

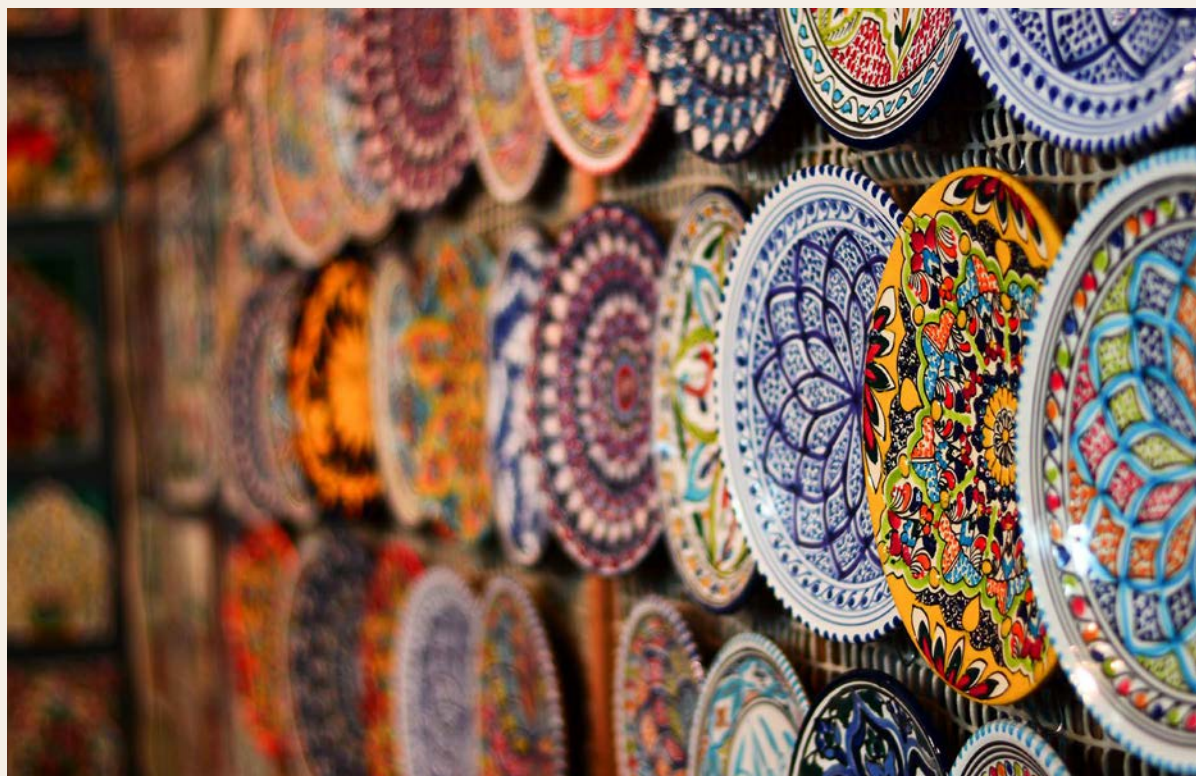
SITUATION ANALYSIS OF
SUICIDE AND SELF-HARM
IN THE WHO EASTERN
MEDITERRANEAN
REGION



This report was prepared for the WHO by Senior Researcher and Head of Program Annette Erlangsen, PhD from the Danish Research Institute for Suicide Prevention (DRISP); PhD-student Khawlah Alateeq; PhD-student Wen Su from the Australian National University; Trine Madsen PhD from DRISP; Professor Ping Qin PhD from University of Oslo, Norway; Britt Morthorst PhD from DRISP. The authors are grateful for feedback from Alexandra Fleischmann from WHO; Dr Aiysha Malik from WHO; Dr Khalid Saeed from WHO EMRO; Dr Murad M Khan from Department of Psychiatry, Aga Khan University, Pakistan; Professor Ahmad Hajebi, M.D., M.Sc., Iran University of Medical Sciences, Department for Mental Health and Substance Abuse, and Ministry of Health and Medical Education, Iran; Dr Emad Abdulrazaq, National Adviser for Mental Health, Ministry of Health, Iraq; Dr Bouram Omar, Service de la Santé Mentale, DELM, Ministère de la Santé, Morocco, Ms. Susan Clelland, Director National Mental Health Program, Ministry of Public Health, Qatar; Dr. Shuja Reagu, Mental Health Services, Hamad Medical Corporation, Qatar; Dr. Majid Ali Al Abdulla - Mental Health Services, Hamad Medical Corporation, Qatar; Dr. Yousef Iqbal - Mental Health Services, Hamad Medical Corporation, Qatar; Mr. Ian Tully - Mental Health Services, Hamad Medical Corporation, Qatar; Professor Fatma Charfi, Department of Child Psychiatry, Mongi Slim Hospital, Faculty of Medicine of Tunis, University of Tunis El Manar, Tunis, Tunisia.

CONTENTS

1. EXECUTIVE SUMMARY	5
2. INTRODUCTION	7
3. EPIDEMIOLOGICAL FINDINGS.....	9
3.1 SUICIDE DEATHS	10
3.2 SELF-HARM BEHAVIOUR.....	10
3.3 METHODS OF SUICIDE AND SELF-HARM	10
4. RISK GROUPS.....	15
4.1 THE COVID-19 PANDEMIC	16
5. LEGISLATION	18
6. REGISTRATION OF SUICIDE AND SELF-HARM BEHAVIOUR.....	20
6.1 RECORDS OF SUICIDE.....	21
6.2 MONITORING SELF-HARM	22
7. SUICIDE PREVENTION.....	23
7.1 MEANS RESTRICTION	25
7.2 MEDIA REPORTING	28
7.3 PROMOTION OF MENTAL WELLBEING IN YOUTH	31
7.4 EARLY IDENTIFICATION, MANAGEMENT AND FOLLOW-UP	33
8. SETTING UP INTERVENTIONS.....	36
9. SUMMARY.....	39
10. REFERENCES.....	40
APPENDIX 1. INFORMATION ON COUNTRIES IN THE WHO EMRO REGION.....	50
APPENDIX 2: TECHNICAL NOTE ON DATA USED FOR THE EPIDEMIOLOGICAL ANALYSIS.	51
APPENDIX 3: REPORTED SUICIDE RATES FOR THE EMRO COUNTRIES, 2000-2019.	56



1. EXECUTIVE SUMMARY

This report provides a situation analysis of suicide deaths and non-fatal self-harm episodes, including suicide attempt, in the countries of the World Health Organization Regional Office for the Eastern Mediterranean (WHO EMRO) for the period of 2000-2020. The aim of the report is to provide an overview of current trends, identify main challenges and most promising strategies for reducing the burden of suicidal behaviour.

MAIN FINDINGS:

- For more than half of the EMRO countries, vital statistics on causes of death are either unavailable or evaluated to be of insufficient quality as assessed by the Global Health Estimate 2019. The reported suicide rates were based on multiple estimation processes, implying a lower level of validity.
- During 2000-2019, a 7.6% decrease in the suicide rate was observed in the EMRO countries. The decrease was most pronounced for females. It is estimated that more than 41,000 lives in this region are lost to suicide each year; corresponding to an age standardized rate of 6.4 suicides per 100,000 population.
- Suicidal behaviour remains a criminal act in more than half of the EMRO countries. It is likely that people at risk of suicide avoid seeking help due to fear of legal consequences.
- Self-harm incidents are only monitored in few EMRO countries.
- About one in four countries have outlined national plans for prevention of suicidal

behaviour.

- Implementation of result-oriented interventions is needed in order to reach the goal of a 33% reduction in the number of suicides by 2030, as outlined in the UN's Sustainable Development Goals.
- Several highly toxic agents, such as pesticides and black henna, are used for suicidal behaviour in the EMRO countries. These agents are easily available and guarded by few restrictions.
- Self-immolation is a frequent method in some EMRO countries. It is often an impulsive act that has long-lasting health consequences.
- Permissive government regulations regarding ownership of firearms, imply that guns are widely available in some EMRO countries and consequently frequently used as a means of suicide.
- Cultural and societal structures, involving a patriarchy, may prevent women from seeking help when in a suicidal crisis.
- Restricting access to toxic agents, such as pesticides and insecticides, has previously been linked to substantial suicide reductions in some countries.
- A random review of newspaper articles from the EMRO countries on suicide revealed a lack of compliance with the WHO media guidelines.
- Many of the EMRO countries share cultural references and use the same language. This could allow for joint suicide preventive efforts across the region.
- Psychosocial interventions for people after self-harm tested in the region have been linked to reductions in suicide thoughts and self-harm in high-quality studies.



2. INTRODUCTION

Each suicide death is a tragedy, which extends beyond the individual. Relatives and friends are left behind with an irreversible loss, many asking themselves why they did not see this coming and what they could have done to prevent it, while suffering a grieving loss. Similarly, those being close to people who self-harm or have attempted suicide are often shocked and desperately trying to support their loved ones.

The WHO's 13th General Programme of Work 2019-2023 included a goal of a 15% reduction in the suicide rate by 2023 (World Health Organization, 2019c). This has later been superseded by the United Nations Sustainable Development Goals, which in goal 3.4.2 sets a target of reducing the number of suicide death by 33% by 2030 (United Nations, 2015). Although the global suicide rate seemingly has decreased over recent decades (Naghavi, 2019), yet, it remains to be determined whether the WHO

EMRO countries remain on track for fulfilling these targets.

The WHO recommends that countries have a strategy for suicide prevention to guide national efforts. The new LIVE LIFE guide builds on the existing evidence in suicide prevention and promotes four key interventions accompanied by seven public health pillars to support their implementation (World Health Organization, 2021b). This resource may serve as inspiration for local stakeholders as well as government agencies. A strength of the LIVE LIFE guide is that the suggested key initiatives may be implemented at any scale and, thus, are equally useful for local volunteer organisations as for policymakers.

Suicide has previously been defined as an act of deliberately taking one's life. The same behaviour with a non-fatal outcome may be considered as self-harming behaviour, also referred to as suicide

attempt (World Health Organization, 2014).

In the WHO EMRO countries, it is estimated that more than 41,000 people die by suicide each year and that the number of self-harm events might be 20 times higher. Suicidal behaviour can be prevented. Over recent decades, preventive strategies have been supported by promising, evidence-based findings, for instance with respect to restricting access to lethal means of suicide and providing support for people at risk of suicide.

The WHO EMRO covers the following 22 countries and territories: Afghanistan, Bahrain, Djibouti, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates, West Bank and Gaza, and Yemen. Comprising more than 700 million population, many countries in this region have in recent decades undergone substantial developments and economic growth, securing better infrastructure and high-quality health care for its citizen (see Appendix 1 for some basic country information). Still, a large shares of the population live in rural areas in many of the EMRO countries, which implies that availability of public services, such as hospital care, may be limited. Arabic is spoken in the majority of countries and Islam is the dominant religion of the region. From an economic perspective, the EMRO is diverse having 10 high and upper middle income countries and 12 lower middle and low income countries.

Over the past decades, the WHO EMRO countries have endured immense national challenges, including nature disaster, famine, civil wars, internal uproar, and the recent COVID-19 pandemic. Governments have been overturned, national crises have led to losses of human lives, and some countries have struggled to secure the safety of its citizen. Many of these events have triggered the displacement of people, of which the recipient countries, in many cases, were in the same region. As such several countries experience vast challenges and have little or no resources invested in national efforts of suicide prevention.

The present report provides a situation analysis of the WHO EMRO countries and territories for

the period 2000-2021. It is based on available evidence from official databases, peer-reviewed publications, government issued reports, and other sources identified online, such as official news outlets and websites from institutions and NGO's operating within the field of suicide prevention. The goal of the report is to provide an overview of current trends, and to identify main challenges and opportunities for intervention to reduce the number of suicides and self-harm events. The report aims to provide information of relevance for policymakers, researchers, NGO's and people who are interested in reducing the burden of suicide in this region. It may also serve as a basis for forming alliances and setting up joint projects in the WHO EMRO countries.

The report is divided into an epidemiological overview of trends in suicide rate over recent years and methods, followed by a presentation of relevant topics, such as decriminalisation and registration of suicidal events. Lastly, the WHO LIVE LIFE key interventions are presented with examples and suggestions for relevant measures based on the context of the EMRO countries.



3. EPIDEMIOLOGICAL FINDINGS

Information on suicide deaths are usually collected and published as national vital statistics. National statistical offices report these data to the WHO Mortality Database. Data on suicide deaths are essential in order to monitor changes and whether preventive efforts have the desired effect. Furthermore, such data allows governments and other stakeholders to determine whether countries meet jointly formulated targets, such as the United Nations Sustainable Development Goals. When information on suicide deaths include details regarding sex, age group and suicide method, it is possible to identify groups who might be at elevated risk. Data on suicide methods is particularly important as one of the most promising prevention strategies is based on restricting access to means of suicide.

In this chapter, the recent trends in suicide deaths across the WHO EMRO countries are presented.

Data derives from the Global Health Estimates 2019 (World Health Organization, 2020a). These estimates are based on the best data available but might not be identical to the official figures published by the national statistical offices. For the Global Health Estimates, the quality of data reported by the individual countries were evaluated through different processes. Just one of the EMRO countries was evaluated to have a high data quality, two counties were rated as having data of moderate quality, while the other countries were rated as having data with severe quality issues or absence of data. Nevertheless, all data on suicides reported in the Global Health Estimates for the EMRO countries were based on estimates conducted by the Global Burden of Disease because the national data did not fulfil all requirements in terms of data quality checks (Vos et al., 2020). Population figures from the United Nations (United Nations Department of

Economic Social Affairs, 2019). For a detailed account of the data used for the findings presented in this section, please refer to Appendix 2.

Due to uncertainties in data, suicide deaths were not reported by age group and suicide methods. Also, due to absence of data, it was not feasible to generate regional estimates for rates of non-fatal self-harm in the WHO EMRO countries.

3.1 SUICIDE DEATHS

During 2000-2019, each year an estimated 41,672 lives were lost to suicide in the EMRO countries. Of these, 30,703 (74%) were among males and 10,969 (26%) among females. The majority of suicide deaths occurred in the most populated countries, namely Pakistan, followed by Iran and Egypt (Figure 1).

Calculated per number of population and standardised to account for age differences (using the WHO standard population), the overall suicide rate in the EMRO countries was 6.4 per 100,000 population. The average suicide rate was 9.1 for males and 3.5 for females per 100,000 population over the entire period, resulting in a female to male sex ratio of 1: 2.6; implying that for every female suicide there were 2.6 male suicides. The highest overall rates were reported in Somalia with 14.7 suicide deaths per 100,000 population, followed by Djibouti and Pakistan with rates of 11.9 and 9.8, respectively (Figure 2 and Figure A3 in Appendix 3). Still, these levels of suicide rates rank among the lowest compared to other WHO regions.

For males, the highest rate was found in Somalia with 22.8 suicide deaths per 100,000 population, while rates of 16.3 and 14.6, respectively, were reported for males in Djibouti and Pakistan (Figure A2 in Appendix 3). The highest suicide rate for females was found in Djibouti with 7.6 suicide death per 100,000 population. This was followed by rates of 7.1 and 5.7 for females living in Somalia and Afghanistan, respectively (Figure A3 in Appendix 3).

Based on crude rates, the suicide rate seemingly decreased with 7.6%, from 6.3 to 5.9 suicides per 100,000 population during 2000-2019. This decrease was particularly pronounced among

females, where the rate decreased with 22.2%, from 4.1 to 3.2 per 100,000. For females, major reductions in the suicide rates were noted in Afghanistan, Iran, and Morocco during 2000-2019. The rate for males decreased with 1.5% from 8.5 to 8.3 per 100,000 population. When comparing the yearly changes in the suicide rate for both sexes, using year 2000 as a point of reference, major reductions were observed in Jordan, Qatar, and United Emirates over recent years. Opposite, an increasing trend was found for Saudi Arabia (Figure A4 in Appendix 3).

A total of 77% of all suicide deaths in the EMRO countries occurred in low and lower middle income countries where 66% of the regional residents live based on the level of income as defined by the World Bank (Figure 3).

Data on age-specific suicide deaths were not available in the Global Health Estimates 2019. However, previous estimations show that most people who die by suicide in the EMRO countries are between 20-40 years (Koronfel, 2002, Al Ansari et al., 2007, Al-Waheeb et al., 2020). Measured relative to the population in each age segment, however, rates of suicide might be highest in the oldest age groups (Naghavi, 2019).

3.2 SELF-HARM BEHAVIOUR

There is no official report on the overall rate of self-harm for the countries in the EMRO. Based on national data from Iran from 2009, the rate of self-harm incidents was 65.7 per 100,000 population, the majority of cases being between 15-24 years of age (Hajebi et al., 2013). The finding that self-harm is predominantly observed among adolescents and young adults is supported by regional data from Iran, Iraq, Oman, Pakistan, and Qatar (Barary et al., 2021, Younis and Moselhy, 2010, Sankaranarayanan et al., 2020, Zaidan et al., 2002, Shekhani et al., 2018).

3.3 METHODS OF SUICIDE AND SELF-HARM

A precise outline of methods used for suicide and self-harm behaviours in the EMRO countries is not feasible due to lack of valid and reliable recordings. It is possible that certain suicide

Figure 2. Age-standardised suicide rate for the EMRO by country (both sexes).

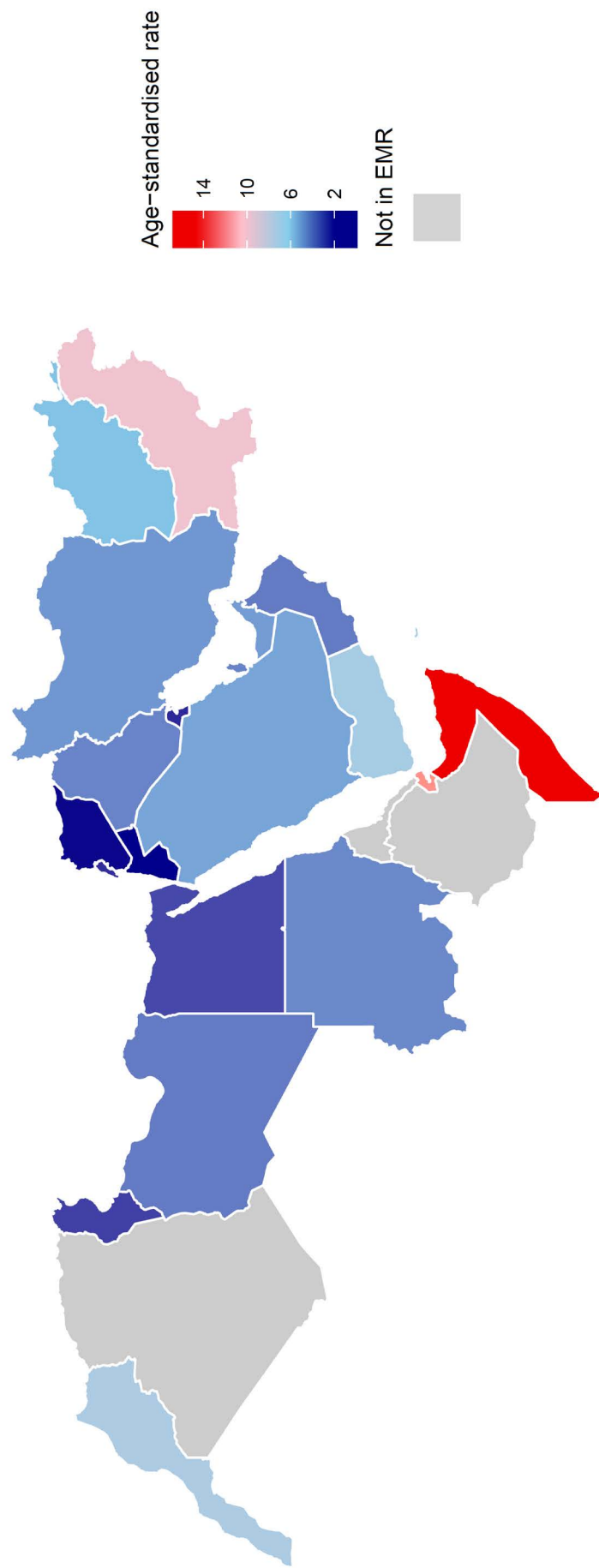
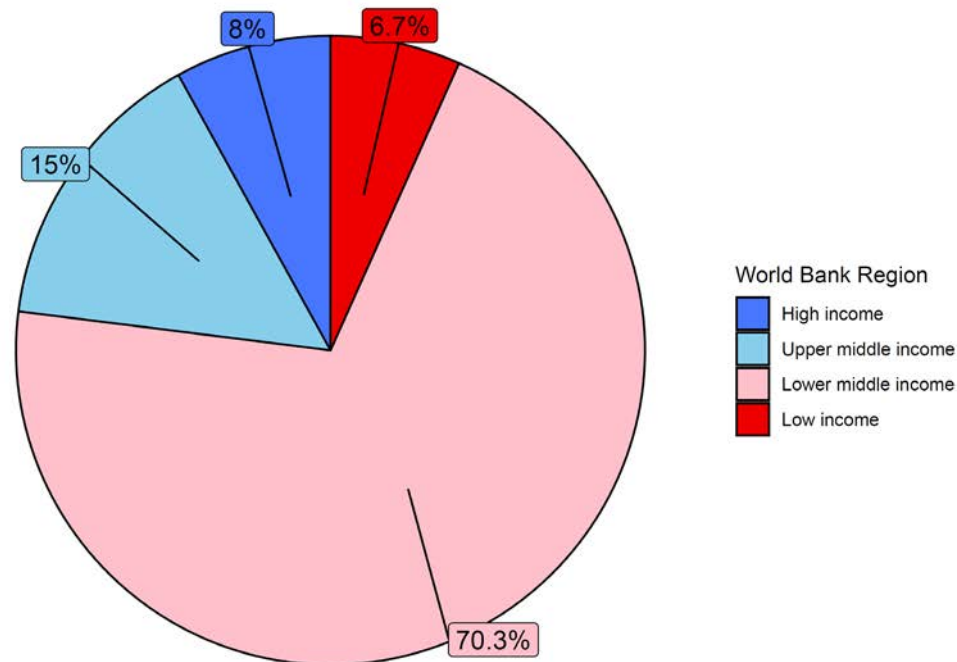


Figure 3. Distribution of suicide death in the EMRO countries by level of income as defined by World Bank Region



methods, for instance those that resemble accidents, might to a larger extent be classified as non-suicidal related causes, including other violent deaths (Al Ansari et al., 2007, Safdar et al., 2021, Pritchard and Amanullah, 2007). Based on historical data from 8 countries, it was estimated in a systematic review that 39.7% of suicide death in the EMRO countries occurred by hanging, 20.3% by poisoning, 17.4% by self-immolation, 7% by firearms, 3.1% by drowning, 2.5% by drug overdose, and 0.8% by jumping (Morovatdar et al., 2013). Still, method are likely to vary between countries and regions.

Hanging is estimated to be the most frequently used method globally (Gunnell et al., 2005). It has been mentioned as a frequent method in Bahrain, Egypt, Iran, Iraq, Kuwait, Pakistan, and Tunisia (Al Ansari et al., 2007, Moneim et al., 2011, Valipour et al., 2021, Al-Waheeb et al., 2020, Jedidi et al., 2017, Shekhani et al., 2018).

Suicide by poisoning includes overdoses by over-the-counter as well as prescribed medication but also pesticides and insecticide, which have been reported used, for instance, in Iran, Iraq, Morocco, Pakistan, Saudi Arabia and Tunisia (Safdar et al., 2021, Nabih et al., 2017, Kavousi-

Gharbi et al., 2017, Moazzam et al., 2009, Gharbaoui et al., 2019, Younis and Moselhy, 2010, Abbas et al., 2018). This seems to be a particular problem among adolescents below the age 20 years, for instance in Tunisia and Morocco (Ben Khelil et al., 2021, Nabih et al., 2017). This is concerning as this age group are known to have a high level of impulsivity in their suicidal behaviour (Hawton and James, 2005). However, also adults are known to use pesticides as a means of suicide, for instance, in relation to domestic disputes (Safdar et al., 2021).

Aluminium phosphide (referred to as 'wheat pills' or 'rice pills') is an illegal and toxic insecticide used in agriculture. It is reportedly used for suicidal behaviour in Iran, Morocco, and Pakistan (Safdar et al., 2021, Valipour et al., 2021). Although the product is illegal in Iran, it is easily obtained at low price and might account for more than half of all poisoning deaths in some rural areas of Iran (Valipour et al., 2021, Barary et al., 2021). Another toxic agent, paraphenylenediamine (referred to as 'kala pathar' in Urdu) is an ingredient in black henna and commonly used in cultural practices, such as colouring of hair and skin (Safdar et al., 2021). Paraphenylenediamine is highly lethal with

no known antidote and high suicide mortality rates by this method have been reported in both Pakistan and Sudan (Safdar et al., 2021). Government-introduced restrictions, which limit the availability of such agents, have been associated with reductions in the number of suicidal incidents (see section 7.1).

Self-immolation or burning is considered to be a relatively frequent method in Iran and Tunisia but has also been observed in Afghanistan, Saudi Arabia, Iraq, and Egypt. For instance, high rates of self-immolation have been reported in the Western regions of Iran (Parvareh et al., 2018, Saberi-Zafaghani et al., 2012, Paiman and Khan, 2017). Most victims seem to be young, married women with lower educational levels who live in low income household as well as adolescents below the age of 20 years (Suhrafi et al., 2012, Ben Khelil et al., 2021). Contributing factors, such as mental disorders, family conflicts, physical abuse have been suggested as well as the easy availability of the method within the household (Mohammadi et al., 2020, Cleary et al., 2021). Opposite to other EMRO countries, self-immolation seems to have become increasingly frequent among males in Tunisia after 2011 after a prominent case during the Tunisian revolution (Jedidi et al., 2017). Here, co-occurring financial problems in the initial incident and subsequent cases suggested a copy-cat behaviour (Khelil et al., 2016).

A relatively high proportion of firearm suicides have been reported in Egypt and Pakistan (Moneim et al., 2011, Safdar et al., 2021). Being guarded by strict laws, firearms are only limited available in Kuwait and United Arab Emirates (Koronfel, 2002, Al-Waheeb et al., 2020). It seems that suicides, due this methods, in these countries are concentrated among groups who have access to guns through their employment, such as police officers and military personnel (Sanaei-Zadeh et al., 2004).



4. RISK GROUPS

Suicidal behaviour is a complex phenomenon and can seldom be attributed to one reason only. Often, it is due to a combination of conditions and events, of which mental vulnerability, psychological distress, and financial stressors are some of the contributing factors. In this section, the factors, which might put people at elevated risk of suicide, are presented as well as some, which might have a protective impact. A large body of research has been conducted in the EMRO region to identify groups at elevated risk of suicide and these findings are prioritised in this review. The level of evidence of these studies is challenged by availability and reliability of data, implying that some studies were limited by small sample sizes and absence of comparison groups. However, most of the presented factors have also been demonstrated in population-based studies conducted and replicated in different countries (Fazel and Runeson, 2020, Hawton and van Heeringen, 2009).

Factors associated with suicide deaths are generally also associated with non-fatal suicidal behaviour, i.e. deliberate self-harm, or suicide attempt. People with a history of previous self-harm are considered to have elevated risk of repetition (Shooshtary et al., 2008, Ben Khelil et al., 2016). One of the main differences between fatal and non-fatal suicidal behaviour is that the latter is more frequent among females and in younger age groups (Poorolajal et al., 2015, Fazel and Runeson, 2020). Self-harm in young age groups is characterized by a higher level of impulsivity and, as a result, often use of methods available in the home (Hawton and James, 2005).

People with mental disorders have consistently been linked to elevated risks of suicidal behaviour (Fazel and Runeson, 2020). As many as 19% of self-harm incidents in Oman were reported to have a history of mental disorders (Zaidan et al., 2002). In particular disorders, such as depression, bipolar disorders, anxiety disorders,

personality disorders, schizophrenia as well as substance misuse have been mentioned as risk factors for suicidal behaviour in EMRO countries (Shooshtary et al., 2008). Still, access to mental health care is limited in many EMRO countries and, consequently, prevalence of mental disorders might be under-reported (World Health Organization, 2021d). In addition, family history of mental disorder has been noted as a contributing factor among young persons (Ben Khelil et al., 2021, Shooshtary et al., 2008). On the other hand, mental well-being has been suggested as a protective factor (Akram et al., 2018).

On a general level, being married is considered a protective factor with respect to suicide and those married tend to have lower rates of suicide than single, divorced and widowed (Poorolajal et al., 2015). However, suicide is found to be more frequent among married women than among unmarried in Pakistan (Shekhani et al., 2018), indicating that being married is a risk factor for women. Stressful situations build up psychological stress, which, if unsolved, can result in mental disorders and suicidal behaviour. Family conflicts, intergenerational problems, abuse, and domestic violence have been mentioned as reasons for suicidal behaviour in women (Suhrabi et al., 2012, Cleary et al., 2021, Rezaeian and Khan, 2020). Also, infertility, which in some cultural settings is perceived as the fault of the woman, might act as a stressor (Fido and Zahid, 2004). Given that physical partner violence has been associated with self-harm (Vizcarra et al., 2004), it might be of importance to ensure that women have access to support; especially for those who live in countries where divorce is not an option. Exposure to violence, including physical and sexual, in childhood has been linked to suicidal behaviour (Bruffaerts et al., 2010). In fact, conflict with parents, partner, or other family members are some of the most frequently mentioned stressors for suicidal behaviour (Shooshtary et al., 2008). In addition, international reviews have linked perceived or actual school failures to suicide in children and adolescents (Soole et al., 2015).

Financial difficulties and unemployment have been linked to suicidal behaviour (Shooshtary et al., 2008, Ben Khelil et al., 2021). Interestingly, studies from Iran suggest that financial difficulties

and unemployment might be equally strong predictors of suicide as mental disorders (Rasouli et al., 2019). It is possible that infrastructural challenges, in the form availability of free mental health care, might play a role in this comparison, in particular in countries with high poverty levels, such as Afghanistan, Pakistan, Somalia, Syria, and Yemen (World Health Organization, 2021d). On a wider scale, also legal problems, physical illness, grief, and assault have been linked to suicidal behaviour in the EMRO region (Shooshtary et al., 2008, Ben Khelil et al., 2021).

In Kuwait, Saudi Arabia, and United Arab Emirates, a high share of migrant workers has been noted among suicide deaths, (Helaly et al., 2015, Al-Waheeb et al., 2020, Koronfel, 2002). Being a migrant worker has been associated with risks of developing mental disorders and negative working conditions might lead to increased risks of suicide (Adhikary et al., 2011). However, international findings regarding this are inconclusive (Forte et al., 2018).

Displacement as result of humanitarian crises has resulted in large groups of people living as refugees in the EMRO region. High rates of suicidal ideation have been reported for young Afghan mothers and Palestinian youth living in refugee and work camps (Rahman and Hafeez, 2003, Itani et al., 2017). The high rates of suicidal ideation reported among children who live in institutional care in Jordan, suggest that exposure to trauma might be a triggering factor (Gearing et al., 2015). Social exclusion or exposure to social stigma has been linked to psychological distress and suicidal ideation among people with hearing loss (Akram et al., 2018). In addition, findings from Jordan suggest that youth in detention facilities have elevated rates of suicidal ideation (Schwalbe et al., 2013).

A high prevalence of suicidal ideation and behaviour has consistently been reported for sexual and gender minority groups, such as gay men, lesbians, and transgender persons in the EMRO region (Kabir and Brinsworth, 2021, Nematollahi et al., 2021, Wagner et al., 2019, Kaplan et al., 2016). In addition to stigmatisation, these groups may face discrimination and risk of legal prosecution in some countries in the region

(Nematollahi et al., 2021).

4.1 THE COVID-19 PANDEMIC

The recent COVID-19 pandemic has affected daily life in most countries of the world and sparked concerns that vulnerable groups, such as people with mental disorders, chronic diseases, or financial difficulties, might experience elevated risks of suicide (Gunnell et al., 2020). Relatively, little evidence exists regarding the impact of the COVID-19 pandemic on risks of suicidal behaviour in the EMRO region (John et al., 2020). An international review showed that the first lockdown period was not associated with increases in the overall suicide rate in European countries, Japan, and the US (Pirkis et al., 2021). Nevertheless, case reports from Pakistan have attributed some incidents of suicidal behaviour to the COVID-19 pandemic, citing economic difficulties as a contributing factor (Mamun and Ullah, 2020). Suicidal behaviour has been reported among patients who tested positive for COVID-19 in psychiatric service facilities in Pakistan (Imran et al., in press). Suicidal ideation and suicide attempt have also been reported among patients seen in psychiatric liaison teams in Qatar (Iqbal et al., 2020). High levels of suicidal ideation were measured among relocated people from Iraq and Syria living in an Iraqi refugee camp during the early phase of the pandemic, albeit levels were comparable to those measured prior to the pandemic (Kizilhan and Noll-Hussong, 2020).

5. LEGISLATION

In Egypt, Iran, Iraq, Jordan, Kuwait, Libya, Morocco, Tunisia, and United Arab Emirates, suicide is not considered a criminal act. However, people with suicidal behaviour still risk facing legal prosecution in several countries of the EMRO (see Table 5.1).

Suicide is seldom a rational choice. People in a suicidal crisis are suffering from psychological stress, i.e. an immense psychic pain, and are extremely vulnerable. They require competent care to improve their mental wellbeing. When suicidal behaviour is considered a criminal act, this increases stigma and avoidance of help-seeking (Shahid, 2013). It is likely that persons avoid seeking medical care after self-harm because of fear for legal consequences in some EMRO countries (Naveed et al., 2017). As acknowledged by WHO, a decriminalisation of suicide will make it easier for people at risk of suicide to receive support (World Health Organization, 2014).

Another negative consequence of legal prosecution is that people might face imprisonment after suicidal behaviour. When suicidal behaviour is considered a criminal act, this becomes an incentive to avoid being detected and risk legal prosecution, which implies that suicides are likely to be under-recorded. Thus, hindering optimal planning and implementation of suicide prevention efforts. In this context, it is important to raise

awareness in the general population regarding suicide thoughts and the importance of seeking help. Even though decriminalisation might lead to an increase in the number of suicide death recorded, due to better reporting and less under-recording (Knipe et al., 2014), it might also encourage people to seek help before to acting on suicidal impulses.

Although suicidal behaviour is prohibited in Islamic law (Al Ansari et al., 2007), suicide was decriminalised in 2000 in United Arab Emirates. Other governments, such as India, have recently changed the national legislation in order to decriminalise suicidal behaviour. In Lebanon, suicide behaviour remains listed as a criminal act but legal prosecution is no longer practiced (Mishara and Weisstub, 2016). Also, rather than listing suicidal behaviour as a right in countries where suicide is decriminalised, legal articles do not refer to suicide (Mishara and Weisstub, 2016). This way, there is no actual statement that suicidal behaviour is an accepted conduct.

The Global Mental Health Action Network initiative, an international working group, which includes the World Health Organisation, actively encourages the decriminalisation of suicidal. As mentioned in the groups recent report: „The criminalisation and punishment of individuals who engage in suicidal behaviour creates a huge obsta-

Table 5.1. Legal status of suicidal behavior in the EMRO countries.

Legal status of suicidal behavior	Countries
Not decriminalized	Afghanistan, Bahrain, Djibouti, Lebanon, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Yemen
Decriminalized	Egypt, Iran, Iraq, Jordan, Kuwait, Libya, Morocco, Tunisia, United Arab Emirates
Unknown	West Bank and Gaza

cle to accessing appropriate and adequate mental healthcare; which is a fundamental human right. It also impacts upon public health surveillance effects by underrepresenting the true prevalence rates within countries where suicidal behaviour remains a criminal offence” (World Health Organization, 2013). The International Association of Suicide Prevention (IASP), a nongovernmental organization for suicide prevention, has furthermore issued a position paper promoting the decriminalisation of suicide (International Association for Suicide Prevention, 2020).



6. REGISTRATION OF SUICIDE AND SELF-HARM BEHAVIOUR

Reliable information on numbers of suicide deaths and self-harm incidents is a prerequisite for preventing suicide effectively (Ghaffar et al., 2001). It is important that information on suicidal behaviour is being collected and that data are reliable and valid.

Example 6.1.1 Registration of suicide deaths in Tunisia

According to Tunisian law, cases of death where the cause is suspected to be a suicide death must be investigated in a legal inquiry and autopsy is conducted.

Source: Jedidi et al. (2017)

Suicidal behaviour is generally considered to be under-recorded in the EMRO countries (Moneim et al., 2011, Hajebi et al., 2013, Rezaeian and Khan, 2020). Barriers to a valid registration include risk of legal prosecution, religious beliefs, social stigma, governmental neglect as well as other cultural barriers (Moneim et al., 2011, Hajebi et al., 2013). In recent years, this list also includes national conflicts and This might obscure the true scope of the problem. Under-recording might be more prevalent for certain suicide methods or specific population groups, which leads to bias and obscures the possibility of setting priorities for preventive measures.

Different strategies have been employed to secure information on suicidal behaviour in countries with no existing systematic collection and evaluate the reliability of data. Examples of these are presented in the subsequent sections.

Table 6.1. Evaluation of data quality on cause of death data by the Global Health Estimate (GHE).*

Data quality as evaluated by GHE	Countries
High quality data (grade: 1)	Kuwait
Moderate data quality issues (grade: 2)	Iran , Jordan
Severe data quality issues (grade: 3)	Bahrain, Egypt, Iraq, Libya, Syrian Arab Republic, Tunisia
Data unavailable or unusable (grade: 4)	Afghanistan, Djibouti, Lebanon, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Sudan, United Arab Emirates, Yemen, West Bank and Gaza

* Source: World Health Organization (2020b). See Appendix 2, including Table A2 and A3 for details.

6.1 RECORDS OF SUICIDE

Numbers of fatal suicide incidents are recorded as part of national vital statistics. The registration of vital events as well as general statistics on causes of death are considered to be incomplete in several EMRO countries (see Appendix 2). As mentioned in section 3, the WHO Global Health Estimate evaluated that only few of the EMRO countries had data of moderate or high quality (see Table 6.1.).

The processes used to determine causes of death varies by country. In cases of unnatural deaths where the cause of death is suspected to be suicide, homicide, or accident, it is often determined by a legal entity, for instance through a legal inquiry where results from an investigation and forensic examinations are reviewed (see example 6.1.1. and 6.1.2). Ideally, this will involve a medical expert who helps determine whether the injuries might have been self-inflicted.

Different analytic approaches have been employed in the EMRO countries to evaluate the reliability of recordings of suicide and self-harm incidents and compensate for under-recordings. One approach is the ‘network scale up’ where the number of suicide incidents in a small population sample is scaled up using estimates of network factors. This strategy was used to assess the validity of official suicide records in Iran where the analyses suggested that official figures might capture as little as 58% of all suicide deaths (Moradinazar et al., 2019). The authors found that as many as 80% of suicides due to hanging, cutting objects and guns were included in the official records but only 34-44% of all incidents due to self-immolation and self-poisoning were evaluated to be included in the official figure (Moradinazar et al., 2019).

An approach of identifying better data sources, was used in Pakistan where national statistics on vital events were considered to be incomplete (Ghaffar et al., 2001). Here, newspaper articles were screened to identify suicide deaths and

Example 6.1.2. Registration of suicide deaths in Iran

All unnatural deaths, including suicides deaths, are referred to the local Legal Medicine Organisation in Iran where an autopsy and examinations are conducted to determine the cause and manner of death and death certificates issued. Approximately 35% of all referred deaths are examined by the forensic toxicology department. As per legal requirements, an autopsy is conducted to determine the cause and manner of death of all suicides.

Source: Kordrostami et al. (2017).

comparisons suggested that this source of information might provide a more accurate estimate than police reports (Ghaffar et al., 2001).

6.2 MONITORING SELF-HARM

Self-harm behaviour is associated with elevated risks of repetition and mortality (Bergen et al., 2012). Having a surveillance system for non-fatal self-harming behaviour (aka suicide attempts) allows for identification of specific methods of self-harm, which might be addressed in preventive efforts, such as means restriction. Furthermore, it will allow nations to respond promptly to increasing incidents. For these reasons, the WHO recommends setting up self-harm surveillance systems on regional or national level, along with examples of data sources (World Health Organization, 2016).

In the EMRO countries, national data on self-harm have been collected in Iran, Lebanon, and Kuwait (Rezaeian and Khan, 2020, Hajebi A et al., 2011). In Iran, the national surveillance system for monitoring of self-harm and suicide deaths is based on incidence reports from public health care providers in both primary and secondary care and from medical facilities in all districts, regions and provinces countrywide. The estimated national rate of non-fatal self-harm incidents based on this data source was 5-10 fold higher in 2021 than previous figures published in 2013 and 2016 where not all districts were covered (Hajebi et al., 2013, Ministry of Health and Medical Education, 2022, Hajebi A et al., 2016); suggesting a more reliable recording practice. Some barriers, such as securing a reliable reporting from the private health sector and inter-sectorial collaborations, have been identified (Hajebi et al., 2013).

When national data on self-harm are not available, a data collection in a defined geographical area, such as a region or a hospital catchment area, might provide insights into which groups and methods should be targeted by suicide preventive efforts (see box 6.2.1). In Oman, all cases of deliberate self-harm admitted to hospitals within the Muscat area during a 5-year period were systematically reviewed (Zaidan et al., 2002). All patients who attended Emergency Departments

Example 6.2.1. Monitoring self-harm in Pakistan

In Pakistan, a locally implemented data collection at the Aga Khan University Hospital facilitates a monitoring system. Data on self-harm incidents, method, reasons, mental disorders, socio-demographics and other relevant information is collected from the medical records.

The data provides an overview of most frequent methods and identification patterns of risk groups.

Source: World Health Organization (2021b)

and where an “overdose, ingestion, self-poisoning or deliberate self-harm” had been recorded in the patient record were included, together with details regarding the self-harm, such as method, precipitating factors, and socio-demographics. Next to generating valuable insights regarding self-harm presentations, the data also allowed for calculation of a rate for deliberate self-harm (Zaidan et al., 2002).

Different approaches have been applied to evaluate the reliability of the self-harm recordings. Using the scale up method described in section 6.1, it was estimated that 11% of self-harm incidents (including fatal suicides) in 2014 had not been referred to hospital in one region of Iran (Moradinazar et al., 2019). The same research team applied a different approach, truncated county modelling, to estimate the actual number of self-harm incidents (including fatal suicides) in the same region in 2015, i.e. one year later. Here, the results suggested that the true figure was around double as high as the figure listed in the official database (Moradinazar et al., 2017).



7. SUICIDE PREVENTION

National efforts to prevent suicide should ideally be guided by a strategic plan, which facilitates planning, coordination, setting priorities as well as identifying national targets (World Health Organization, 2018). A national plan typically involves multiple components, addresses different risk groups, and provide support for people at risk of suicide.

The structure and important elements to include a national plan for suicide prevention have previously been outlined (World Health Organization, 2018), In addition, the WHO LIVE LIFE guide describes relevant aspects for initialising suicide preventive efforts at national, regional, or local level. These include conducting a situation analysis, multisectoral collaboration, awareness-raising and advocacy, capacity-building, financing, surveillance, monitoring and evaluation. Furthermore, four key interventions are delineated: 1) means restriction, 2) responsible reporting by the media, 3) building

socioemotional life skills in young people, and 4) early identification and follow up of at-risk individuals. These strategies are supported by high-quality evidence and likely to reduce suicidal behaviour. Still, if the short-term goal is to save lives, then the most effective strategies are likely to be means restrictions and support for at-risk individuals.

The suicide preventive efforts should be considered in the light of available resources. Macro level factors, such as poverty and lack of infrastructure, implies scarce availability of mental health care in many low and middle income countries of the EMRO (Rezaeian and Khan, 2020). This, in combination with the stigmatisation of issues related mental disorders and suicidality, may be viewed as some of the main obstacles for initiation of suicide preventive efforts. Another structural and cultural obstacle is women's position in the society.

Table 7.1. Overview of suicide preventive efforts in the WHO EMRO region.*

	National plan for suicide prevention	Pesticide-control programs	Training of media professionals	Training of health care staff regarding suicide prevention	Gatekeeper training	Mental hospital beds / 100,000 population	Helpline for suicide prevention
Afghanistan	Yes, integrated in mental health plan	No	No	No	No	0.30	No
Bahrain	No	No	No	No	No	19.32	No
Djibouti	No	Unknown	Unknown	Unknown	Unknown	0.0	No
Egypt	Yes, integrated in mental health plan	No	No	Yes	No	7.04	Yes
Iran (Islamic Republic of)	Yes, stand-alone plan	Yes	Yes	Yes	Yes	7.5	Yes
Iraq	Yes, integrated in mental health plan	No	Yes	Yes	No	3.49	No
Jordan	No	No	No	Yes	Yes	6.65	Yes
Kuwait	No	No	Yes	Yes	No	17.2	Yes
Lebanon	Yes, integrated in mental health plan	No	No	Yes	No	27.51	Yes
Libya	No	No	No	No	No	Unknown	Yes
Morocco	No	No	No	Yes	Yes	4.17	Yes
Oman	No	No	No	No	No	Unknown	No
Pakistan	No	No	No	Yes	Yes	2.47	No
Qatar	Yes, integrated in national health strategy	No	Yes	Yes	No	4.85	Yes
Saudi Arabia	No	Unknown	Unknown	Unknown	Unknown	17.11	Yes
Somalia	No	No	No	No	No	70	Yes
Sudan	No	No	No	No	No	0.81	Yes
Syrian Arab Republic	No	No	Yes	Yes	Yes	5.34	No
Tunisia	Yes, integrated in mental health plan	No	Yes	Yes	No	8.05	No
United Arab Emirates	No	Yes	Yes	No	No	0.90	Yes
West Bank and Gaza	No	Unknown	Unknown	Unknown	Unknown	Unknown	Yes
Yemen	No	No	No	No	No	3.80	No

*Data source: World Health Organization (2017a) and World Health Organization (2021d)

Example 7.1.1. Means restrictions in Jordan

Imports on parathion and other toxic agents were stopped in 1981 in Jordan. This was, via different data sources, associated with a 48% reduction in the number of deaths due to pesticides in the following years.

Source: Gunnell et al. (2017).

Several of the EMRO countries have national, government-initiated plans for suicide prevention (see Table 7.1). According to the 2020 version of the WHO Mental Health Atlas, a standalone plan for suicide prevention exists in Iran (World Health Organization, 2021d). In Afghanistan, Egypt, Iraq, Lebanon, Qatar, Saudi Arabia, and Tunisia, suicide preventive efforts have been integrated into the national plan for mental health. Efforts in Tunisia have later been brought to a standstill due to the political situation in the country. Situation analysis have been conducted in Iraq and Qatar.

Iran and United Arab Emirates have installed efforts to control use of poisonous pesticides in their country. Training programs for media

Example 7.1.2. Bans on means of suicide in Pakistan

In 2017, print and social media initiated a campaign, drawing attention to alarming numbers of suicides due to paraphenylenediamine ('kala pathar') in South Punjab. This led Punjab's government to issue a temporary ban on kala pathar in the region, which was later extended to the entire province in 2018.

Source: Safdar et al. (2021).

professionals regarding safe reporting on suicide incidents have been conducted in seven of the EMRO countries. Eleven EMRO countries reported having conducted training of health care professionals regarding suicide prevention. Gatekeeper training, focusing on non-specialized health workers, has taken place in five countries. Almost half of the EMRO countries have telephone helplines, which offer support to people with suicide thoughts. Opening hours and target groups vary across helplines.

In the subsequent sections, each of the four key intervention strategies are reviewed in the context of available evidence from the EMRO countries.

7.1 MEANS RESTRICTION

Restricting access to suicide methods, for instance by banning pesticides, implementing restrictive gun laws, or setting up barriers at public sites of suicide, is one of the best evidence-supported strategies (Mann et al., 2021). People who carry out suicidal behaviour are often in a psychological crisis and have ambivalent feelings regarding the outcome of the event. By making suicide methods less accessible, one wins time. If the method of choice is not available, the person might instead seek help, the suicidal crisis might subside before another method is found, or the person might be identified by friends or bystanders and aided to support. The regrets frequently expressed by persons who survived self-immolation underscore the importance of restricting access to means of suicide (Cleary et al., 2021). On a national level, making a specific suicide method unavailable may translate into hundreds of saved lives. Concerns that people might resort to other methods have been voiced but has not been supported by conclusive evidence. Also, if access to a highly lethal method is restricted then a substitution is still expected to result in lives saved (Gunnell et al., 2017).

Many pesticides (including herbicides, rodenticides, fumigants, and insecticides) are poisonous for humans. In rural areas of low- and middle-income countries, pesticides are often stored inside the household, near utensils used for cooking. Having such highly toxic agents easily available in the household is very dangerous, as

persons who become agitated during a domestic dispute might be at risk of ingesting the poison in an act of impulsivity (Safdar et al., 2021).

There are pesticides, which are non-toxic for humans. To avoid such accidents, toxic pesticides were banned in Jordan (see example 7.1.1). This was followed by a subsequent reduction in the number of pesticide deaths (Gunnell et al., 2017). In fact, reductions of up to 50% of pesticide suicides were reported after national bans in Sri Lanka (Knipe et al., 2017). On the other hand, mixed results have been reported with respect to introduction of safe storage practices (Gunnell et al., 2017). Given that bans of highly toxic pesticides, including insecticides, are considered one of the most effective prevention strategies (Arafat et al., 2021b), this has led WHO and other organisations to advocate for national bans of poisonous pesticides (World Health Organization, 2018). The WHO has also prepared a toolkit for prevention of suicides due to pesticides outlining the evidence, myths, and strategies (World Health Organization, 2019b).

Available information on methods of suicide and self-harm events in the EMRO countries is presented in section 3.3 and further summarised in Table 7.2. Here, it is seen that use of pesticides is prevalent in Egypt, Iraq, Morocco, Oman, Pakistan, Saudi Arabia, Tunisia, and United Arab Emirates. It might also be a prevalent problem in other countries where data is not available.

Another frequent method of suicidal behaviour is aluminium phosphide (also referred to as 'rice' or 'wheat' tablets), which is highly lethal and has been identified as a frequently used in Iran, Morocco, Pakistan, and Syrian Arab Republic. Although the product has been prohibited in Iran, it is still easily available through markets and herbal shops (Barary et al., 2021, Valipour et al., 2021).

Paraphenylenediamine (PPD) (also called 'kala pathar' in Urdu) is a toxic agent used in black henna (Shigidi et al., 2014). There are reports of this being used for suicidal behaviour in some countries but, given the widespread use of black henna across the EMRO, it might be a more prevalent problem. In some regions of Pakistan,

the agent has now become prohibited (see example 7.1.2).

In countries where restrictive laws limit the general population's access to guns, for instance Iran, Kuwait, and United Arab Emirates, suicide deaths by firearms are less frequent (Al-Waheeb et al., 2020, Valipour et al., 2021, Koronfel, 2002). On the other hand, suicide by gunshot seems to be a frequently used method in rural areas of countries where gun ownership is more common, as reported for Pakistan (Safdar et al., 2021). If suicide by firearms is a concern, limiting the access to handguns might be an effective preventive measure.

Fall into wells has been reported in some rural areas of Tunisia (Mlayeh et al., 2021). In northern Pakistan, suicide by jumping into rivers or lakes was found to be a frequently used method for women (Khan et al., 2009). The Ministry of Interior Data in Qatar is currently working with private enterprises to install safety protocols for preventing jumping from high buildings. Also, accumulation of suicidal incidents in public places (known as clusters) have been reported, for instance in Lebanon (Richa and Richa, 2015). Measures to limit access to specific sites or methods might include structural changes, such as covers over wells or barriers at high viewpoints or bridges (Pirkis et al., 2013). Self-immolation is well-known problem in several of the EMRO countries and, given that kerosene is readily available in many households, low risk alternatives to kerosene should be considered (Lam et al., 2012). Dissemination of victim stories (see section 7.2), seems to be a promising measure to reduce self-immolation.

Hanging is one of the most frequently used suicide methods in the world. Yet, it remains challenging to obstruct access to means of hanging outside of institutional settings where ligature points may be removed (Gunnell et al., 2005). For instance, access to means can be limited for patients at risk of suicide in psychiatric hospitals by removal of personal items, such as belts, and fixture points. Similar measures can be installed in prisons.

7.2 MEDIA REPORTING

Table 7.2. Methods of suicidal behavior by country.*

	Hanging	Pesticides	Insecticides (aluminum phosphide)	Kala pathar ("black henna")	Firearms	Self-immolation	Others Agents
Afghanistan							
Bahrain	Severe problem				Not a concern	Severe problem Not a concern	
Djibouti							
Egypt	Severe problem	Severe problem			Severe problem	Severe problem	
Iran	Severe problem	Some concerns	Severe problem		Not a concern	Severe problem	
Iraq	Severe problem	Severe problem					
Jordan							
Kuwait	Severe problem				Not a concern	Not a concern	
Lebanon							
Libya							
Morocco		Severe problem					
Oman		Severe problem	Severe problem				Paracetamol
Pakistan		Severe problem	Severe problem		Severe problem	Some concerns	Kerosene oil, rat poison
Qatar	Severe problem	Not a concern	Not a concern		Not a concern	Not a concern	Jumping from height
Saudi Arabia		Severe problem					
Somalia							
Sudan				Severe problem			
Syrian Arab Republic			Severe problem				
Tunisia	Severe problem	Severe problem				Severe problem	
United Arab Emirates		Severe problem			Not a concern		
West Bank and Gaza							
Yemen							

* 'Severe problem' was defined as methods, which were reported in several studies and/or identified as a problem in large segments of the country. 'Some concerns' was defined as methods, which were reported by single studies and/or as a problem of lower prevalence/in some parts of the country. 'Not a concern' was defined as methods, which were identified by suicides at not being frequent. Data sources: Moneim et al. (2011), Valipour et al. (2021), Younis and Moselhy (2010), Al-Waheeb et al. (2020), Kordrostami et al. (2017), Zaidan et al. (2002), Safdar et al. (2021), Jedidi et al. (2017), World Health Organization (2021b). Information on methods of suicidal behavior was not available for all countries.

It is important to practice caution when reporting on topics related to suicidal behaviour in the media. Famous persons may serve as role models and glorification of their death can appear encouraging to people in crises. This phenomenon has been referred to as the Werther effect, named after the main character in the novel “The sorrows of young Werther” by Goethe, who dies by suicide as a result of an unrequited love story. The book became popular and was linked to copycat cases in contemporary Germany. Several studies have shown that newspaper reports of celebrities who die by suicide have been followed by increases in the number of suicide deaths by the same method (Niederkrötenhaler et al., 2020). For this reason, glorification and over-exposure of famous persons’ suicide should be avoided. This also relates to fictional stories, including televised or streamed series. Media reports on suicidal behaviour should not provide detailed description of suicide methods or explicit images. Furthermore, it is strongly recommended to list information on where people with suicide thoughts can get help, for instance listed in an accompanying box. WHO has developed a set of

guidelines for media professionals (see box 7.2.1).

Media outlets can play an active role in promoting help-seeking and prevention of suicide. The so-called Papageno effect refers to the character of the same name in the opera, the Magic Flute, written by Mozart. In a crisis, Papageno contemplates taking his own life but is then reminded of reasons for living by three boys (Niederkrötenhaler et al., 2010). The scene symbolises that suicidal crises may be temporary and can subside if one receives help and that others might encourage those at risk to seek help. Given that many people who experience suicide thoughts do not actively seek help, media outlets could fulfil an important role by educating the public about self-care for mental health and the need for seeking help when in crises. By presenting positive role-models, for instance, stories of coping with life stressors or suicidal thoughts, and how to get help, media may inspire individuals in similar situations to seek help.

Incidents of copycat behaviour of suicide death presented in public media are known from the EMRO countries, for instance Tunisia (see

Box 7.2.1. WHO Media guidelines

- *Do provide accurate information about where to seek help*
- *Do educate the public about the facts of suicide and suicide prevention, without spreading myths*
- *Do report stories of how to cope with life stressors or suicidal thoughts, and how to get help*
- *Do apply particular caution when reporting celebrity suicides*
- *Do apply caution when interviewing bereaved family or friends*
- *Do recognize that media professionals themselves may be affected by stories about suicide*
- *Don't place stories about suicide prominently and don't unduly repeat such stories*
- *Don't use language which sensationalizes or normalizes suicide, or presents it as a constructive solution to problems*
- *Don't explicitly describe the method used*
- *Don't provide details about the site/location*
- *Don't use sensational headlines*
- *Don't use photographs, video footage or social media links*

Source: World Health Organization (2017b), World Health Organization (2017a)

Example 7.2.1. Copycat behavior based on media reports in Tunisia

In 2010, the self-immolation of a young man in Tunisia was followed by a series of protest demonstrations, which eventually led to the revolution in Tunisia. The event was covered extensively in media portrayals and a subsequent doubling in the number of self-immolation events was observed. Prior to 2010, self-immolation had mainly been observed among women in Tunisia but after the event the majority of cases were by males.

In 2014, a television show in Tunisia presented a case of a 12-year old girl who died by suicide. The incident gained much attention by newspapers and television outlets and some justified the act as a laudable response to injustice. Based on data from Northern Tunisia, there is reason to believe that the number of suicide deaths among adolescences subsequently might have increased with as much as 200% in 2014 compared to earlier years.

Source: Ben Khelil et al. (2021), Moneim et al. (2011).

On the occasion of this report, a random review of 2-4 newspaper articles, which reported on suicide incidents in national news outlets from each of the EMRO countries were reviewed. Hardly any of the 38 reviewed newspaper articles mentioned where people at risk of suicide might find help or presented positive role-models (see Table 7.2). On the other hand, the words used in the texts presented the incidents in a factual manner with no sensationalising or indications of approval. Information regarding the method or the specific location of the incident was mentioned in some articles but revealing photos were only found in one article. While one cannot draw firm conclusions based on a small sample review, the findings suggest that efforts to disseminate and implement guidelines in collaboration with stakeholders should be considered.

On-going efforts in Qatar are, in collaboration with the Carter Foundations are seeking to implement better reporting practices on suicide.

Informal dissemination of suicide methods, such as self-immolation, may have resulted in copycat behaviours in the EMRO countries (Jedidi et al., 2017). Videos of victim reports have been used as measure to prevent self-immolation in Iran (see example 7.2.2). The initial dissemination of victim reports took place in schools and hospital settings; however, victim reports could be a promising strategy for a future effort with a larger impact through public or social media and might prove to be a low-cost intervention.

example 7.2.1). To counteract this, workshops were conducted with media professionals in Tunisia in 2015. This effort has been perceived to improve reporting practices in the country's media outlets (Mental Health Innovation Network, 2021). In Iran, media reports on suicide have been found to adhere poorly to the WHO guidelines, both in terms of mentioning suicide methods and displaying images (Arafat et al., 2021a). Also, in Qatar reviews have found that newspaper articles, which reported on suicide, did not provide information on where to seek help (Elzamzamy et al., 2021). Yet, little evidence exists with regard to other EMRO countries.

Table 7.3 Random review of 2-3 newspaper articles from each country.*

	Was there information on where to find help listed in the text or a 'helpbox'?	Were positive role-models described?	Did the article sensationalise the event or approve of it?	Did the article present details regarding the method or location, which might trigger copycat behavior?	Where there photos of the person or the event?
Afghanistan					
Bahrain	No	Sometimes	No	Sometimes	No
Djibouti					
Egypt	No	No	No	No	No
Iran					
Iraq	No	No	No	Sometimes	No
Jordan	No	No	No	Sometimes	Sometimes
Kuwait	No	No	Sometimes	Sometimes	No
Lebanon	No	No	No	Sometimes	No
Libya	No	No	No	No	No
Morocco	No	No	No	No	No
Oman	No	No	No	Sometimes	No
Pakistan	No			Sometimes	Sometimes
Qatar	Yes	No	No	No	No
Saudi Arabia	No	No	No	Sometimes	No
Somalia					
Sudan	No	No	No	No	No
Syrian Arab Republic	No	No	No	No	No
Tunisia	No	No	No	Sometimes	No
United Arab Emirates	No	No	No	No	No
West Bank and Gaza	No	No	No	No	No
Yemen	No	No	No	No	Sometimes

* A random review of newspaper articles published online was conducted during July-August 2021. Webpages of national newspapers were searched in the national language for articles on suicide. The search was conducted in two different newspapers of each country. Among the search hits, two articles were randomly selected in each newspaper (n=38). In Djibouti and Somalia, no articles on suicide were identified in searched online newspapers. Explanation: 'Sometimes' refers to this being the case for at least one newspaper article but not all. 'No' refers to this being absent for the examined 2-4 articles for this country. For Pakistan, information was based on a study by M. Ayub and colleagues (Ayub et al., 2021).

Example 7.2.2. Victim stories as preventive on of self-immolation

Self-immolation are often described by victims in EMRO countries as impulsive acts with no or little intention of dying. The resulting burns often require extensive medical treatment and are not seldomly followed by a complicated recovery process. Victims might suffer severe tissue damage and require corrective plastic surgery in order to restore, for instance facial features. Many victims deeply regret the act and have afterwards reported that they used this method because they had heard of others using it, although they could not name specific persons. Several people stated that had they known the true consequences of the act, they would not have proceeded. In order to reduce the high number of self-immolation incidents in Iran, videos of victims telling their story were recorded. The aim of the videos was to create awareness regarding the severe burn complications and introduce strategies for problem-solving. The videos were shown in schools and primary health care offices. Over a 3-year period, a 57% drop in the hospital presentations for self-immolation was observed in the intervention area when compared to a similar area with no such intervention. Due to the evaluation design, the research team had opted not to transmit the victim stories directly in television or print media.

Source: Ahmadi and Ytterstad (2007), Moneim et al. (2011), World Health Organization (2017a).

7.3 PROMOTION OF MENTAL WELLBEING IN YOUTH

Concerns regarding young people's mental well-being are substantiated by reports from several EMRO countries. In Jordan, as many as 50% of high school students aged 15-18 years reported to have experienced thoughts about suicide within the past two weeks (AlAzzam et al., 2021). Active suicidal ideation, as measured on the Beck Scale for Suicide Ideation, was noticed among more than 20% of respondents in a high school Karachi, Pakistan, particularly among females (Syed et al., 2015). An international survey found that 4.5%, 15.8%, 11.5%, 10.0%, and 5.4% of university students reported having had a suicide attempt at some point in their lives in Iran, Jordan, Palestine, Saudi Arabia, and Tunisia, respectively (Eskin et al., 2016). Feelings of hopelessness and worries were found to be more frequent among females and older adolescents in a Saudi Arabic sample aged 10-19 years (Abou Abbas and AlBuhairan, 2017). With the aim of promoting mental health in youth, several promising school-based interventions have been developed, some of which

are described in this section. The majority of these efforts address mental well-being in general among children and adolescents.

In the WHO EMRO countries, several promising projects have been implemented to improve general, social and mental health of children and youth. An example is an on-going randomized trial in Lahore, Pakistan where teachers receive online training in mental health literacy and self-efficacy to better address students emotional and psychological problems (Imran et al., 2018). In Morocco, an extensive program to promote healthy pathways in for children and youth was launched in 2019 (see Box 7.2.1). In the Palestine region, specialized interventions have been offered traumatised groups of school children. In a randomized trial, war-affected children aged 10-13 years were taught recovery techniques, which were linked to reductions in posttraumatic stress symptoms in boys but not girls at post-intervention (Qouta et al., 2012). Wider efforts include improving the access to child and adolescent mental health care, as in Qatar where community-based specialist child and adolescent mental health services have been



implemented in primary care (Khan et al., 2021, Wadoo et al., 2021). This effort has been linked to reduced wait times and less incorrect referrals (Khan et al., 2021).

In 2020, WHO and United Nations Children's Fund (UNICEF) released the toolkit, *Helping Adolescents Thrive (HAT)*, which aims at promoting adolescent mental well-being and preventing self-harm (World Health Organization, 2020c). The kit is directed towards adolescents aged 10-14 years, their caregivers, schools, community, and governmental agencies. The toolkit is based on evidence-informed strategies and consists of a legislative framework, which actively promotes access to mental health care for young persons, resources for schools and communities, outline of interventions for caregivers, and examples of psychosocial interventions for youth (World Health Organization, 2020c). As an additional resource, a comic addressing mental health issues of youth was published during the COVID-19 pandemic (see illustration in Box 7.2.2).

The school-based intervention, Youth Aware

of Mental Health Programme, is a manualised program using role-playing and a booklet to increase awareness about mental health and introduce skills for coping with life stressors. One of its strategies involves encouraging young adolescents to look out for each other. The program, which is aimed at 15-year olds has been linked to reductions in self-harm episodes in a randomised clinical trial (Wasserman et al., 2015).

The Good Behavior Game consists of a team-based competition, which allows teachers to set standards for good behaviour and promote socialisation of children with maladaptive behaviours (Wilcox et al., 2008). The program is aimed at children aged 5-7- years who are assigned to equally distributed teams in terms of sex, social isolation, and disruptive behaviour. Based on classroom rules, teams can win points during assigned periods. The implicit goal is that children discover it is in their own interest to present good behaviour and the maladaptive children's behaviour is regulated by classmates. The intervention has been linked to reduced risks of suicidal ideation, and other adverse mental health outcomes, such as substance misuse (Wilcox et al., 2008). The Good Behavior

Box 7.2.1. The APT2C program in Morocco.

In 2019, the Moroccan Ministry of Health and Ministry of Education, in collaboration with United Nations Development Programme, implemented an extensive effort to promote general health and mental and social wellbeing among pupils in elementary schools (the “APT2C program”). The program involves a guide for promotion of tolerance, good citizenship and avoidance of high-risk behaviours, such as violence. The program, which include a theoretical framework based on international research, provide general guidance for elementary schools on how to ensure healthy pathways in life for young individuals and promote equality between the sexes.

Source: Moroccan Ministry of Health and Ministry of Education (2019)

Game has previously been tested with positive indications in Sudan (Saigh and Umar, 1983).

7.4 EARLY IDENTIFICATION, MANAGEMENT AND FOLLOW-UP

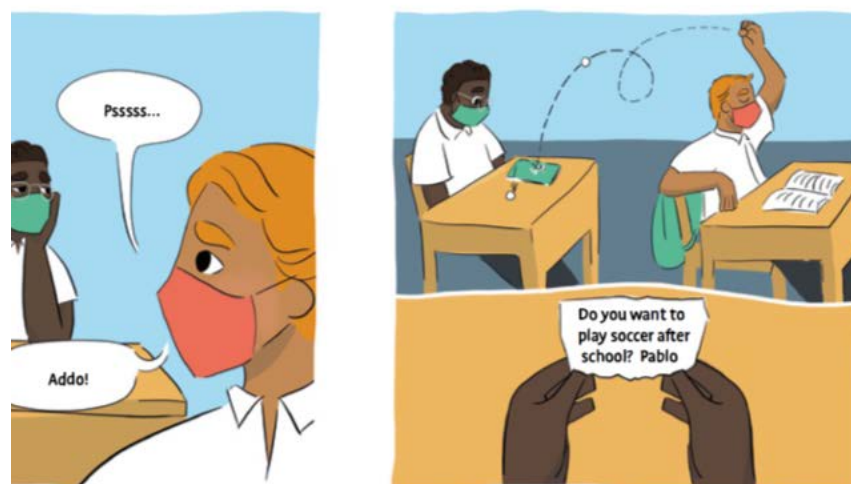
Support for persons at risk of suicide is a crucial element in suicide prevention. The main focus areas are: early identification, knowledge on how to assess and support people at risk, follow-up as well as postvention, i.e. support for people after suicidal behaviour (World Health

Organization, 2021b).

Some people who experience suicidal ideation actively seek help, either in general or mental healthcare settings or with community-based organizations. Others might tell it to people close to them or call a telephone helpline. In cultural settings where suicidality is stigmatised, limited knowledge regarding suicidality might hinder help-seeking behaviour (Al-Shannaq and Aldalaykeh, 2021, Suhrabi et al., 2012). It would be particularly relevant to provide psycho-education and underscore the importance of seeking help for those at risk and their relatives (Rezaeian and Khan, 2020, Malakouti et al., 2021).

As stakeholders who might be able to identify people at risk of suicide, community based health care providers form an ideal target group for training. In a rural province of Western Iran, a wide range of training efforts were offered to community-based primary health care staff (Malakouti et al., 2015). A later follow-up revealed that a greater number of patients were treated for depression and more suicide attempts were recorded in the subsequent year when compared to a neighbouring province, suggesting better detection and surveillance. Other potential gatekeepers could include teachers, policymakers, judiciary, and religious representatives. Vulnerable groups in the community may also be supported through international NGOs. Inspiration for community-based efforts to improving mental health may be found in the extensive catalogue by the Mental Health Innovation Network (<https://>

Box 7.2.2. HAT comix from WHO for 10-14-year olds.



Source: World Health Organization (2021c)

www.mhinnovation.net).

People at risk of suicide may also be supported through telephone helplines (World Health Organization, 2014). About half of the EMRO countries have telephone helplines for people at risk of suicide, implying that this service might not exist in other countries (see Table 7.1 above and example 7.4.1). When setting up a helpline, it is useful to have standard guidelines for counselling and how to manage challenging situations, as mentioned by Iranian helpline counsellors (Djalalinia et al., 2020).

People who have self-harmed generally present to emergency departments a hospital is within reach. International reviews revealed that people after self-harm have elevated risks of repeating the behaviour also with fatal consequences, particularly within the first year after the episode (Carroll et al., 2014, Bergen et al., 2012). Although this might not apply to the same extent in low and middle income countries, reports from Sri Lanka suggest that people with non-fatal suicidal behaviour have relatively low risks of repeating self-harm (Knipe et al., 2019). Few preceding suicide attempts were also reported in a psychological autopsy study of one-hundred suicide deaths in Pakistan (Khan et al., 2008).

The gold standard for people seen in emergency departments would include a psychosocial assessment to evaluate whether the person suffers from a severe mental disorder and/or is at imminent risk of self-harm (World Health Organization, 2019a). As mentioned in the WHO SUPRE-MISS intervention, standard care for people presenting at hospitals with suicide attempts in a low and middle income country might, however, not include these elements (Fleischmann et al., 2008).

Given that outreach and availability of mental health care is limited in many EMRO countries (World Health Organization, 2021d), staff in primary care may play an important role in identifying patients at risk of suicide (Malakouti et al., 2015). The WHO mhGAP intervention guide provides concrete advice on management of patients at risk of suicidal behaviour (World Health Organization, 2019a).

Example 7.4.1. Helpline for mental health in Qatar

The Qatar Ministry of Public Health established a national mental helpline in April 2020, which is open from 7AM-3PM from Saturday to Thursday. During its first 18 months of operation, it recorded more than 40,000 calls. The helpline is operated by mental health professionals who can provide an initial assessment as well as referral to treatment. The calls to the helpline are considered as confidential.

Source: The Peninsula (2021)

The guide includes a section dedicated to self-harm where an informed pathway of steps assists health care professionals with relevant screening questions for evaluating risk of suicide. Important aspects to assess during treatment and later follow-up options are presented. Interestingly, the WHO mhGAP intervention guide is available in Arabic.

Different management models, including abovementioned WHO mhGAP intervention guide, have been developed. The brief intervention and contact (BIC), consisting of a 1hr. psychosocial assessment at the time of discharge as well as nine follow-up contacts by phone or visit, has been linked to reductions in number of suicide deaths among participants after presentations for suicide attempt in a five-nation trial conducted in low and middle income countries (Fleischmann et al., 2008). Psychosocial therapies have been used to provide crises intervention and introduce problem-solving strategies to people after self-harm. This type of intervention has been evaluated as promising by Cochrane reviews (Witt et al., 2021a, Witt et al., 2021b). An example of this is seen in Pakistan (see example 7.4.2). In the EMRO countries, patient education (psycho-education), cognitive behavioural therapy-based tools to improve self-help, and follow-up by phone or postcards have been tested and linked to subsequent reductions in suicide thoughts in

randomised study designs (Mousavi et al., 2014, Hassanian-Moghaddam et al., 2017, Husain et al., 2014, Fleischmann et al., 2008).

Over recent years, an increasing number of eHealth tools, i.e. online-based tools for improving health outcomes, have been developed, including apps with safety plans and online therapy for people at risk of suicide (van Spijker et al., 2014, Larsen et al., 2015, Mühlmann et al., 2021). Since the COVID-19 pandemic, In Qatar, tele-psychiatric consultations were introduced in out-patient services, which seemingly has led to an increase in the number of contacts, including new cases (Karim et al., 2020). High-quality evidence supports the effectiveness of several of these tools in reducing suicidal thoughts. Considering the availability of smartphones in the countries of the EMRO (see Appendix 1), mental health illiteracy, and lack of available services, culturally adapted eHealth tools might be relevant options to explore. Previous adaptation of such tools to the given cultural settings have been positively evaluated (Eylem et al., 2021, Lindegaard et al., 2021). Given that many countries in the region share the same language, it could be possible to share eHealth tools across nations.

Example 7.4.2. Brief psychotherapy after self-harm presentations

A brief, culturally adapted, psychological intervention, consisting of six sessions of problem-solving and crisis management based on cognitive-behavioral therapy, was offered to patients presenting at hospitals after an episode of self-harm in Karachi, Pakistan. The trial was evaluated in a randomized design where half of the participants received standard treatment, which usually did not involve referral to psychiatric services. As measured on the Beck Scale for Suicide Ideation, significantly lower levels of suicide thoughts at 3 and 6 months of follow-up were found for the participants who received the intervention when compared to those who received standard treatment. Later evaluations also suggest that the intervention might be cost-effective.

Source: Husain et al. (2014), Alvi et al. (2021)



8. SETTING UP INTERVENTIONS

EMRO Identifying and engaging relevant stakeholders are useful first steps for setting up interventions (see example 8.1). The WHO LIVE LIFE REPORT provides useful information on the first steps to execute interventions, form multisectoral collaboration, raise awareness and advocacy, capacity-building, financing,

Example 8.2. Engaged stakeholders and activities for suicide prevention in Iraq

*Ministry of Health
Ministry of Interior
Ministry of Education
Ministry of Higher education
Ministry of Migration
Ministry of Youth
The Cabinet, the Women Empowerment Directorate
NGOs*

Example 8.3. Engaged stakeholders and activities for suicide prevention in Qatar

*Primary Health Care Corporation
Ministry of Interior
Ministry of Education
Supreme Committee Delivery and Legacy
Qatar 2022
Qatar Foundation
Qatar University
Ashgal
Hamad Bin Khalifa University
Ambulance Service, Hamad Medical Corporation
Qatar Red Crescent*

surveillance, and monitoring and evaluation of efforts.

Suicide preventive efforts may be conducted

Example 8.1. Stakeholders, which might be engaged in suicide preventive efforts

Government sectors:

- *Ministry of Health.*
- *Ministries of: Agriculture, Education, Judiciary, Labour/employment, Media, Minority Affairs, Planning and Development, Social Affairs/Welfare, Transport, Youth, Defence.*
- *Politicians, parliamentarians or representatives.*
- *Local governments, local decision-makers.*
- *Policy-makers and opinion leaders.*

Stakeholders (individuals and organizations):

- *Everyone.*
- *People with lived experience of suicide.*
- *Mental health service user organizations.*
- *Mental and general health workers, health promotion officers, health administrative authorities, substance use services, social workers, community development services.*
- *Teachers, education staff, youth workers, schools, youth clubs and centres.*
- *Police, firefighters, ambulance personnel/paramedics.*
- *People working with older adults, care providers, nursing homes, day centres.*
- *Religious, faith or spiritual leaders, organizations, community places of worship/convening.*
- *Traditional healers or community elders.*
- *Media outlets (print, television and film, web, social media), journalists, journalism associations.*
- *Gender-based violence services, child protection services*
- *Sexual orientation and gender identity groups.*
- *Retailers related to risk or means of suicide, such as pharmacists, bartenders, alcohol retailers.*
- *Workplaces, trade unions, professional associations, occupational health sectors, business leaders.*
- *People working in unemployment bureaus, job centres, social welfare services.*
- *Military.*
- *Secure services such as mental health inpatient wards and prisons.*
- *Financial services, debt collection services, pension services.*
- *NGOs, including international groups or charities that are concerned with welfare and well-being or that provide services for vulnerable people.*
- *Scientific community, academic experts.*
- *Celebrities and influencers.*
- *Many more, as listed throughout the guide.*

Source: World Health Organization (2021b)

on a national, regional, or local level. Another suggestion is to conduct a situation analysis as presented in this report, to identify the main opportunities and challenges as well as can help set priorities. In countries where suicide prevention is not a political priority, low-cost

interventions, such as means restriction, victim stories or implementation of media guidelines, might be relevant options.

Examples of identified stakeholders is listed for Iraq and Qatar (see example 8.2 and 8.3).

Activities in Iraq include a situation analysis as well as multi-sectoral coordination, advocacy and capacity building with respect to prevention of suicide. A situation analysis has also been conducted in Qatar. Where a long-term focus is to strengthen the access and provision of mental health care in the community, which partially is achieved by strengthening the primary caregivers as well as having psychiatrists working in community-based settings (Wadoo et al., 2021). Given the high number of migrant workers in Qatar, a special focus is to set up specialised psychiatric services for low-skilled migrants, which includes recruitment of multi-lingual psychiatrists and collaboration with employers (Laroo et al., 2021).

Psycho-educative efforts to improve help-seeking may be implemented through public campaigns, information online, training of welfare workers, or embedded in television shows.



9. SUMMARY

By providing a situation analysis of the WHO Eastern Mediterranean Region (EMRO), challenges and opportunities for suicide preventions were reviewed in the light of existing evidence. Many of the countries in the region have over recent years been challenged by regional instabilities, natural disasters, displacement of people, and the COVID-19 pandemic. All of these events linked to adverse mental health outcomes. People remain underserved in terms of health and mental health care systems, educational systems, and infrastructure in general in many of the EMRO countries.

With more than 41,000 suicide deaths on a yearly basis, dedicated interventions are needed to reach the 33% reduction in the number of suicide deaths, as put forward in the UN's Sustainable Development Goals. Decriminalisation of suicide, better surveillance and more accurate statistics are some of the tools that may be activated to reduce barriers for help-seeking and gain a better overview. Evidence-supported interventions could include means restriction of poisonous substances and firearms, implementation of media guidelines and dissemination of victims' stories. Fostering mental health in youth through school-based efforts and securing access to help, for instance through web-based solutions. Lastly, barriers for help-seeking need to be reduced to ensure support and follow-up for those at risk suicide are other of the main opportunities, which might be addressed in future preventive efforts.

10. REFERENCES

- ABBAS, M. J., ALHEMIARY, N., RAZAQ, E. A., NAOSH, S. & APPLEBY, L. 2018. The Iraqi national study of suicide: Report on suicide data in Iraq in 2015 and 2016. *J Affect Disord*, 229, 56-62.
- ABOU ABBAS, O. & ALBUHAIRAN, F. 2017. Predictors of adolescents' mental health problems in Saudi Arabia: findings from the Jeeluna® national study. *Child and Adolescent Psychiatry and Mental Health*, 11, 52.
- ADHIKARY, P., KEEN, S. & VAN TEIJLINGEN, E. 2011. Health Issues among Nepalese migrant workers in the Middle East. *Health Science Journal*, 5, 169-175.
- AHMADI, A. & YTTERSTAD, B. 2007. Prevention of self-immolation by community-based intervention. *Burns*, 33, 1032-40.
- AKRAM, B., NAWAZ, J., RAFI, Z. & AKRAM, A. 2018. Social exclusion, mental health and suicidal ideation among adults with hearing loss: protective and risk factors. *J Pak Med Assoc*, 68, 388-393.
- AL-SHANNAQ, Y. & ALDALAYKEH, M. 2021. Suicide literacy, suicide stigma, and psychological help seeking attitudes among Arab youth. *Curr Psychol*, 1-13.
- AL-WAHEEB, S., AL-KANDERY, N., AL-OMAIR, N. & MAHDI, A. 2020. Patterns of suicide in Kuwait from 2014 to 2018. *Public Health*, 187, 1-7.
- AL ANSARI, A., HAMADEH, R. R., ALI, M. K. & EL OFFI, A. 2007. Suicide in Bahrain in the last decade. *Crisis*, 28, 11-5.
- ALAZZAM, M., ABUHAMMAD, S., TAWALBEH, L. & DALKY, H. 2021. Prevalence and Correlates of Depression, Anxiety, and Suicidality Among High School Students: A National Study. *J Psychosoc Nurs Ment Health Serv*, 1-9.
- ALVI, M. H., SHIRI, T., IQBAL, N., HUSAIN, M. O., CHAUDHRY, I., SHAKOOR, S., ANSARI, S., KIRAN, T., CHAUDHRY, N. & HUSAIN, N. 2021. Cost-Effectiveness of a Culturally Adapted Manual-Assisted Brief Psychological Intervention for Self-Harm in Pakistan: A Secondary Analysis of the Culturally Adapted Manual-Assisted Problem-Solving Training Randomized Controlled Trial. *Value Health Reg Issues*, 25, 150-156.
- ARAFAT, S. M. Y., AHMAD, A. R., SAEED, A. K., MENON, V., SHOIB, S. & KAR, S. K. 2021a. Quality of media reporting of suicide in Iraq. *Int J Soc Psychiatry*, 207640211003928.
- ARAFAT, S. M. Y., ALI, S. A., MENON, V., HUSSAIN, F., ANSARI, D. S., BAMINIWATTA, A., SALEEM, T., SINGH, R., VARADHARAJAN, N., BIYYALA, D., KAR, S. K. & KHAN, M. M. 2021b. Suicide methods in South Asia over two decades (2001-2020). *Int J Soc Psychiatry*, 207640211015700.
- AYUB, M., TAHIR, S. M., RAFIQ, B., IMRAN, N., NAVEED, S., HAIDER, I. I. & KHAN, M. M. 2021. Assessing the quality of media reporting of suicide deaths in Pakistan against international guidelines. 24th National Psychiatric Conference. Lahore, Pakistan.
- BARARY, M., PIRZADEH, M., REZAEIAN, N., DADASHNIA, M., MOHAMMADI-DANIALI, S., PAHLAVANI, F., MANOUCHEHRI, A., KAZEMI, S. & MOGHADAMNIA, A. 2021. An epidemiological study of poisoning cases in Babol (northern Iran) from 2015 to 2018. *Caspian J Intern Med*, 12, 35-44.
- BEN KHELIL, M., ZGARNI, A., ZAAFRANE, M., CHKRIBANE, Y., GHARBAOUI, M., HARZALLAH, H., BANASR, A. & HAMDOUN, M. 2016. Suicide by self-immolation in Tunisia: A 10

year study (2005-2014). *Burns*, 42, 1593-1599.

BEN KHELIL, M., ZGARNI, A., BELGHITH, M., HARZALLAH, H., ZHIOUA, M. & HAMDOUN, M. 2021. Trends of juvenile and adolescent suicides in North Tunisia: a 12-year study. *Public Health*, 194, 223-231.

BERGEN, H., HAWTON, K., WATERS, K., NESS, J., COOPER, J., STEEG, S. & KAPUR, N. 2012. Premature death after self-harm: a multicentre cohort study. *The Lancet*, 380, 1568-1574.

BRUFFAERTS, R., DEMYTTENAERE, K., BORGES, G., HARO, J. M., CHIU, W. T., HWANG, I., KARAM, E. G., KESSLER, R. C., SAMPSON, N. & ALONSO, J. 2010. Childhood adversities as risk factors for onset and persistence of suicidal behaviour. *The British journal of psychiatry*, 197, 20-27.

CARROLL, R., METCALFE, C. & GUNNELL, D. 2014. Hospital presenting self-harm and risk of fatal and non-fatal repetition: systematic review and meta-analysis. *PLoS. One*, 9, e89944.

CLEARY, M., SINGH, J., WEST, S., RAHKAR FARSHI, M., LOPEZ, V. & KORNHABER, R. 2021. Drivers and consequences of self-immolation in parts of Iran, Iraq and Uzbekistan: A systematic review of qualitative evidence. *Burns*, 47, 25-34.

DJALALINIA, S., HEJABI, A., BOLHARI, J., ASADI, A., NASERI, H., SADEGHI, M. M., MEHRABADI, M. S., DEJMAN, M., EFTEKHARI, M. & ATOOFI, M. K. 2020. Situation Analysis for Promotion of Hot-Lines: An Experience from Iran. *Int J Prev Med*, 11, 183.

ELZAMZAMY, K., ALSIDDIQI, A., KHALIL, A., ELAMIN, H., KARIM, M. A. & WADDOO, O. 2021. Newspaper depiction of mental and physical health in Qatar. *BJPsych international*, 18, 12-15.

ESKIN, M., SUN, J.-M., ABUIDHAIL, J., YOSHIMASU, K., KUJAN, O., JANGHORBANI, M., FLOOD, C., CARTA, M. G., TRAN, U. S. & MECHRI, A. 2016. Suicidal behavior and psychological distress in university students: a 12-nation study. *Archives of suicide research*, 20, 369-388.

EYLEM, O., VAN STRATEN, A., DE WIT, L., RATHOD, S., BHUI, K. & KERKHOF, A. J. 2021. Reducing Suicidal Ideation among Turkish Migrants in the Netherlands and in the UK: The Feasibility of a Randomised Controlled Trial of a Guided Online Intervention.

FAZEL, S. & RUNESON, B. 2020. Suicide. *New England Journal of Medicine*, 382, 266-274.

FIDO, A. & ZAHID, M. A. 2004. Coping with infertility among Kuwaiti women: cultural perspectives. *Int J Soc Psychiatry*, 50, 294-300.

FLEISCHMANN, A., BERTOLOTE, J. M., WASSERMAN, D., DE, L. D., BOLHARI, J., BOTEAGA, N. J., DE, S. D., PHILLIPS, M., VIJAYAKUMAR, L., VARNIK, A., SCHLEBUSCH, L. & THANH, H. T. 2008. Effectiveness of brief intervention and contact for suicide attempters: a randomized controlled trial in five countries. *Bull. World Health Organ*, 86, 703-709.

FORTE, A., TROBIA, F., GUALTIERI, F., LAMIS, D. A., CARDAMONE, G., GIALLONARDO, V., FIORILLO, A., GIRARDI, P. & POMPILI, M. 2018. Suicide risk among immigrants and ethnic minorities: a literature overview. *International journal of environmental research and public health*, 15, 1438.

GEARING, R. E., BREWER, K. B., ELKINS, J., IBRAHIM, R. W., MACKENZIE, M. J. & SCHWALBE, C. S. 2015. Prevalence and correlates of depression, posttraumatic stress disorder, and suicidality in Jordanian youth in institutional care. *J Nerv Ment Dis*, 203, 175-81.

GHAFFAR, A., HYDER, A. A. & BISHAI, D. 2001. Newspaper reports as a source for injury data in developing countries. *Health Policy Plan*, 16, 322-5.

GHARBAOUI, M., BEN KHELIL, M., HARZALLAH, H., BENZARTI, A., ZHIOUA, M. &

- HAMDOUN, M. 2019. Pattern of suicide by self-poisoning in Northern Tunisia: An eleven-year study (2005-2015). *J Forensic Leg Med*, 61, 1-4.
- GUNNELL, D., APPLEBY, L., ARENSMAN, E., HAWTON, K., JOHN, A., KAPUR, N., KHAN, M., O'CONNOR, R. C., PIRKIS, J. & CAINE, E. D. 2020. Suicide risk and prevention during the COVID-19 pandemic. *The Lancet Psychiatry*, 7, 468-471.
- GUNNELL, D., BENNEWITH, O., HAWTON, K., SIMKIN, S. & KAPUR, N. 2005. The epidemiology and prevention of suicide by hanging: a systematic review. *Int. J Epidemiol*, 34, 433-442.
- GUNNELL, D., KNIPE, D., CHANG, S. S., PEARSON, M., KONRADSEN, F., LEE, W. J. & EDDLESTON, M. 2017. Prevention of suicide with regulations aimed at restricting access to highly hazardous pesticides: a systematic review of the international evidence. *Lancet Glob Health*, 5, e1026-e1037.
- HAJEBI A, AHMADZAD-ASL M, DAVOUDI F & GHAYYOMI R 2016. Trend of Suicide in Iran During 2009 to 2012: Epidemiological Evidences from National Suicide Registration. *Iran J Psychiatry Behav Sci*, 10, e4398.
- HAJEBI A, AHMADZAD ASL M, ZAMAN M, NASERBAKHT M, MOHAMMADI N & F, D. 2011. Designing a Registration System for Suicide in Iran. [in Persian]. *Iranian J Psych Clin Psycho*, 17, 106-9.
- HAJEBI, A., AHMADZAD-ASL, M., ERSHADI, M., NIKFARJAM, A. & DAVOUDI, F. 2013. National registration system of suicide behaviors in Iran: barriers and challenges. *Arch Suicide Res*, 17, 416-25.
- HASSANIAN-MOGHADDAM, H., SARJAMI, S., KOLAH, A. A., LEWIN, T. & CARTER, G. 2017. Postcards in Persia: A Twelve to Twenty-four Month Follow-up of a Randomized Controlled Trial for Hospital-Treated Deliberate Self-Poisoning. *Arch Suicide Res*, 21, 138-154.
- HAWTON, K. & JAMES, A. 2005. ABC of adolescence: Suicide and deliberate self harm in young people. *British Medical Journal*, 330, 891.
- HAWTON, K. & VAN HEERINGEN, K. 2009. Suicide. *The Lancet*, 373, 1372-1381.
- HELALY, A. M., ALI, E. F. & ZIDAN, E. M. 2015. The pattern of suicide in the western Kingdom of Saudi Arabia: a retrospective study from 2008 to 2012. *Am J Forensic Med Pathol*, 36, 27-30.
- HUSAIN, N., AFSAR, S., ARA, J., FAYYAZ, H., RAHMAN, R. U., TOMENSON, B., HAMIRANI, M., CHAUDHRY, N., FATIMA, B., HUSAIN, M., NAEEM, F. & CHAUDHRY, I. B. 2014. Brief psychological intervention after self-harm: randomised controlled trial from Pakistan. *Br J Psychiatry*, 204, 462-70.
- IMRAN, N., RAHMAN, A., CHAUDHRY, N. & ASIF, A. 2018. World Health Organization "School Mental Health Manual"-based training for school teachers in Urban Lahore, Pakistan: study protocol for a randomized controlled trial. *Trials*, 19, 290.
- IMRAN, N., AAMER, I., AFZAL, H., HASHMI, A., SHABBIR, B. & ASIF, A. in press. Locked in: psychiatric impact on COVID-19 patients isolated in a tertiary care hospital in Lahore, Pakistan *Eastern Mediterranean Health Journal*.
- INTERNATIONAL ASSOCIATION FOR SUICIDE PREVENTION. 2020. The decriminalisation of attempted suicide [Online]. International Association for Suicide Prevention. Available: <https://www.iasp.info/wp-content/uploads/IASP-Decriminalisation-Policy-Position-Statement-GA.pdf> [Accessed].
- IQBAL, Y., AL ABDULLA, M. A., ALBRAHIM, S., LATOO, J., KUMAR, R. & HADDAD, P. M. 2020. Psychiatric presentation of patients with acute SARS-CoV-2 infection: a retrospective review of 50 consecutive patients seen by a consultation-liaison psychiatry team. *BJPsych open*, 6.

- ITANI, T., JACOBSEN, K. H. & KRAEMER, A. 2017. Suicidal ideation and planning among Palestinian middle school students living in Gaza Strip, West Bank, and United Nations Relief and Works Agency (UNRWA) camps. *Int J Pediatr Adolesc Med*, 4, 54-60.
- JEDIDI, M., EL KHAL, M. C., MLAYEH, S., MASMOUDI, T., MAHJOUR, M., BRAHEM, M. Y., BEN DHIAB, M., ZEMNI, M. & SOUGUIR, M. K. 2017. Suicide and Fire: A 20-Year Study of Self-Immolation Death in Sousse, Tunisia. *J Burn Care Res*, 38, e734-e738.
- JOHN, A., OKOLIE, C., EYLES, E., WEBB, R. T., SCHMIDT, L., MCGUINNESS, L. A., OLORISADE, B. K., ARENSMAN, E., HAWTON, K. & KAPUR, N. 2020. The impact of the COVID-19 pandemic on self-harm and suicidal behaviour: a living systematic review. *F1000Research*, 9.
- KABIR, A. & BRINSWORTH, J. 2021. Mental health symptoms and suicidality in Iranian gay men. *Psychol Med*, 1-6.
- KAPLAN, R. L., NEHME, S., AUNON, F., DE VRIES, D. & WAGNER, G. 2016. Suicide risk factors among trans feminine individuals in Lebanon. *Int J Transgend*, 17, 23-30.
- KARIM, M. A., WADDOO, O., REAGU, S. M., AMRO, R. & AL ABDULLA, M. 2020. Telepsychiatry in the Arabian Gulf region: Implications beyond the Covid-19 pandemic. *Asian Journal of Psychiatry*, 54, 102397.
- KAVOUSHI-GHARBI, S., JALLI, R., RASEKHI-KAZEROUNI, A., HABIBAGAH, Z. & MARASHI, S. M. 2017. Discernment scheme for paraquat poisoning: A five-year experience in Shiraz, Iran. *World J Exp Med*, 7, 31-39.
- KHAN, M. M., AHMED, A. & KHAN, S. R. 2009. Female suicide rates in Ghizer, Pakistan. *Suicide and Life-Threatening Behavior*, 39, 227-230.
- KHAN, M. M., MAHMUD, S., KARIM, M. S., ZAMAN, M. & PRINCE, M. 2008. Case-control study of suicide in Karachi, Pakistan. *The British Journal of Psychiatry*, 193, 402-405.
- KHAN, Y. S., AL-SHAMLAWI, M., PHIRI, L. & ALABDULLA, M. 2021. Triage of referrals in a child and adolescent mental health service in Qatar: reducing waiting times and promoting needs-based prioritisation. *BJPsych international*, 18, 67-70.
- KHELIL, M. B., GHARBAOUI, M., FARHANI, F., ZAAFRANE, M., HARZALLAH, H., ALLOUCHE, M., ZHIOUA, M. & HAMDOUN, M. 2016. Impact of the Tunisian revolution on homicide and suicide rates in Tunisia. *International journal of public health*, 61, 995-1002.
- KIZILHAN, J. I. & NOLL-HUSSONG, M. 2020. Psychological impact of COVID-19 in a refugee camp in Iraq. *Psychiatry Clin Neurosci*, 74, 659-660.
- KNIPE, D., METCALFE, C., HAWTON, K., PEARSON, M., DAWSON, A., JAYAMANNE, S., KONRADSEN, F., EDDLESTON, M. & GUNNELL, D. 2019. Risk of suicide and repeat self-harm after hospital attendance for non-fatal self-harm in Sri Lanka: a cohort study. *The Lancet Psychiatry*, 6, 659-666.
- KNIPE, D. W., CHANG, S.-S., DAWSON, A., EDDLESTON, M., KONRADSEN, F., METCALFE, C. & GUNNELL, D. 2017. Suicide prevention through means restriction: impact of the 2008-2011 pesticide restrictions on suicide in Sri Lanka. *PloS one*, 12, e0172893.
- KNIPE, D. W., METCALFE, C., FERNANDO, R., PEARSON, M., KONRADSEN, F., EDDLESTON, M. & GUNNELL, D. 2014. Suicide in Sri Lanka 1975-2012: age, period and cohort analysis of police and hospital data. *BMC public health*, 14, 1-13.
- KORDROSTAMI, R., AKHGARI, M., AMERI, M., GHADIPASHA, M. & AGHAKHANI, K. 2017. Forensic toxicology analysis of self-poisoning suicidal deaths in Tehran, Iran; trends between 2011-

2015. *Daru*, 25, 15.

KORONFEL, A. A. 2002. Suicide in Dubai, United Arab Emirates. *J Clin Forensic Med*, 9, 5-11.

LAM, N. L., SMITH, K. R., GAUTHIER, A. & BATES, M. N. 2012. Kerosene: a review of household uses and their hazards in low-and middle-income countries. *Journal of Toxicology and Environmental Health, Part B*, 15, 396-432.

LARSEN, J., FRANSEN, H. & ERLANGSEN, A. 2015. MYPLAN - A mobile phone application for supporting people at risk of suicide. *Crisis*.

LATOO, J., WADOO, O., IQBAL, Y., CHANDRAPPA, N. S. K., TULLEY, I. & ALABDULLA, M. 2021. Development of mental health services for lower-skilled migrant workers in Qatar. *Asian Journal of Psychiatry*, 62, 102709.

LINDEGAARD, T., KASHOUSH, F., HOLM, S., HALAJ, A., BERG, M. & ANDERSSON, G. 2021. Experiences of internet-based cognitive behavioural therapy for depression and anxiety among Arabic-speaking individuals in Sweden: a qualitative study. *BMC psychiatry*, 21, 1-12.

MALAKOUTI, S. K., NOJOMI, M., GHANBARI, B., RASOULI, N., KHALEGHPARAST, S. & FARAHANI, I. G. 2021. Aftercare and Suicide Reattempt Prevention in Tehran, Iran. *Crisis*, 1-10.

MALAKOUTI, S. K., NOJOMI, M., POSHTMASHADI, M., HAKIM SHOOSHTARI, M., MANSOURI MOGHADAM, F., RAHIMI-MOVAGHAR, A., AFGHAH, S., BOLHARI, J. & BAZARGAN-HEJAZI, S. 2015. Integrating a suicide prevention program into the primary health care network: a field trial study in Iran. *Biomed Res Int*, 2015, 193729.

MAMUN, M. A. & ULLAH, I. 2020. COVID-19 suicides in Pakistan, dying off not COVID-19 fear but poverty? - The forthcoming economic challenges for a developing country. *Brain Behav Immun*, 87, 163-166.

MANN, J. J., MICHEL, C. A. & AUERBACH, R. P. 2021. Improving suicide prevention through evidence-based strategies: a systematic review. *American journal of psychiatry*, appi. ajp. 2020.20060864.

MENTAL HEALTH INNOVATION NETWORK. 2021. Suicide prevention in Tunisia [Online]. London: Mental Health Innovation Network Available: https://www.mhinnovation.net/innovations/suicide-prevention-tunisia?qt-content_innovation=2#qt-content_innovation [Accessed 2021].

MINISTRY OF HEALTH AND MEDICAL EDUCATION 2022. Official Reports from the Department for Mental Health and Substance Abuse. Iran: Ministry of Health and Medical Education, Islamic Republic of Iran.

MISHARA, B. L. & WEISSTUB, D. N. 2016. The legal status of suicide: A global review. *International journal of law and psychiatry*, 44, 54-74.

MLAYEH, S., BEN ABDERRAHIM, S., HAGGUI, F., GHZEL, R. & JEDIDI, M. 2021. Deadly falls into wells: A retrospective study of 72 autopsy cases from Kairouan, Tunisia. *J Forensic Sci*, 66, 934-939.

MOAZZAM, M., AL-SAIGUL, A. M., NAGUIB, M. & AL ALFI, M. A. 2009. Pattern of acute poisoning in Al-Qassim region: a surveillance report from Saudi Arabia, 1999-2003. *East Mediterr Health J*, 15, 1005-10.

MOHAMMADI, A. A., KAROOBI, M., ERFANI, A., SHAHRIARIRAD, R., RANJBAR, K., ZARDOSHT, M., MODARRESI, M. S. & AFRASIABI, Z. 2020. Suicide by self-immolation in southern Iran: an epidemiological study. *BMC Public Health*, 20, 1646.

MONEIM, W. M. A., YASSA, H. A. & GEORGE, S. M. 2011. Suicide rate: trends and implications in

upper Egypt. *Egyptian journal of forensic sciences*, 1, 48-52.

MORADINAZAR, M., NAJAFI, F., BANESHI, M. R. & HAGHDOOST, A. A. 2017. Estimation of the rate and number of underreported deliberate self-poisoning attempts in western Iran in 2015. *Epidemiol Health*, 39, e2017023.

MORADINAZAR, M., NAJAFI, F., BANESHI, M. R. & HAGHDOOST, A. A. 2019. Size Estimation of Under-Reported Suicides and Suicide Attempts Using Network Scale up Method. *Bull Emerg Trauma*, 7, 99-104.

MOROCCAN MINISTRY OF HEALTH AND MINISTRY OF EDUCATION 2019. Guide for promotion of tolerance, civic-mindedness and citizenship in schools and the prevention of risky behavior (APT2C) [Appui à la promotion de la tolérance, du civisme et de la citoyenneté en milieu scolaire et à la prévention des comportements à risques (APT2C)]. Morocco: Ministry of Health.

MOROVATDAR, N., MORADI-LAKEH, M., MALAKOUTI, S. K. & NOJOMI, M. 2013. Most common methods of suicide in Eastern Mediterranean Region of WHO: a systematic review and meta-analysis. *Archives of Suicide Research*, 17, 335-344.

MOUSAVI, S. G., ZOHREH, R., MARACY, M. R., EBRAHIMI, A. & SHARBAFCHI, M. R. 2014. The efficacy of telephonic follow up in prevention of suicidal reattempt in patients with suicide attempt history. *Adv Biomed Res*, 3, 198.

MÜHLMANN, C., MADSEN, T., HJORTHØJ, C., FORMAN, J. L., KERKHOF, A. J., NORDENTOFT, M. & ERLANGSEN, A. 2021. Effectiveness of an Internet-Based Self-help Therapy Program for Suicidal Ideation With Follow-up at 6 Months: Results of a Randomized Controlled Trial. *The Journal of Clinical Psychiatry*, 82.

NABIH, Z., AMIAR, L., ABIDLI, Z., WINDY, M., SOULAYMANI, A., MOKHTARI, A. & SOULAYMANI-BENCHEIKH, R. 2017. Epidemiology and risk factors of voluntary pesticide poisoning in Morocco (2008-2014). *Epidemiol Health*, 39, e2017040.

NAGHAVI, M. 2019. Global, regional, and national burden of suicide mortality 1990 to 2016: systematic analysis for the Global Burden of Disease Study 2016. *BMJ*, 364, 194.

NAVEED, S., QADIR, T., AFZAAL, T. & WAQAS, A. 2017. Suicide and Its Legal Implications in Pakistan: A Literature Review. *Cureus*, 9, e1665.

NEMATOLLAHI, A., FARNAM, F., GHARIBZADEH, S. & KHODA-KHAH, P. 2021. Discrimination, violence, and suicide in transgender women in Iran. *Health Care Women Int*, 1-12.

NIEDERKROTENTHALER, T., BRAUN, M., PIRKIS, J., TILL, B., STACK, S., SINYOR, M., TRAN, U. S., VORACEK, M., CHENG, Q. & ARENDT, F. 2020. Association between suicide reporting in the media and suicide: systematic review and meta-analysis. *Bmj*, 368.

NIEDERKROTENTHALER, T., VORACEK, M., HERBERTH, A., TILL, B., STRAUSS, M., ETZERSDORFER, E., EISENWORT, B. & SONNECK, G. 2010. Role of media reports in completed and prevented suicide: Werther v. Papageno effects. *British Journal of Psychiatry*, 197, 234-243.

PAIMAN, M. A. & KHAN, M. M. 2017. Suicide and deliberate self-harm in Afghanistan. *Asian J Psychiatr*, 26, 29-31.

PARVAREH, M., HAJIZADEH, M., REZAEI, S., NOURI, B., MORADI, G. & ESMAIL NASAB, N. 2018. Epidemiology and socio-demographic risk factors of self-immolation: A systematic review and meta-analysis. *Burns*, 44, 767-775.

PIRKIS, J., JOHN, A., SHIN, S., DELPOZO-BANOS, M., ARYA, V., ANALUISA-AGUILAR, P., APPLEBY, L., ARENSMAN, E., BANTJES, J. & BARAN, A. 2021. Suicide trends in the early months of

the COVID-19 pandemic: an interrupted time-series analysis of preliminary data from 21 countries. *The Lancet Psychiatry*.

PIRKIS, J., SPITTAL, M. J., COX, G., ROBINSON, J., CHEUNG, Y. T. & STUDDERT, D. 2013. The effectiveness of structural interventions at suicide hotspots: a meta-analysis. *Int. J Epidemiol*, 42, 541-548.

POOROLAJAL, J., ROSTAMI, M., MAHJUB, H. & ESMAILNASAB, N. 2015. Completed suicide and associated risk factors: a six-year population based survey. *Arch Iran Med*, 18, 39-43.

PRITCHARD, C. & AMANULLAH, S. 2007. An analysis of suicide and undetermined deaths in 17 predominantly Islamic countries contrasted with the UK. *Psychological Medicine*, 37, 421-430.

QOUTA, S. R., PALOSAARI, E., DIAB, M. & PUNAMÄKI, R. L. 2012. Intervention effectiveness among war-affected children: A cluster randomized controlled trial on improving mental health. *Journal of traumatic stress*, 25, 288-298.

RAHMAN, A. & HAFEEZ, A. 2003. Suicidal feelings run high among mothers in refugee camps: a cross-sectional survey. *Acta Psychiatr Scand*, 108, 392-3.

RASOULI, N., MALAKOUTI, S. K., REZAEIAN, M., SABERI, S. M., NOJOMI, M., DE LEO, D. & RAMEZANI-FARANI, A. 2019. Risk factors of suicide death based on psychological autopsy method; a case-control study. *Archives of academic emergency medicine*, 7.

REZAEIAN, M. & KHAN, M. M. 2020. Suicide Prevention in the Eastern Mediterranean Region. *Crisis*, 41, S72-s79.

RICHA, S. & RICHA, N. 2015. Pigeon cave: a legendary place of suicide in Lebanon. *Am J Psychiatry*, 172, 16.

SABERI-ZAFAGHANDI, M. B., HAJEBI, A., ESKANDARIEH, S. & AHMADZAD-ASL, M. 2012. Epidemiology of suicide and attempted suicide derived from the health system database in the Islamic Republic of Iran: 2001-2007. *East Mediterr Health J*, 18, 836-41.

SAFDAR, M., AFZAL, K. I., SMITH, Z., ALI, F., ZARIF, P. & BAIG, Z. F. 2021. Suicide by poisoning in Pakistan: review of regional trends, toxicity and management of commonly used agents in the past three decades. *BJPsych Open*, 7, e114.

SAIGH, P. A. & UMAR, A. M. 1983. The effects of a good behavior game on the disruptive behavior of Sudanese elementary school students. *Journal of Applied Behavior Analysis*, 16, 339-344.

SANAEI-ZADEH, H., GHORBANI, M., GHANIZADEH, A. & AMIRI, A. 2004. Suicide by firearm, a unique pattern from Iran. *Arch Suicide Res*, 8, 173-7.

SANKARANARAYANAN, A., AL-AMIN, H. & GHULOUM, S. 2020. Correlates of Near-Fatal Deliberate Self-Harm in Qatar. *Crisis*, 41, 121-127.

SCHWALBE, C. S., GEARING, R. E., MACKENZIE, M. J., BREWER, K. B. & IBRAHIM, R. W. 2013. The impact of length of placement on self-reported mental health problems in detained Jordanian youth. *Int J Law Psychiatry*, 36, 107-12.

SHAHID, M. 2013. Deliberate self harm prevention in Pakistan. *J Coll Physicians Surg Pak*, 23, 101-2.

SHEKHANI, S. S., PERVEEN, S., HASHMI, D.-E.-S., AKBAR, K., BACHANI, S. & KHAN, M. M. 2018. Suicide and deliberate self-harm in Pakistan: a scoping review. *BMC Psychiatry*, 18, 44.

SHIGIDI, M., MOHAMMED, O., IBRAHIM, M. & TAHA, E. 2014. Clinical presentation, treatment and outcome of paraphenylene-diamine induced acute kidney injury following hair dye poisoning: a

cohort study. *Pan Afr Med J*, 19, 163.

SHOOSHTARY, M. H., MALAKOUTI, S. K., BOLHARI, J., NOJOMI, M., POSHTMASHHADI, M., AMIN, S. A., BERTOLOTE, J. M. & FLEISCHMANN, A. 2008. Community study of suicidal behaviors and risk factors among Iranian adults. *Arch Suicide Res*, 12, 141-7.

SOOLE, R., KÖLVES, K. & DE LEO, D. 2015. Suicide in children: a systematic review. *Archives of Suicide Research*, 19, 285-304.

SUHRABI, Z., DELPISHEH, A. & TAGHINEJAD, H. 2012. Tragedy of women's self-immolation in Iran and developing communities: a review. *Int J Burns Trauma*, 2, 93-104.

SYED, E., ASAD, N., KHAN, M. M. & ZAMAN, M. 2015. On the pathway to suicide: suicidal ideation in young people in Karachi, Pakistan. *Journal of Pakistan Psychiatric Society*, 12.

THE PENINSULA. 2021. National Mental Health Helpline logs over 40,000 calls in 18 months. *The Peninsula*, 28 Nov 2021.

UNITED FOR GLOBAL MENTAL HEALTH 2021. Decriminalising Suicide: Saving lives, reducing stigma. England & Wales: United for Global Mental Health, Thomson Reuters Foundation's TrustLaw programme.

UNITED NATIONS 2015. *Transforming our world: The 2030 agenda for sustainable development*. New York: United Nations.

UNITED NATIONS DEPARTMENT OF ECONOMIC SOCIAL AFFAIRS 2019. *2019 Revision of World Population Prospects*. New York: United Nations.

VALIPOUR, R., SHEKARI, A., SETAREH, M. & SOLTANINEJAD, K. 2021. Pattern of Suicide Methods and Postmortem Toxicological Findings in Suicide-Related Deaths: A Retrospective 7-Year Forensic-Based Study in Iran. *Am J Forensic Med Pathol*, 42, 23-29.

VAN SPIJKER, B. A., VAN, S. A. & KERKHOF, A. J. 2014. Effectiveness of online self-help for suicidal thoughts: results of a randomised controlled trial. *PLoS. One*, 9, e90118.

VIZCARRA, B., HASSAN, F., HUNTER, W. M., MUÑOZ, S. R., RAMIRO, L. & DE PAULA, C. S. 2004. Partner violence as a risk factor for mental health among women from communities in the Philippines, Egypt, Chile, and India. *Inj Control Saf Promot*, 11, 125-9.

VOS, T., LIM, S. S., ABBAFATI, C., ABBAS, K. M., ABBASI, M., ABBASIFARD, M., ABBASI-KANGEVARI, M., ABBASTABAR, H., ABD-ALLAH, F. & ABDELALIM, A. 2020. Global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet*, 396, 1204-1222.

WADOO, O., AHMED, M. A. S., REAGU, S., AL ABDULLA, S. A. & AL ABDULLA, M. A. Y. 2021. Primary care mental health services in Qatar. *BJPsych international*, 18, 15-18.

WAGNER, G. J., GHOSH-DASTIDAR, B., EL KHOURY, C., ABI GHANEM, C., BALAN, E., KEGELES, S., MUTCHLER, M. G. & MOKHBAT, J. 2019. Major Depression Among Young Men Who Have Sex with Men in Beirut, and Its Association with Structural and Sexual Minority-Related Stressors, and Social Support. *Sex Res Social Policy*, 16, 513-520.

WASSERMAN, D., HOVEN, C. W., WASSERMAN, C., WALL, M., EISENBERG, R., HADLACZKY, G., KELLEHER, I., SARCHIAPONE, M., APTER, A., BALAZS, J., BOBES, J., BRUNNER, R., CORCORAN, P., COSMAN, D., GUILLEMIN, F., HARING, C., IOSUE, M., KAESS, M., KAHN, J.-P., KEELEY, H., MUSA, G. J., NEMES, B., POSTUVAN, V., SAIZ, P., REITER-THEIL, S., VARNIK, A., VARNIK, P. & CARLI, V. 2015. School-based suicide prevention programmes: the SEYLE cluster-randomised, controlled trial. *The Lancet*, 385, 1536-1544.

- WILCOX, H. C., KELLAM, S. G., BROWN, C. H., PODUSKA, J. M., IALONGO, N. S., WANG, W. & ANTHONY, J. C. 2008. The impact of two universal randomized first- and second-grade classroom interventions on young adult suicide ideation and attempts. *Drug and Alcohol Dependence*, 95 Suppl 1, S60-73.
- WITT, K. G., HETRICK, S. E., RAJARAM, G., HAZELL, P., SALISBURY, T. L. T., TOWNSEND, E. & HAWTON, K. 2021a. Interventions for self-harm in children and adolescents. *Cochrane database of systematic reviews*.
- WITT, K. G., HETRICK, S. E., RAJARAM, G., HAZELL, P., SALISBURY, T. L. T., TOWNSEND, E. & HAWTON, K. 2021b. Psychosocial interventions for self-harm in adults. *Cochrane database of systematic reviews*.
- WORLD HEALTH ORGANIZATION 2013. *Mental Health Action Plan*. Geneva.
- WORLD HEALTH ORGANIZATION 2014. *Preventing suicide: A global imperative*. Geneva, Switzerland.
- WORLD HEALTH ORGANIZATION 2016. *Practice manual for establishing and maintaining surveillance systems for suicide attempts and self-harm*. Geneva: WHO.
- WORLD HEALTH ORGANIZATION 2017a. *Mental Health Atlas 2017*. Geneva.
- WORLD HEALTH ORGANIZATION 2017b. *Preventing suicide: a resource for media professionals*. Geneva: WHO.
- WORLD HEALTH ORGANIZATION 2018. *National suicide prevention strategies: progress, examples and indicators*.
- WORLD HEALTH ORGANIZATION 2019a. *mhGAP Intervention Guide - Version 2.0*. Geneva: World Health Organization.
- WORLD HEALTH ORGANIZATION 2019b. *Preventing suicide: a resource for pesticide registrars and regulators*. Geneva: WHO.
- WORLD HEALTH ORGANIZATION 2019c. *Thirteenth general programme of work, 2019–2023: promote health, keep the world safe, serve the vulnerable*. World Health Organization.
- WORLD HEALTH ORGANIZATION. 2020a. *Global Health Estimates* [Online]. World Health Organisation. Available: <https://www.who.int/data/global-health-estimates> [Accessed].
- WORLD HEALTH ORGANIZATION 2020b. *Global Health Estimates 2019: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019*. Geneva: World Health Organisation.
- WORLD HEALTH ORGANIZATION 2020c. *Helping Adolescents Thrive Toolkit*. Geneva: WHO.
- WORLD HEALTH ORGANIZATION 2020d. *WHO methods and data sources for country-level causes of death 2000-2019*. Geneva: Department of Data and Analytics and Division of Data, Analytics and Delivery for Impact, World Health Organisation.
- WORLD HEALTH ORGANIZATION. 2021a. *International Statistical Classification of Diseases and Related Health Problems 10th Revision* [Online]. Available: <https://icd.who.int/browse10/2019/en> [Accessed].
- WORLD HEALTH ORGANIZATION 2021b. *Live Life: an implementation guide for suicide prevention in countries*. Geneva: World Health Organization.
- WORLD HEALTH ORGANIZATION 2021c. *Magnificent Mei and Friends: Comic 1*. In: WORLD HEALTH ORGANIZATION (ed.). Geneva: WHO.

WORLD HEALTH ORGANIZATION 2021d. Mental Health Atlas 2020. Geneva.

YOUNIS, A. A. & MOSELHY, H. F. 2010. Pattern of attempted suicide in Babylon in the last 6 years of sanctions against Iraq. *Int Psychiatry*, 7, 18-19.

ZAIDAN, Z. A., BURKE, D. T., DORVLO, A. S., AL-NAAMANI, A., AL-SULEIMANI, A., AL-HUSSAINI, A., AL-SHARBATI, M. M. & AL-ADAWI, S. 2002. Deliberate self-poisoning in Oman. *Trop Med Int Health*, 7, 549-56.

APPENDIX 1. INFORMATION ON COUNTRIES IN THE WHO EMRO REGION

Country	Language	Population (in mill.)	Life expectancy at birth (years)	World Bank Region	GNI per capita (in thousand \$)	Mobile cellular subscriptions (per 100 people)
Afghanistan	Pashto, Dari	38.0	64.8	Low income	2.2	59.4
Bahrain	Arabic	1.6	77.3	High income	44.3	115.8
Djibouti	Arabic	1.0	67.1	Lower middle income	5.6	42.5
Egypt	Arabic	100.4	72.0	Lower middle income	11.8	95.0
Iran	Persian	82.9	76.7	Upper middle income	13.0	142.4
Iraq	Arabic	39.3	70.6	Upper middle income	11.3	94.7
Jordan	Arabic	10.1	74.5	Lower middle income	10.5	77.0
Kuwait	Arabic	4.2	75.5	High income	58.9	174.2
Lebanon	Arabic	6.9	78.9	Upper middle income	14.9	61.8
Libya	Arabic	6.8	72.9	Upper middle income	16.1	..
Morocco	Arabic	36.5	76.7	Lower middle income	7.7	128.0
Oman	Arabic	5.0	77.9	High income	26.2	138.2
Pakistan	Urdu	216.6	67.3	Lower middle income	4.8	76.4
Qatar	Arabic	2.8	80.2	High income	91.7	138.3
Saudi Arabia	Arabic	34.3	75.1	High income	49.5	120.5
Somalia	Arabic	15.4	57.4	Low income	0.8	51.0
Sudan	Arabic	42.8	65.3	Lower middle income	4.0	77.1
Syrian Arab Republic	Arabic	17.1	72.7	Lower middle income	0.8	113.6
Tunisia	Arabic	11.7	76.7	Lower middle income	10.9	126.3
United Arab Emirates	Arabic	9.8	78.0	High income	70.4	200.6
West Bank and Gaza (Palestinian territory)	Arabic	4.7	74.1	Lower middle income	7.5	86.3
Yemen	Arabic	29.2	66.1	Lower middle income	0.9	53.7

APPENDIX 2: TECHNICAL NOTE ON DATA USED FOR THE EPIDEMIOLOGICAL ANALYSIS.

Causes of deaths are generally categorised according to the International Classification of Diseases, a nomenclature which is maintained by the WHO. The 10th revision of the International Classification of Diseases (ICD-10) was used in the entire EMRO region during the period of study (World Health Organization, 2021a). ICD-10 was developed in 1992 and has been amended through yearly updates since its implementation.

Suicide deaths are referred to as 'intentional injuries due to self-harm' in the ICD-10 and categorised using the following codes: X60-X84, Y870. The procedure for determining and recording the cause of death varies by country (see Section 6.1). Causes of death are often compiled into a national Cause of Death Register by government institutions and summarised in national statistics. National statistical offices are commissioned to report these data to the WHO Mortality Database. Some countries in the EMRO region do not collect vital statistics.

For the Global Health Estimate, the quality of data on causes of death, submitted by individual countries, was evaluated in several stages:

- 1) The completeness of data was determined based on number of years, level of detail, whether data was missing and whether data was reported by sex and age group.
- 2) In countries with low data quality, a substantial number of deaths are often recorded without listing a cause of death, hence generating incomplete statistics on causes of death. This was summarised by the term, 'usability', calculated as the percentage of all deaths, which had been recorded with a meaningful cause of death. Usability of cause of death data was summarised with a score range, listing a minimum and a maximum score (see Table A2).
- 3) Certain causes of death were considered as ill-defined (also referred to as 'garbage causes'). These are causes, which do not precisely mention the conditions leading to the death, for example, ICD-10: 'R00-R99 Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified.' Another example are deaths reports, which lists depression as the cause of death; depression does not constitute a physical condition, which results in a death, and these deaths were, therefore, recoded as suicide by WHO.

If data after these evaluation steps were not deemed to be of sufficient quality, the Global Health Estimate was based on official estimates from the Global Burden of Disease. These are based on estimation models developed by the Institute for Health Metrics and Evaluation and have been described elsewhere (Vos et al., 2020). The estimation involves a correction process ("CoDCorrect"), which is applied to the cause-specific estimates to ensure that the total number of death as reported in the cause of death estimates match the total number of deaths by age-sex-country-year group. The Global Health Estimate office derived to the final estimates after calculating cause fraction distributions and final adjustments (World Health Organization, 2020d). The evaluation process has been described with more detail in a technical paper published by the Department of Data and Analytics and Division of Data, Analytics and Delivery for Impact of the WHO (World Health Organization, 2020d).

As summarised in Table A1, seven countries (31%) in the EMRO region did not report vital statistics on causes of death to the WHO Mortality Database. Based on the initial evaluation (step 1 and 2 described above), cause of death data of 13 countries (59%) were assessed to be either unavailable or unusable. Data of, respectively, two and six countries were evaluated to have 'moderate' or 'severe'

data quality issues. Only one country was evaluated to have data on causes of death that were of 'high' quality. However, further assessments (step 3 listed above) revealed a high proportion of ill-defined causes of death. For these reasons, all data on suicide deaths in the EMRO region were based on estimates derived from the Global Burden of Disease 2019 and subjected to WHO and UN Interagency adjustments.

The Global Burden of Disease estimates are based on vital registrations and verbal autopsies if these are available (Table A3). Verbal autopsies collected information from relatives regarding causes of death by trained interviewers using a standard questionnaire. The accuracy of data on suicide deaths from verbal autopsies is likely to be affected by cultural barriers and stigma, which is a concern. If these data sources were not available, it must be assumed that estimates were based on other data sources, such as surveys, censuses, police reports, published studies as well as projections based on data from other countries.

Data management includes a cleaning process, redistribution of ill-defined causes of death (i.e. 'garbage codes'), noise reduction, and assessment of outliers. The research team behind the Global Burden of Disease used a framework called Cause of death ensemble modelling (CODEm), consisting of different estimation and testing processes to arrive at the numbers of suicide deaths (Vos et al., 2020). Such estimation processes are the best option for generating data for countries with no data or data of low quality, but it comes at a price of precision.

In sum, none of the presented suicide figures from the EMRO countries were based exclusively on vital statistics records. In fact, all figures had been arrived at through multiple estimation processes, implying a certain level of uncertainty and assumptions regarding their validity.

Yearly numbers of suicide death for males, females, and both sexes were obtained based on the above listed estimation processes. Using population estimates derived by the United Nations Department of Economic Social Affairs, yearly suicide rates were calculated per 100,000 population (United Nations Department of Economic Social Affairs, 2019). Age-standardised suicide rates were generated using the WHO standard population.

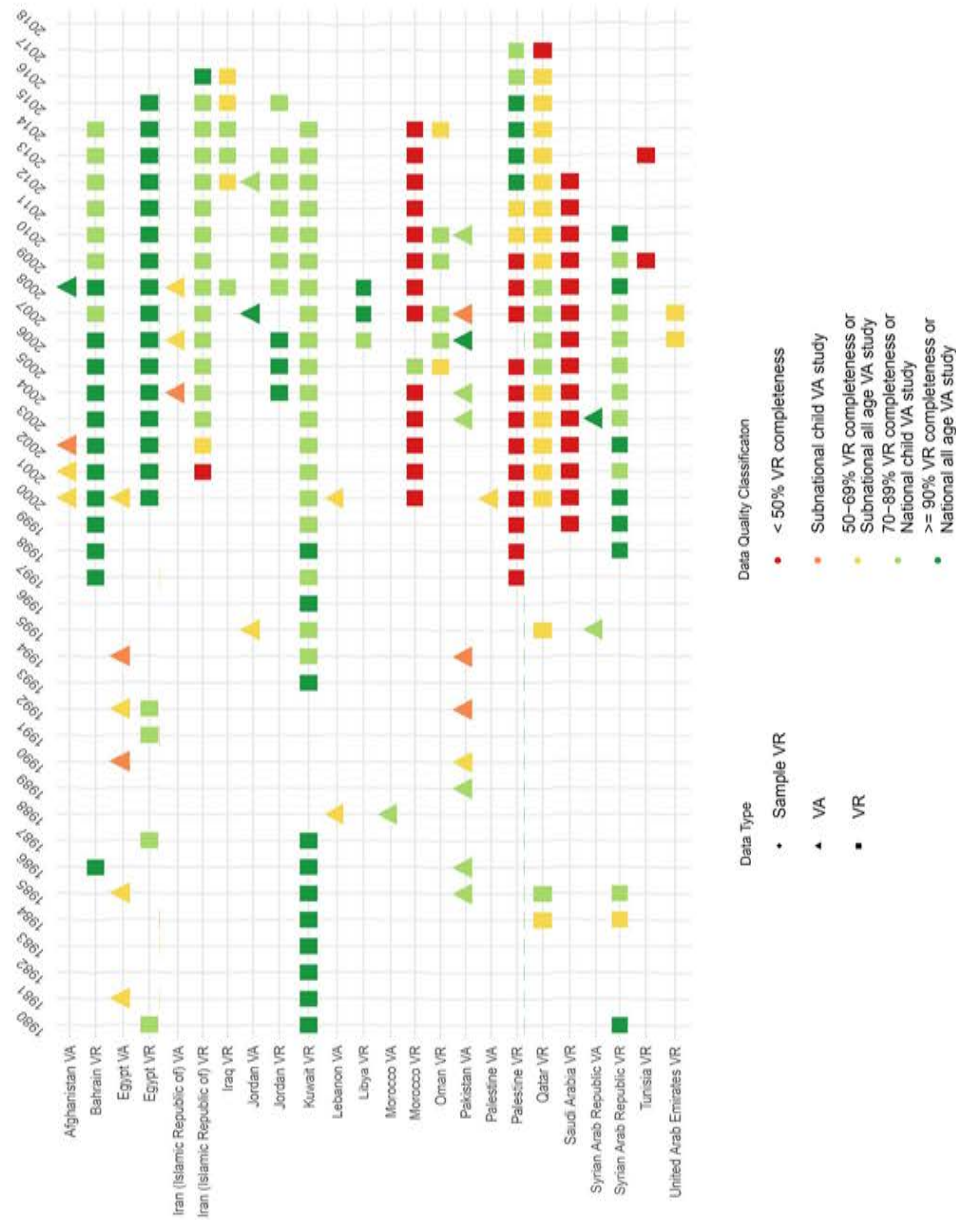
The presented time trend were constructed using the arithmetic mean of all countries' age-standardized rates grouped by year. For the rates ratio plots, the average level was constructed with an arithmetic mean of rates ratio of all populations in this study grouped by year.

Table A2. Summary of evaluation of data quality for the EMRO countries.*

	Data on causes of death submitted to WHO Mortality Database	Usability of data on causes of deaths (min score - max score)	Data quality as evaluated by GHE	Were data used for GHE?	Reason data or data-years were excluded	Data source used for estimation
Afghanistan	No	NA	Data unavailable or unusable (grade: 4)	No	NA	GBD2019+WHO
Bahrain	Yes	0.43 - 0.53	Severe data quality issues (grade: 3)	No	Low quality	GBD2019+WHO
Djibouti	No	NA	Data unavailable or unusable (grade: 4)	No	NA	GBD2019+WHO
Egypt	Yes	0.42 - 0.54	Severe data quality issues (grade: 3)	No	Low quality	GBD2019+WHO
Iran (Islamic Republic of)	Yes	0.67 - 0.70	Moderate data quality issues (grade: 2)	No	Low quality	GBD2019+WHO
Iraq	Yes	0.59 - 0.61	Severe data quality issues (grade: 3)	No	Low quality	GBD2019+WHO
Jordan	Yes	0.69 - 0.72	Moderate data quality issues (grade: 2)	No	Low quality	GBD2019+WHO
Kuwait	Yes	0.76 - 0.88	High quality data (grade: 1)	No	SEE NOTES	GBD2019+WHO
Lebanon	Yes	0.31 - 0.34	Data unavailable or unusable (grade: 4)	No	Low quality	GBD2019+WHO
Libya	Yes	0.52 - 0.54	Severe data quality issues (grade: 3)	No	Low quality	GBD2019+WHO
Morocco	Yes	0.21 - 0.27	Data unavailable or unusable (grade: 4)	No	Low quality	GBD2019+WHO
Oman	Yes	0.23 - 0.31	Data unavailable or unusable (grade: 4)	No	Low quality	GBD2019+WHO
Pakistan	No	NA	Data unavailable or unusable (grade: 4)	No	NA	GBD2019+WHO
Qatar	Yes	0.33 - 0.40	Data unavailable or unusable (grade: 4)	No	Low quality	GBD2019+WHO
Saudi Arabia	Yes	0.12 - 0.13	Data unavailable or unusable (grade: 4)	No	Low quality	GBD2019+WHO
Somalia	No	NA	Data unavailable or unusable (grade: 4)	No	NA	GBD2019+WHO
Sudan	No	NA	Data unavailable or unusable (grade: 4)	No	NA	GBD2019+WHO
Syrian Arab Republic	Yes	0.53 - 0.53	Severe data quality issues (grade: 3)	No	Low quality	GBD2019+WHO
Tunisia	Yes	0.58 - 0.66	Severe data quality issues (grade: 3)	No	Low quality	GBD2019+WHO
United Arab Emirates	Yes	0.22 - 0.22	Data unavailable or unusable (grade: 4)	No	Low quality	GBD2019+WHO
West Bank and Gaza	No	NA	No information	No	NA	SEE NOTES
Yemen	No	NA	Data unavailable or unusable (grade: 4)	No	NA	GBD2019+WHO

* Data from Kuwait were excluded due to a high percentage of deaths assigned with unknown age and in ill-defined cause categories. Estimations of causes of death were conducted the territory of West Bank and Gaza Strip. However, these were not released individually but were included in the relevant regional totals.

Table A3. Data sources for causes of death estimation (Abbreviation: VR: vital registration, VA: verbal autopsies)*



* Information on data sources from the GBD were missing for the following countries: Djibouti, Somalia, Sudan, West Bank and Gaza, and Yemen. Data source: VOS, T., LIM, S. S., ABBAFATI, C., ABBAS, K. M., ABBASI, M., ABBASIFARD, M., ABBASI-KANGEVARI, M., ABBASTABAR, H., ABD-ALLAH, F. & ABDELALIM, A. 2020. Global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet*, 396, 1204-1222. Appendix 1; Figure S3. Vital Registration and Verbal Autopsy data availability by country and territory, 1980–2018 (excerpt).

APPENDIX 3: REPORTED SUICIDE RATES FOR THE EMRO COUNTRIES, 2000-2019.

Figure A1. Age standardised suicide rates per 100,000 population for both sexes.

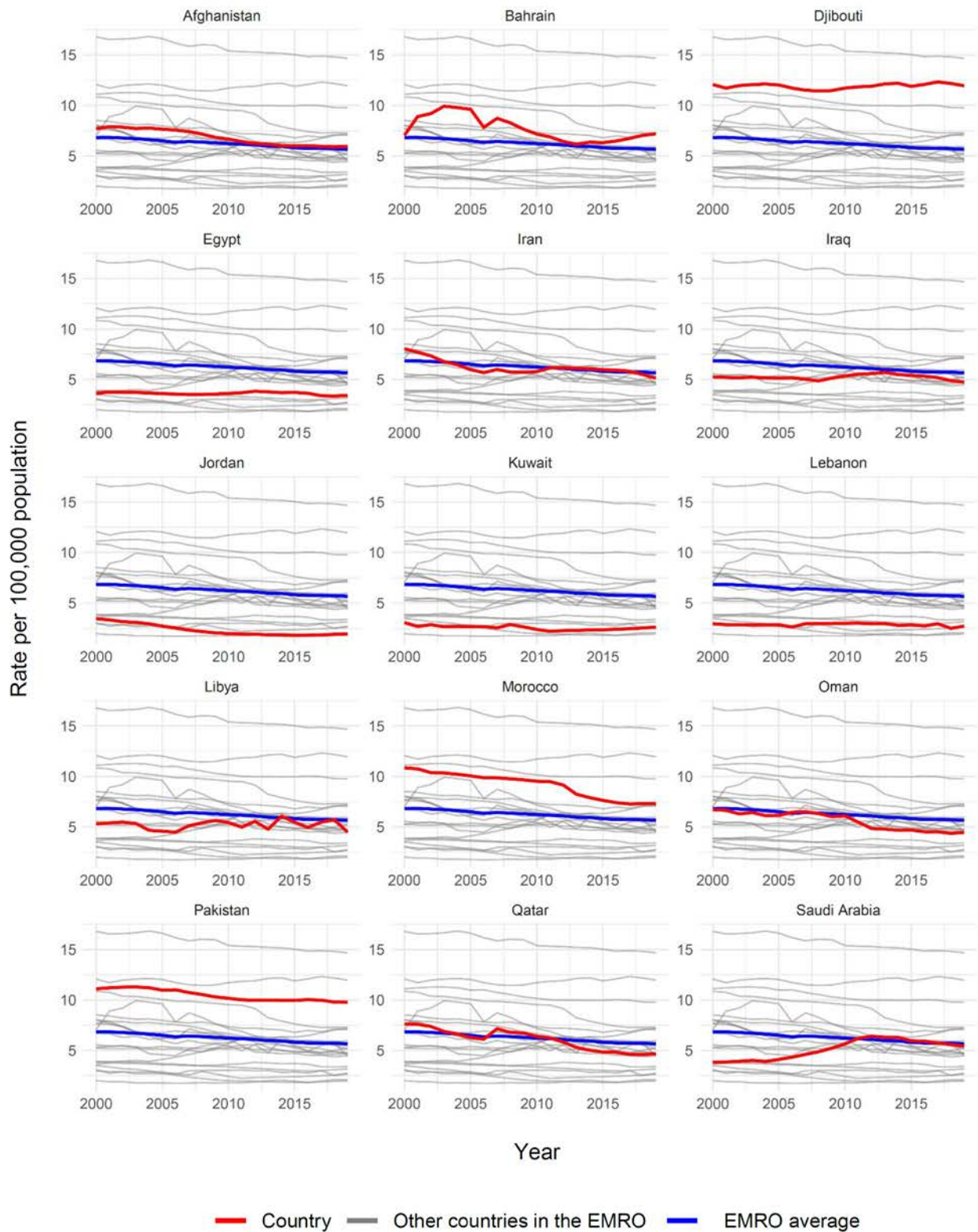


Figure A1. Age standardised suicide rates per 100,000 population for both sexes.

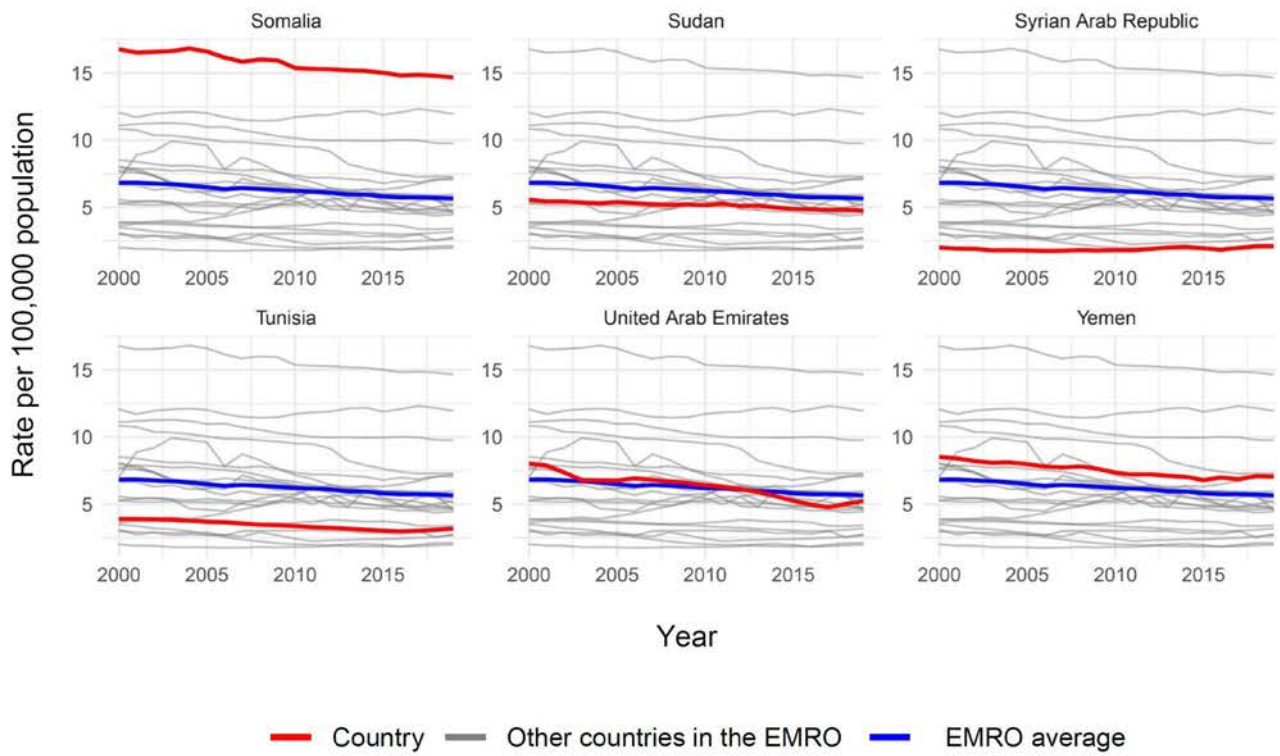


Figure A2. Age standardised suicide rates per 100,000 population for males.

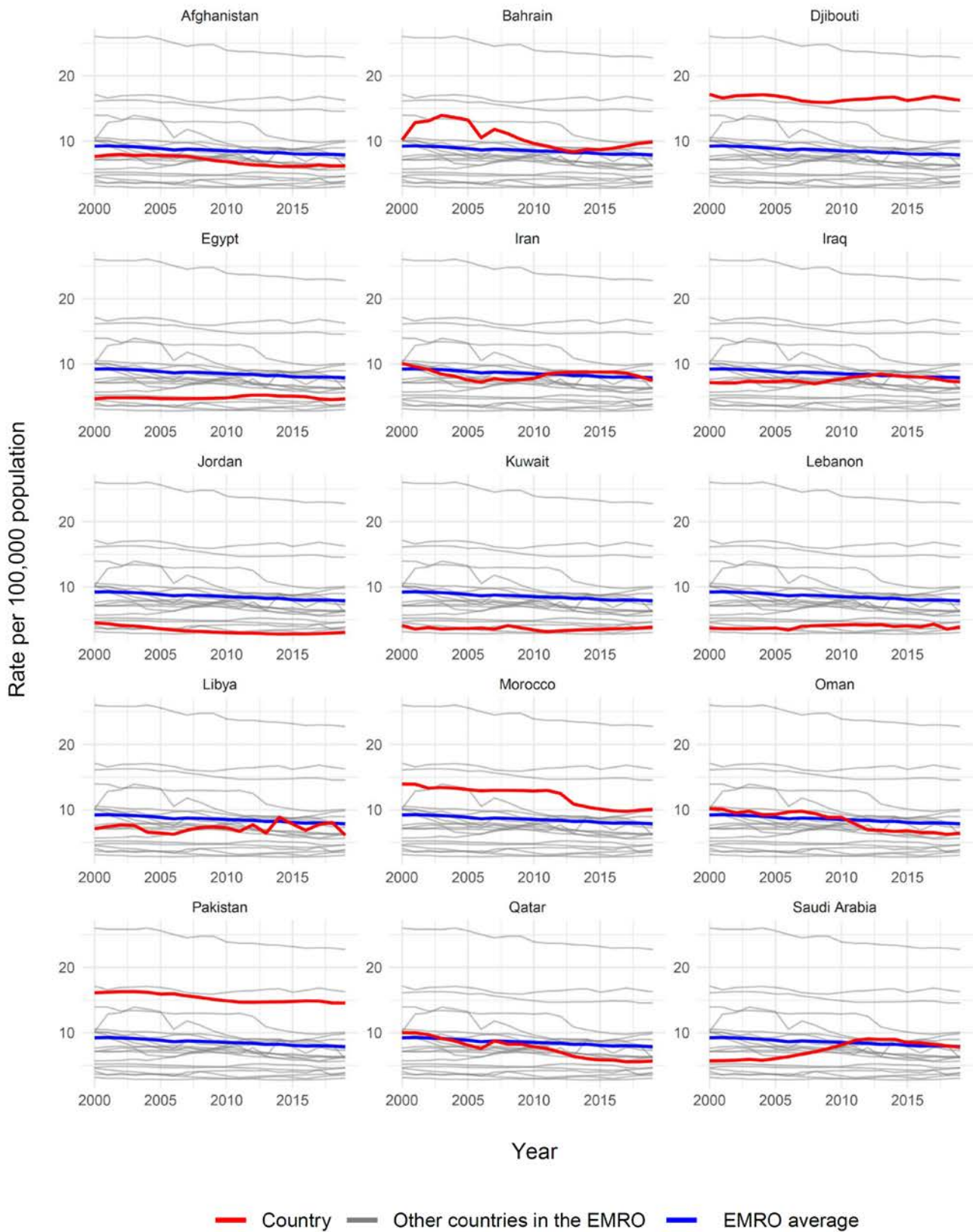


Figure A2. Age standardised suicide rates per 100,000 population for males.

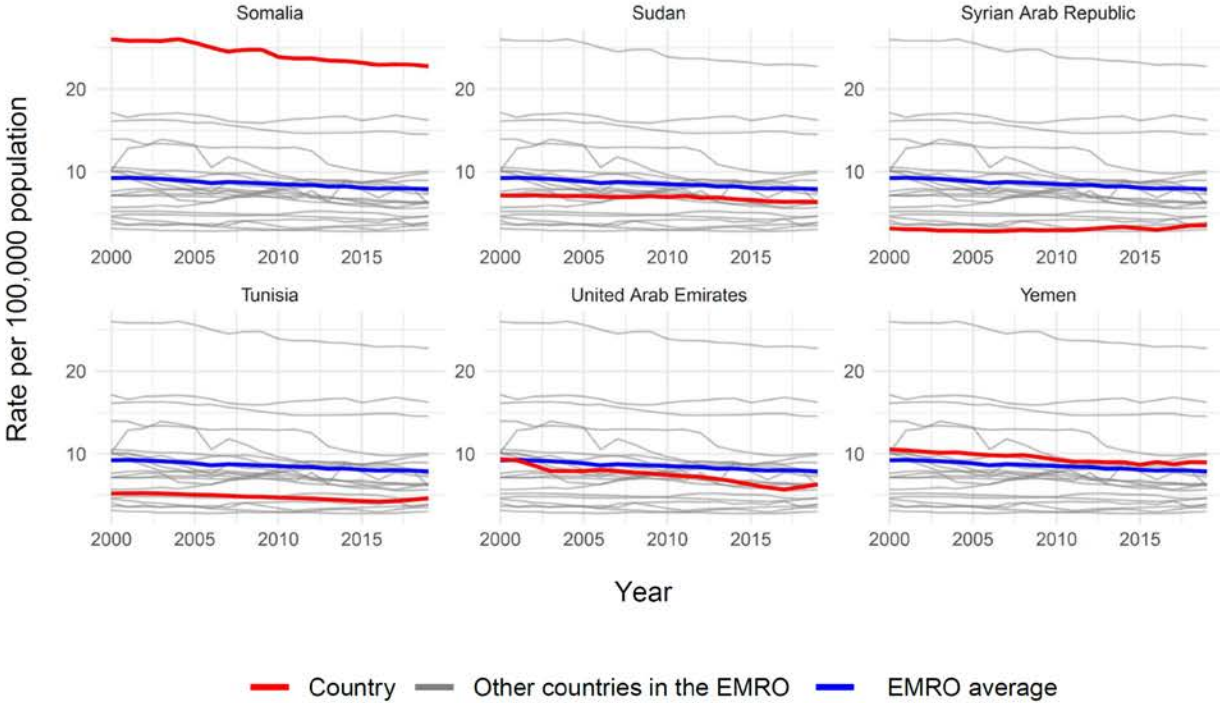


Figure A3. Age standardised suicide rates per 100,000 population for females.

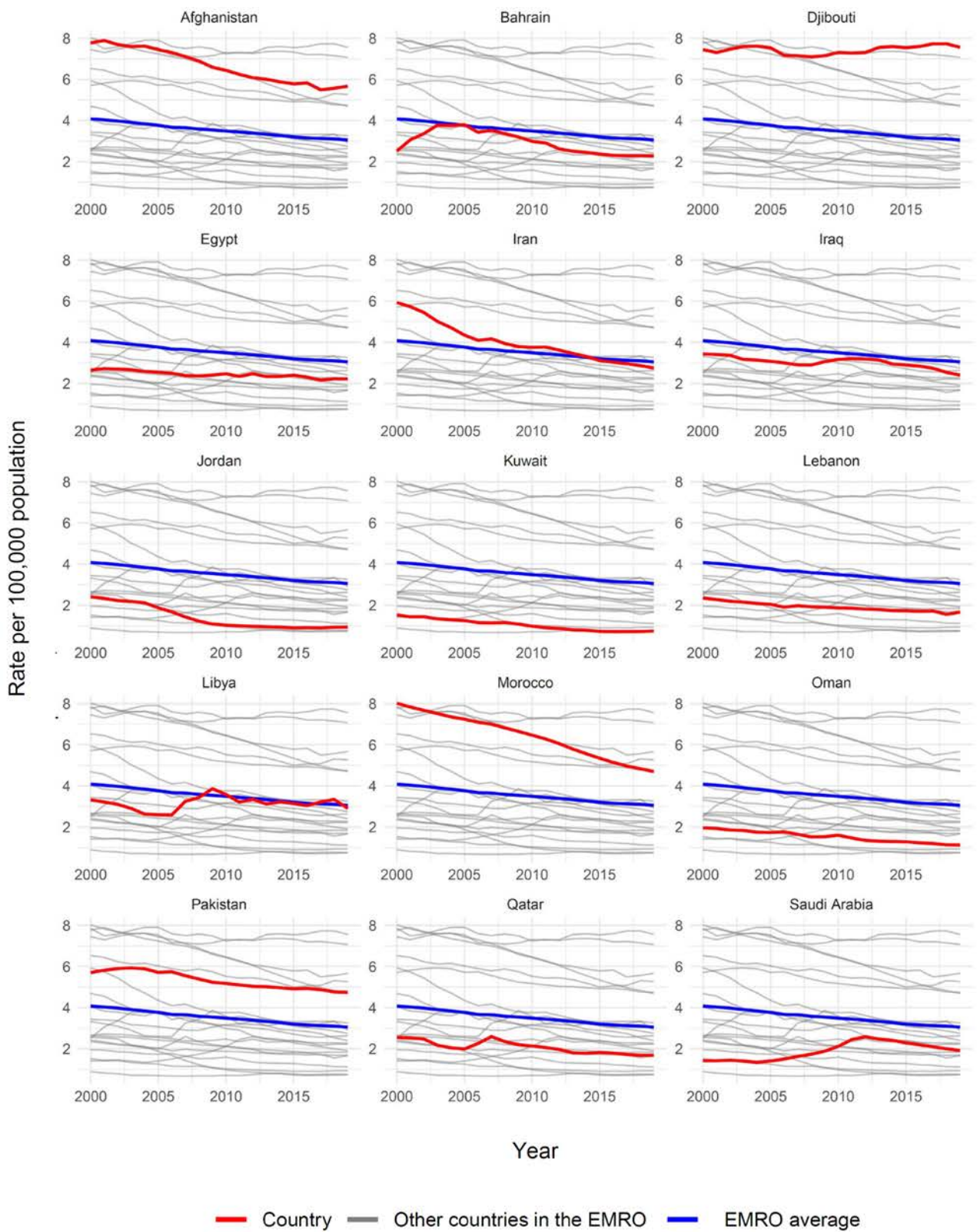


Figure A3. Age standardised suicide rates per 100,000 population for females.

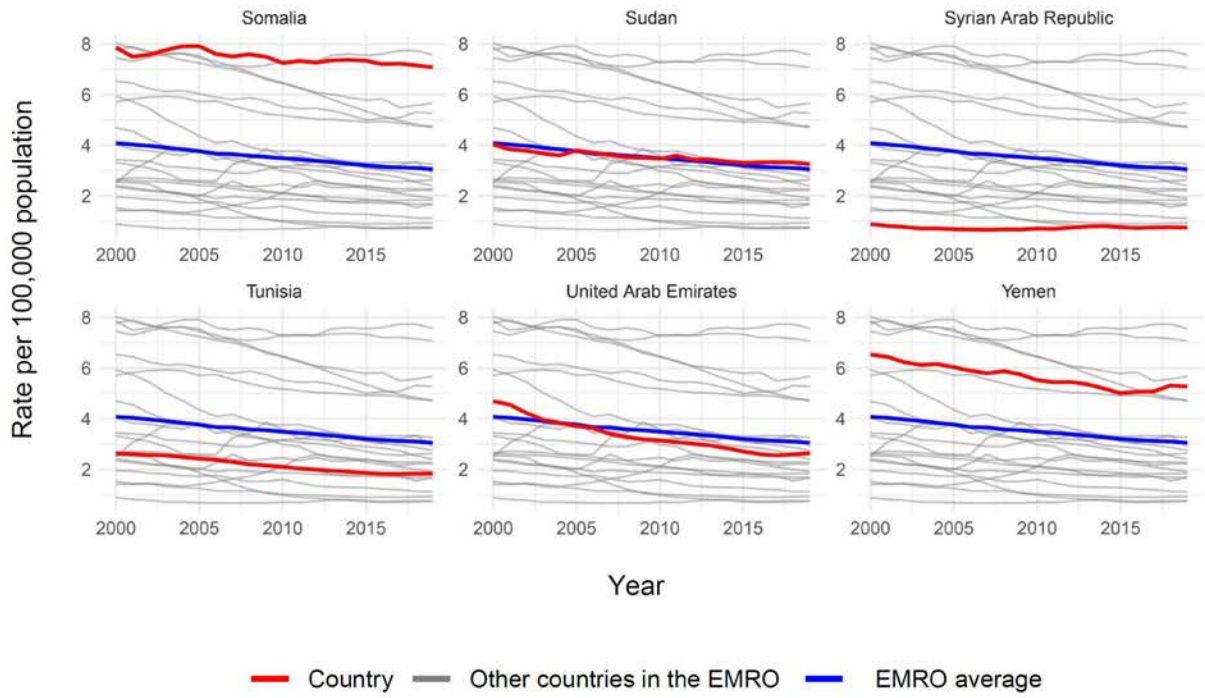
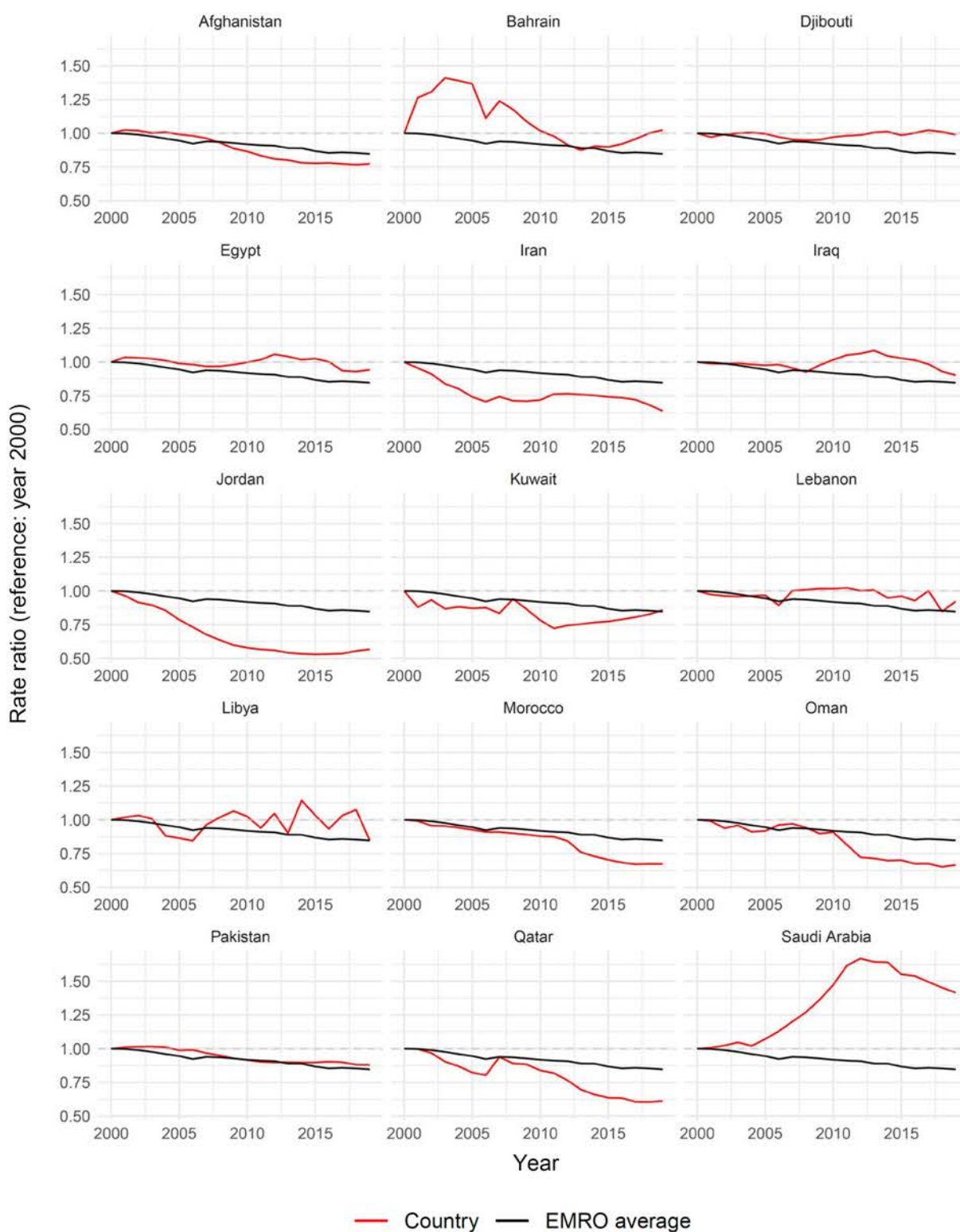
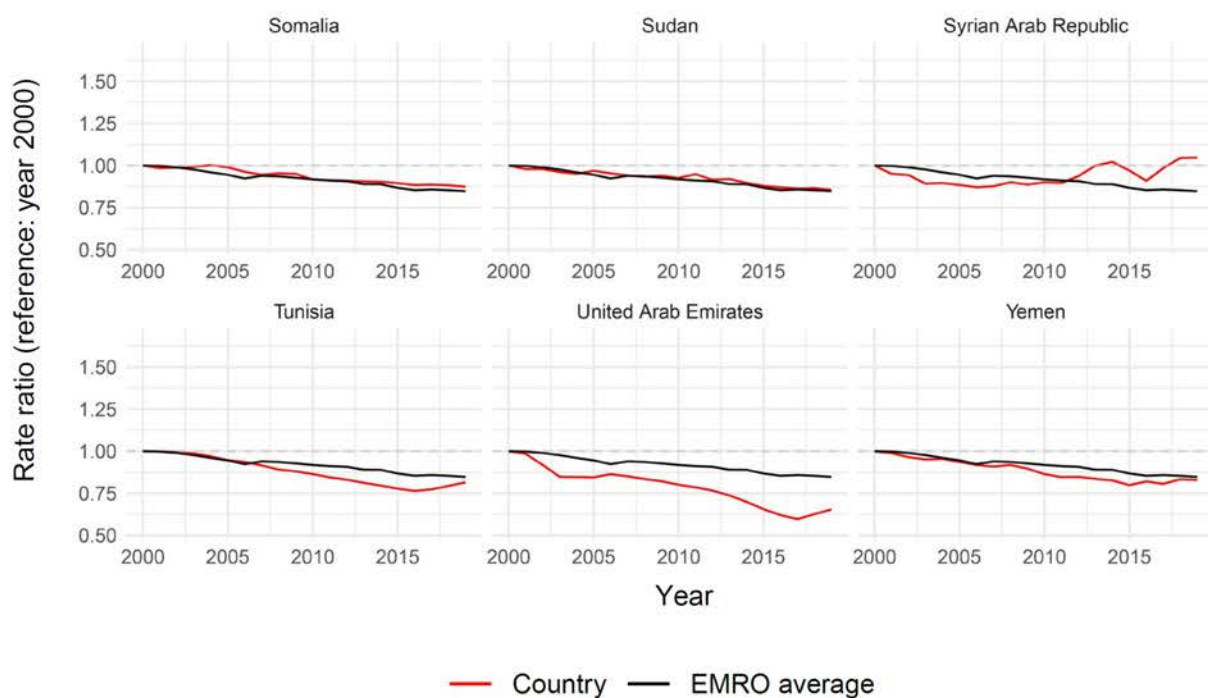


Figure A4. Change in the crude suicide rate per 100,000 population by year for both sexes.*



* Using year 2000 as the reference year, the rate ratio for subsequent years was calculated. The rate ratio denotes the change in the suicide rate with respect to year 2000.

Figure A4. Change in the crude suicide rate per 100,000 population by year for both sexes.*



* Using year 2000 as the reference year, the rate ratio for subsequent years was calculated. The rate ratio denotes the change in the suicide rate with respect to year 2000.

