; Mental Health Commission also involved, with Provincial Agencies
If yes, approximately how many?	
4. In this country is there an entity (governmental or nongovernmental) dedicated to suicide research?	At least two major research centers
If yes, approximately how many?	
Suicide and self-harm statistics	
5. Is suicide a listed option to certify manner of death on your country's death certificate?	Yes
6. Who has the responsibility of ascertaining manner of death according to a death certificate? A) Police B) Coroner C) Police and coroner D) Medicolegal authorities E) Other, please specify	Provincial and territorial coroner or medical examiner
7. Does the government publish official national suicide statistics?	Yes
8. Do you have official national or regional statistics on self-harm?	Yes, but not reliable

Suicide Prevention in the African Region

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Abstract. This paper addresses national responses to suicide prevention in the African region. Eighteen countries responded, of which none had a national suicide prevention strategy in place and only three countries, namely Algeria, Congo, and Madagascar, were in the process of developing any kind of strategy, at the time of this survey. Official national statistics on suicide were available in four of the 18 AFRO countries, with two countries publishing figures on suicide attempts nationally. Training programs on suicide assessment and interventions for general practitioners or mental health professionals were very limited, available in just four countries. One country had a national center specifically dedicated to suicide research or prevention and four countries have at least one NGO dedicated to suicide prevention. Postvention bereavement support for families affected by suicide was available in three AFRO countries. In more than half of the countries, suicide is not an option to certify cause of death. Statistics on suicide and suicide prevention are poorly monitored in all the 18 AFRO countries. The present state of suicide prevention in the region will require cross-country efforts that will generate a critical mass to move suicide advocacy in establishing national prevention strategies in the region.

Keywords: suicide, prevention programs, African region, national strategies

Suicide as Public Mental Health Issue and National Prevention Programs

This chapter is concerned with suicide prevention in the African Region. Several governments in countries such as Ghana, Botswana, Burundi, Comoros, Congo, Eritrea, Ethiopia, Guinea, and Senegal do not view suicide as a serious public health problem and this appears to feed into the absence of any national suicide prevention programs in these countries. However, in six other countries – Algeria, Cape Verde, Kenya, Lesotho, Madagascar, Mozambique, and South Africa – suicide is viewed as a serious public health problem but there are no national preventive programs. For example, in Mozambique, reports showed that from June 2011 to August 2014, 18.0% of emergency psychiatric consultations at the Central Hospital in Sofala were related to suicide attempts. In the 2014 World Health Organization (WHO) report *Preventing Suicide: A Global Imperative*, Mozambique is reported as having the seventh highest suicide rate in the world and arguably the highest in Africa (WHO, 2014a). Rates are also high in most eastern African countries such as Kenya, Uganda, and Tanzania. Thus, Africa's contribution to the global suicide rate – 8% or third after low- and middle-income countries (LMICs) in the Southeast Asian and Western Pacific regions (WHO, 2014a) – is substantial enough to warrant governmental attention.

The poor expenditure patterns of most countries in Africa on mental health might account for such low commitment to suicide prevention (Jacob et al., 2007). For instance, in both Ghana and Senegal, although there are official policies on mental health, implementation gaps persist (Doku, Wusu-Takyi, & Awakame, 2012; Monteiro, Ndiaye, Blanas, & Ba, 2014). The 2014 WHO (2014a) report on suicide demonstrates the serious challenge presented by suicidal behavior in Africa, warranting an urgent need to respond to this through the design and implementation of national suicide prevention

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programs. The proportion of all violent deaths that are suicides in LMICS (as of 2012) placed Africa as fourth highest, following LMICs in the Western Pacific, Southeast Asia, and Europe (WHO, 2014a). However, a closer look at suicide statistics in the report shows that while age-standardized rates have fallen in all regions of the world, this was not observed in LMICs in the African Region (WHO, 2014a). High rates of suicides are recorded in LMICs, and suicide rates in low- and middle-income Member States in Africa account for 7.6% of the global suicide rate (WHO, 2014a). Given these statistics, the inertia observed within the African Region about suicide prevention needs to be addressed. It is, however, important to place this observation within the larger context of mental health services and African governments' commitments to health care in order to appreciate the context and scope of this observation.

The lack of commitment to improve mental health services can be traced back to a long history of debt burdens in which several African countries as part of economic restructuring removed various subsidies from health care (Akyeampong, Hill, & Kleinman, 2015). The austerity measures prescribed by the World Bank to finance health services in African countries weakened governments' health services and consequently had a serious impact on mental health services. Thus, the avoidance of mental health service provision by African governments could be a manifestation of a long history of economic pressures that distracted governments' health policies, which has been bemoaned by most African suicidologists (Burrows & Schlebusch, 2009; Ovuga & Boardman, 2009). On a continent where the mental illness load keeps growing because of various ails such as war, genocide, injustice, opportunistic diseases, and unabated donor dependence, the need to address mental health issues cannot be overemphasized. An additional compounding factor is the generalized stigma toward mental health in Africa (Osafo, 2016; Weiss, Ramakrishna, & Somma, 2006). Stigma is not only a barrier to help-seeking, but also a barrier to the provision of funds for building health infrastructure and for providing mental health services. Additionally, stigma may also facilitate myths about the unimportance of mental health care, an observation that is rife in post-colonial and post-conflict settings in Africa (Akyeampong et al., 2015). The African governments' lack of commitment and prioritization of suicide prevention programs is reflected by the generalized lack of mental health policy that legislates and directs mental health programs and services (Jacob et al., 2007). This lack of policy constitutes a social injustice, contributing to the rising numbers of mental health-care users on the continent. Although Africa has limited resources for mental health care, this care is necessary and feasible (Akyeampong et al., 2015).

Suicide Prevention Activities in the Absence of a National Strategy

The majority of the countries do not have any national strategy for suicide prevention. Neither do they have any national strategy under development, with the exceptions of Algeria, Namibia, and Madagascar (refer to the appendix for details on each of the 18 countries in the African region). Suicide prevention activities that were in place comprised scattered programs (which were isolated programs addressing one or more issues at a subnational level) in four countries, namely, Botswana, Burundi, Guinea, Mozambique, Uganda, and integrated programs (which were suicide prevention activities that were integrated into existing programs addressing related issues such as mental health, alcohol, etc.) in nine countries, including Algeria, Cape Verde, Congo, Eritrea, Guinea, Lesotho, Madagascar, Senegal, and Seychelles. Four other countries had other programs addressing suicide prevention and these included Eritrea, Ghana, Senegal, and South Africa. Senegal and South Africa have made some efforts to generate national interest so as to promulgate a national suicide prevention strategy. For example, in Senegal, the Ministry of Health and Social

Appendix A

Algeria

- Suicide is viewed by the government as a serious public health problem but the there is no national suicide prevention program.
- There are integrated programs.
- A national strategy is underway.
- There is no widely available training for suicide assessment and intervention for general health practitioners, mental health practitioners, and lay health workers such as teachers, journalists, police, first responders, faith leaders.
- There is no national center or institute and no NGO specifically dedicated to suicide research and/or prevention.
- There are no self-help support groups for those bereaved by suicide.
- Death certificates are issued for all deaths; but suicide is not an option on the death certificate.
- Medicolegal authorities are available.
- Family doctors are available.
- The government publishes official national statistics on suicide and suicide attempts. These can be obtained from the Ministére de la Santé de la Population et de la Reforme Hospitalier.
- Suicide rates are estimated for the sexes:
  - Males: 1. 66
  - Females: 1.69
  - Total: 1.67

Botswana

- Suicide is not regarded by the government as a significant public health concern and this manifests in the fact that there is no national strategy for suicide, neither is there any national strategy under development.
- There are scattered programs on suicide prevention.
- There is no national training for suicide assessment and intervention for general practitioners, but this is available for mental health practitioners. This program is part of community psychiatric nurse training in the Institutes of Health Sciences (IHS). This program is, however, not available for non-health workers (e.g., teachers, journalists, police, first responders, faith leaders).
- There is no national center specifically dedicated to suicide research and prevention and there is no NGO for this. There are no self-help support groups for those bereaved by suicide.
- Death certificates are issued for all deaths and suicide is included as an option for certifying cause of death on the certificate.
- Medicolegal services are available.
- The government publishes official national data on suicide and suicide attempts and this is available from the Botswana Ministry of Health and Mental Health Services.
- There is no national estimated rate for suicide or a rate for the genders.

from conflict zones to other parts of a country or to other countries. By the end of 2016, 55% of all refugees worldwide came from only three countries, two of which belong to the Eastern Mediterranean Region, that is, the Syrian Arab Republic (5.5 million) and Afghanistan (2.5 million). Three countries in the region are among the main hosts for asylum refugees, that is, Pakistan (1.4 million), Lebanon (1.0 million), and the Islamic Republic of Iran (979,400) (UN High Commissioner for Refugees, 2017).

These statistics might explain why a recent study that used the Global Burden of Disease (GBD) 2015 data to measure the burden of intentional injuries produced startling results. It was estimated that in 2015 in the region, around 28,695 persons died owing to self-harm, 35,626 owing to interpersonal violence, and 143,858 owing to war and legal interventions. Compared with similar figures in 1990, there was a +100%, +152%, and +1,027% increase in self-harm, interpersonal violence, and war plus legal intervention deaths in the region, respectively, while corresponding figures for the rest of the world during the same period were +19%, +12%, and −67%, respectively (GBD, 2018). The latter observation might explain why, as we clarify later, suicidal behaviors have not received the attention they deserve.

The Extent of Suicide in the Eastern Mediterranean Region

National studies of the extent of suicide have been carried out in a small number of Eastern Mediterranean Region countries including Iraq (Abbas, Alhemiary, Razaq, Naosh, & Appleby, 2018), Kuwait (Al-Waheeb & Al-Kandary, 2015), Lebanon (Karam et al., 2015), Iran (Hajebi, Ahmadzad-Asl, Ershadi, Nikfarjam, & Davoudi, 2013), Bahrain (Al Ansari, Hamadeh, Ali, & El Offi, 2007), and Jordan (Daradkeh, 1989). In one of the most recent studies in Iraq the crude rate of suicide was reported to be 1.09 per 100,000 (1.21 for males, 0.97 for females) in 2015 and 1.31 per 100,000 (1.54 for males and 1.07 for females) in 2016. This study covered only 13 out of 19 provinces of Iraq (Abbas et al., 2018).

A systematic review of suicidal behavior in the region up to August 2013 identified only 13 studies. Five studies were from Iran, two each from Pakistan and Egypt, and one each from Bahrain, Lebanon, Morocco, and UAE. Only four studies (three from Iran and one from Bahrain) were carried out at a national level. The results revealed that the suicide rates among these countries varied from 0.55 to 5.4 per 100,000. Among suicide cases the weighted male–female ratio was 0.59–0.39. The review also noted that the lack of national suicide registries in the countries (with the exception of Iran, which established a registry for suicide and deliberate self-harm in 2001) and the lack of comprehensive national surveys make it difficult to extract reliable indices of suicidal behavior from this region (Malakouti, Davoudi, et al., 2015).

A recent scoping review (which is appropriate in settings where there is limited evidence on a topic such as suicide) from Pakistan revealed a similar problem, that is, the lack of reliable and robust national data. The review also reported that suicide rates varied from 0.43 per 100,000 (for the years 1991–2000) in the city of Peshawar to 2.86 per 100,000 (in 2006) in the city of Rawalpindi. Altogether, males died by suicide more often than females (Shekhani et al., 2018). A review from Afghanistan found very limited information (only seven studies since the 1980s) on suicide, emphasizing the lack of reliable and robust national survey information (Paiman & Khan, 2017).

Therefore, it seems that the best way to comprehend the extent of suicide in the Eastern Mediterranean Region is by using estimates such as those of the WHO. Table 1 shows the age-standardized suicide rates per 100,000 for the year 2012 estimated by the WHO for both genders and for females and males separately. It also highlights percent change in age-standardized suicide rates for the years 2000–2012. A negative sign indicates a decrease and a posi-

tive sign an increase in the suicide rate in 2012 compared with 2000 (WHO, 2014). According to these figures, in 2012 Saudi Arabia had the lowest rates (0.4, 0.2, and 0.6 per 100,000) while Sudan had the highest rates (17.2, 11.5, and 23 per 100,000) for both genders and for females and males, separately. The highest increase in rates in 2012 compared with 2010 was observed in males in Morocco and in females in Afghanistan, at 135 % and 14.4 %, respectively. The highest decrease in rates in 2012 compared with 2010 was seen for males in Oman and for females in Lebanon, with a decrease of 51.4 % and 52.5 %, respectively (Table 1).

The results of a meta-analysis that identified 19 studies (eight from Iran, five from Pakistan, and one each from Iraq, Bahrain, Saudi Arabia, Egypt, Jordan, and Kuwait) revealed the three most common methods of suicide within the region as: (1) hanging, with a pooled proportion of 39.7 % (males = 38.8 %, females = 26.3 %); (2), poisoning, with a pooled proportion of 20.3 % (males = 19.0 %, females = 32.0 %); and (3), self-immolation, with a pooled proportion of 17.4 % (males = 11.3 %, females = 29.4 %; Morovatdar, Moradi-Lakeh, Malakouti, & Nojomi, 2013).

Self-immolation has a unique pattern in some countries of this region (including Pakistan, Af-

Table 1. Age-standardized suicide rates per 100,000 for the year 2012 estimated by the WHO for both genders and for females and males separately (% change in age-standardized suicide rates 2000–2012)

	Age-standardized suicide rates per 100,000 for the year 2012 (% change in age standardized suicide rates 2000–2012)		
Country	Both genders	Females	Males
Afghanistan	5.7 (–5.9 %)	5.3 (14.4 %)	6.2 (–17.6 %)
Bahrain	8.1 (0.1 %)	2.9 (–3.4 %)	11.6 (–1.8 %)
Djibouti	15.1 (2.9 %)	9.5 (2.1 %)	20.9 (3.4 %)
Egypt	1.7 (–33.6 %)	1.2 (–45.3 %)	2.4 (–24.1 %)
Iran	5.2 (–28.0 %)	3.6 (–43.7 %)	6.7 (–15.5 %)
Iraq	1.7 (16.0 %)	2.1 (11.8 %)	1.2 (22.2 %)
Jordan	2 (–15.0 %)	1.9 (–10.8 %)	2.2 (–18.0 %)
Kuwait	0.9 (–35.0 %)	0.8 (–39.4 %)	1 (–33.6 %)
Lebanon	0.9 (–46.4 %)	0.6 (–52.5 %)	1.2 (–45.5 %)
Libya	1.8 (–33.7 %)	1.4 (–31.8 %)	2.2 (–32.9 %)
Morocco	5.3 (97.8 %)	1.2 (–6.1 %)	9.9 (135.0 %)
Oman	1 (–50.3 %)	0.6 (–52.0 %)	1.2 (–51.4 %)
Pakistan	9.3 (2.6 %)	9.6 (0.3 %)	9.1 (5.0 %)
Palestine	no data	no data	no data
Qatar	4.6 (12.6 %)	1.2 (–34.9 %)	5.7 (10.7 %)
Saudi Arabia	0.4 (–27.6 %)	0.2 (–29.6 %)	0.6 (–29.4 %)
Somalia	12.4 (0.6 %)	6.8 (1.5 %)	18.1 (0.6 %)
Sudan	17.2 (12.9 %)	11.5 (8.4 %)	23 (15.8 %)
Syria	0.4 (–13.7 %)	0.2 (–28.1 %)	0.7 (–7.1 %)
Tunisia	2.4 (–5.6 %)	1.4 (–17.2 %)	3.4 (0.9 %)
UAE	3.2 (–12.9 %)	1.7 (–32.7 %)	3.9 (–9.0 %)
Yemen	3.7 (0.3 %)	3 (1.0 %)	4.3 (–0.2 %)

Note. Data from "Preventing Suicide: A Global Imperative," by the World Health Organization, retrieved from https://www.who.int/mental_health/suicide-prevention/world_report_2014/en/. UAE = United Arab Emirates.

Suicide Prevention Programs

Evidence Base and Best Practice

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Abstract. This chapter presents a narrative synthesis of the evidence relating to the effectiveness of 13 different approaches (interventions) that have been incorporated into national suicide prevention programs. These approaches are presented in an analytic framework that distinguishes between national and community-based multilevel programs, prevention, and treatment/maintenance. The primary source of evidence are six reviews of reviews published since 2005, supplemented by a small number of systematic reviews and primary studies. We report strongly supportive evidence concerning the effectiveness of structural interventions (restrictions on access to bridges, tall buildings, and railways) and restriction on access to pharmacological agents. Weakly supportive evidence of effectiveness is available for community-based multilevel programs; restrictions on access to firearms and ligature points in institutional settings; settings-based programs (in schools, communities, workplaces, prisons, and the armed forces); education and training targeted at primary care physicians; lithium; cognitive behavioral therapy and dialectical behavioral therapy; and brief contact. There is insufficient or conflicting evidence concerning the effectiveness of the remaining approaches. We conclude that the evidence base for effective suicide prevention is far from convincing. Major improvement in the extent and quality of collaboration between researchers, policymakers, and practitioners and a considerable increase in funding for evaluation studies in suicide prevention are required if the current knowledge gap about effective interventions is to be bridged.

Keywords: evidence, effectiveness, prevention, programs, reviews

Effective interventions that mitigate or counteract risk factors and enhance protective factors are required in order to prevent first episodes or recurrence of suicidal behavior (World Health Organization [WHO], 2014). In this chapter we summarize the evidence relating to the effectiveness of 13 different approaches[1] that have been incorporated into national suicide prevention programs. These approaches are presented in an analytic framework (Table 1) that distinguishes between national and community-based multilevel programs, prevention (universal, selective, and indicated), and treatment/maintenance. The framework is derived from three sources: the mental health intervention spectrum proposed by the National Research Council and Institute of Medicine (O'Connell, Boat, & Warner, 2009, cited in Scott and Guo, 2012 [Table 2, p. 6 and Figure 7, p. 31] and in WHO, 2014).

Method

The primary sources of evidence are six reviews of reviews that have been conducted since 2005.

- Mann et al. (2005) reviewed 93 publications (covering the period 1996–2005), comprising systematic reviews and meta-analyses, and primary studies using individual-level randomized controlled trial (RCT) or cohort designs, and aggregate-level ecological or population-based designs.
- The review by Mann et al. (2005) was updated by Zalsman et al. (2016), who ana-

1 Different, but related, typologies of suicide prevention approaches/strategies have been developed by other authors (see Table A1 in the appendix; also Tye et al., 2015).

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Table 1. Suicide prevention approaches: analytic framework

Strategic level	Type of approach
Multi-level programs	1. National and community-based suicide prevention programs, combining different types of prevention and treatment interventions
Prevention: universal	2. Restrictions on access to commonly used methods of suicide 3. Awareness-raising in the general public 4. Media reporting guidelines
Prevention: selective	5. Settings-based programs 5.1 Schools 5.2 Community (including suicide prevention centers) 5.3 Workplaces 5.4 Prisons 5.5 Armed forces (currently serving and veterans) 6. Substance misuse programs
Prevention: indicated	7. Education and training 7.1 Gatekeeper training 7.2 Training primary care physicians 8. Telephone-based suicide prevention services 9. Postvention
Treatment/Maintenance	10. Screening 11. Pharmacological interventions 12. Psychotherapeutic interventions (in person and IT-based) 13. Enhanced care/follow-up

lyzed findings from 164 studies (covering the period 2005–2015), using the same mix of systematic reviews and meta-analyses and primary studies as in the Mann et al. review (2005).

- Guo and Harstall (2004) identified 10 systematic reviews published during the period 1990–2003. Their synthesis is based, however, on just three reviews that met strict methodological quality criteria.
- The review by Guo and Harstall (2004) was updated by Scott and Guo (2012), who identified an additional four reviews (one of which was of acceptably high methodological quality) published during the period 2003–2010.
- Dillon, Guiney, Farragher, McCarthy, and Long (2015) reviewed 47 systematic reviews, meta-analyses, and reviews (33 after screening for methodological quality), with no restriction on date of publication.
- Bennett et al. (2015) analyzed 28 systematic reviews or meta-analyses (21 after screening for methodological quality) of studies of suicide prevention, covering the period 1980–2012. This was the only review of reviews with an age restriction (namely, youth aged 0–24 years).

Methodological details of the six reviews of reviews can be found in Table A1 in the appendix.

These reviews of reviews were supplemented by a small number of systematic reviews and primary studies, selected to address key gaps in the coverage of the 13 main suicide prevention approaches (Table 1) in our main sources.

In assessing the evidence described in this chapter, several limitations associated with the review of reviews approach should be noted (extending the discussion in Dillon et al., 2015, and Scott & Guo, 2012):

- Reviews of reviews are restricted in their scope by the availability of high-quality, current systematic reviews on the topic of interest, and these reviews are, in turn, limited by the breadth, depth, and quality of the underlying primary evidence.
- The findings of single primary studies are excluded.
- Reviews of reviews typically synthesize the findings of systematic reviews (which may or may not be accompanied by meta-analyses).

Future Directions

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Abstract. This final chapter focuses on the progress made so far in the area of suicide prevention and calls attention to considerations for future work. Recommendations for the implementation of national suicide prevention strategies are proposed, including close collaboration between countries within the same geographic region, as well as guidance from countries wherein national strategies have successfully implemented, such as the sharing of effective strategy templates. In addition, the value of accurate surveillance data in overcoming barriers, informing actions and responding to real time trends in suicide and self-harm is emphasized. The need for more systematic research into the efficacy of intervention and prevention approaches is also highlighted. Furthermore, the provision of governmental support to ensure long-term sustainability of national suicide prevention strategies is endorsed. Approaches to enhance the evaluation of the efficacy of national suicide prevention strategies and interdisciplinary partnerships and collaborations are discussed. Finally, recommended resources to assist in implementing and evaluating key components of national suicide prevention strategies are listed.

Keyword: suicide prevention, recommendations, future, resources

In this final chapter, we focus on major achievements in suicide prevention globally and key priorities for the future. We address both key areas for suicide prevention policy and the evidence base for suicide prevention programs.

Over the past decades, there has been a progressive development of prioritizing suicide prevention at a global level, in particular by the International Association for Suicide Prevention (IASP), the World Health Organization (WHO) and the United Nations (UN), and by national governments. Global developments have accelerated over the past two decades, with major initiatives, such as the initiation of World Suicide Prevention Day (WSPD) on September 10th, 2003, which has continued as an annual event that has contributed to increased awareness of suicide and suicide prevention across the globe. WSPD has been fundamental in stimulating the debate about a national suicide prevention strategy among government representatives and other stakeholders in suicide prevention in countries where suicide prevention activities have been limited to date, including Guyana, Namibia, and Afghanistan (Arensman, 2017).

Ten years after the introduction of WSPD, the WHO Global Mental Health Action Plan, 2013–2020, was a major step forward in pushing the global agenda of suicide prevention (Saxena, Funk, & Chisholm, 2013; WHO, 2013). This plan was adopted by Health Ministers in all 194 WHO member states to formally recognize the importance of mental health, which was a remarkable achievement. The action plan covers specified actions to improve mental health and to contribute to the attainment of a set of agreed global targets, in particular to aim for (1) a 20% increase in service coverage for severe mental disorders, and (2) a 10% reduction of the suicide rate in countries by 2020.

The subsequent publication of the WHO report *Preventing Suicide: A Global Imperative* (WHO, 2014) in 2014, was strategically a major and timely next step toward increasing

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the commitment of national governments and health ministers to reinforce action in relation to suicide prevention. This report provided guidance on developing a national suicide prevention strategy and information on the evidence base of specific interventions.

In 2017, the IASP established the international Special Interest Group (SIG) to support the development and implementation of national suicide prevention programs at global level (Platt, Arensman, & Rezaeian, 2019). This SIG provides a forum of international experts who will collaborate with relevant organizations, ministries, and nongovernmental organizations (NGOs) in the development of suicide prevention strategies in countries (especially low- and middle-income countries [LMIC]) where, historically, there has been little or no suicide prevention activity. It is also tasked with developing guidance for establishing, implementing, and evaluating community-level suicide prevention activities in countries where a national strategy is not currently feasible.

The ongoing global priority of suicide prevention is highlighted by the UN's Sustainable Development Goals (SDGs) for 2030, which include a target of reducing premature mortality from noncommunicable diseases by one-third, with suicide mortality rate identified as an indicator for this target (Votruba & Thornicroft, 2015). SDG Target 3.4 calls for a reduction in premature mortality from noncommunicable diseases through prevention and treatment and promotion of mental health and well-being (WHO, 2015). The suicide rate is an indicator (3.4.2) within Target 3.4. In this historic step, the UN acknowledged the societal impact of mental illness, and defined mental health as a priority for global development for the next 15 years (Votruba, Thornicroft & FundaMental 2016).

Currently, approximately 40 countries at all income levels have adopted a national suicide prevention strategy, with some countries already developing or implementing further revision(s) of their national strategy (WHO, 2018). However, among LMICs, only a few have adopted a national suicide prevention strategy, even though 79% of suicides occur in these settings (WHO, 2018).

Ongoing Engagement With Countries With Limited Suicide Prevention Activities

In some geographic regions, there are countries that are leading in the development and implementation of a first or second national suicide prevention strategy in contrast to other countries within the same region, which are still inactive. Strengthening the links between these countries is recommended, as is encouraging them to share templates of suicide prevention strategies that have been/are being implemented. The number of countries where suicide is considered a criminal act has decreased in recent decades, yet there are 25 countries where suicide is still criminalized and an additional 20 countries where – according to Sharia law – people who have engaged in self-harm may be punished with jail sentences (Mishara & Weisstub, 2016). In this regard, it is worth noting the case of Guyana, where in 2015 a national suicide prevention plan was launched despite the fact that a suicide attempt is still considered a criminal offence with the consequence that the person may be liable to imprisonment for 2 years (Chapter 4). Hopefully, thanks to increased awareness and stigma reduction (a key objective of the national plan), in Guyana the legal consequences of suicide and attempted suicide will soon be reconsidered.

Guidance on Implementing National Suicide Prevention Strategies

Even though there is a growing number of countries with a national suicide prevention strategy, those involved in the implementation of national strategic action plans often face multiple barriers in implementing specific actions or interventions, which may be difficult to address and resolve (WHO, 2018). For example, evidence supports the simultaneous implementation of certain interventions, such as training of