The Depression Crisis in Yemen

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Introduction

Yemen is a country devastated by war and conflict, with a population dying from communicable diseases, non-communicable diseases (NCDs) and injuries (Figure 1).[6] Currently, Yemen is facing the world's largest food security emergency and the largest cholera epidemic ever recorded.[1,2] Since March of 2015 the Yemeni civil war has been underway. The years of fighting have destroyed infrastructure, public services, and lives. An estimated 22.2 million Yemeni people need humanitarian aid, and 16.4 million need health assistance.[1,2] The analysis by the humanitarian needs overview showed that 50% of avoidable deaths in Yemen were due to communicable diseases in 2015. Another 39% of avoidable deaths were due to NCDs (Figure 1).[1,6] Yet NCDs are not being made a national priority in Yemen.

International efforts, media, and aid have been sourced towards communicable diseases, malnutrition, hospital infrastructure and conflict in Yemen.[1] These efforts have been increasingly successful at reducing the deadly impacts of such catastrophic events. However, a gap remains in media attention and international funding which have failed to address the burden of NCDs, which now contribute to almost the same percentage of avoidable deaths as communicable diseases in Yemen. Depression is of particular concern.

Background

In Yemen, rates of depression continue to rise (Figure 2b).[6] Globally, depression is the leading cause of mental health-related disease burden, affecting an estimated 300 million people worldwide.[3] Depression does not discriminate based on sociodemographic indexes (Figure 2a, b).[6] According to the experts, a serious risk of a mental health crisis in Yemen is brewing.[4] If depression remains unaddressed it will create barriers to sustainable development, as it prevents people from reaching their full potential, impairs human capital, and is associated with premature mortality.[3,5] Depression, however, is not new to low-income countries (LICs), such as Yemen, as major depressive disorder was ranked the highest cause of years lived with disability in 1990, 2005, and 2010. In 2017 mental disorders were again ranked amongst the highest contributor to years lived with disability in Yemen.[6] In armed conflict zones, like Yemen, an estimated 17% of the population will suffer from depression[7], as conflict predisposes populations to the development of mental disorders.[8] The on-going war in Yemen is a catalyst that enables risk factors of depression to persist.

NCD and Major Risk Factor Epidemiology

In Yemen, NCDs contribute to 5 of the top 10 causes of death and 6 of the top 10 most disabling illnesses.[9] Of the top 10, the 8th contributor to disabling diseases in Yemen was depression in 2017.[9] The rate at which depression is contributing to disability-adjusted life years (DALYs) is increasing, as is the prevalence and incidence (Table 1).[28] Risk factors for depression have been identified to include childhood neglect, trauma, violence, financial crisis, bereavement, intimate partner violence, bullying and childhood sexual assault.[5,6] The war has exposed many Yemenis to extreme and continuous risk factors, such as violent forms of harm, direct trauma, toxic environments, pollutants, and chronic stress. Stress is a determinant of health that is part of the biopsychosocial model and has been associated with NCDs such as mental health disorders. Stress has long term effects and can act intergenerationally as it impacts epigenetic factors that influence gene expression.[10] A 27-year-old Yemeni today would have already lived through 14 major armed conflicts in his or her lifetime, not including the on-going civil war.[4] However, there has been little done by global health actors to study the impacts of these risk factors within this population.

Prior to the Civil war that began in 2015, healthcare was a right to all citizens under the Yemeni constitution. Healthcare was governed at three levels: centrally by the Ministry of Public Health and Population, at the governorates level by the Governorates health offices, and locally by District Health Offices (DHO). Even so, the system was weak, and corruption was a significant problem with large out-of-pocket healthcare costs and purchasing of consumables.[11] In addition, shortfalls in mental health and psychosocial support services were identified pre-conflict. There was a weak policy commitment to improving such services, in the form of national mental health plans that had not been changed since the early 1980s. Moreover, there was no formal legislation governing mental health in Yemen pre-conflict.[12,13] This resulted in care for mental health going from bad to worse since the 2015 conflict, as the war has destroyed the healthcare system exacerbating its weaknesses and imposing new threats to the burden of NCDs in Yemen.

Current Capacity for NCD Management

Globally and in Yemen, there has been a failure to address the disease burden of depression. Some of the reasons for this include: the ambiguity of depression as a disease, the stigma associated with having depression, and the relatively new concept of mental health.[3,14,15] Defining depression is difficult as there are currently no biomarkers to "test positive" for depression. Instead, diagnosis relies on assessment tools developed in America such as the DSM-5, the fifth edition of the Diagnostic and Statistical Manual of mental disorders, and the international classification of disease tool.[16] Both tools are not necessarily adapted to LICs, as what works in one cultural setting will not translate to all countries and communities globally.[17,18] Especially, in Yemen where adult literacy rates were reported as 84.97%, and 54.85% for females in 2015, and the average educational years attained was 4.9 in 2017.[9,19] This makes a survey tool, such as the DSM-5, for diagnosis of depression difficult, as there would be communication/knowledge barriers between healthcare provider and patient. Furthermore, Yemen does not have the health workforce to test for diagnosis, as there is a dire need for psychological support. Yemen has 40 psychologists and an entire population of 30.9 million people being exposed to multiple risk factors for depression right now. Prior to the war Yemen had the lowest ratios of psychiatrists and psychiatric nurses in the Arab world.[12] Furthermore, the WHO -Assessment instrument for mental health systems in 2010 showed that the median-treatment prevalence of mental disorders was 0.31% suggesting a large gap in treatment. The unmet needs of children and adolescents were greater than those of adults, which is concerning in Yemen where a large portion of the population is under 15 years of age.[20,21]

Despite these challenges in Yemen, scientific and medical advances have been accomplished in developing countries for depression. Treatment strategies include psychological therapies, antidepressant medications, transcranial magnetic stimulation, electroconvulsive therapy, and deep brain stimulation. However, many of these treatments and interventions/preventative strategies have not been implemented in LICs, like Yemen which lack the stability to implement them, as there is no infrastructure, capacity, workforce, governance or leadership to do so.[22] In Yemen, access to such medications and medical supplies has decreased as both the Ministry of Health's budget and Yemeni citizens purchasing power have declined. Furthermore, the Houthi forces have blocked medical supplies denying access to the population in need.[23] Few people in Yemen can obtain these medicines, and fewer than 10% of people affected by depression globally have access to these effective treatments.[24] Furthermore, if the resources were available in Yemen, people would face physical, financial and social barriers to receive care. Physically getting to the hospital would be difficult as roads and functioning hospitals have been destroyed by the war. Recent reports have indicated that at least 10% of the 3548 health facilities had sustained damage in 2018, and in 2019 an estimated 50% of the hospitals are now non- or partially functioning.[25] Another 13% of the healthcare facilities have been reported to lack staff, have insufficient equipment and financing.[26] It has

been estimated that 20% of the remaining health facilities can provide basic care for NCDs, with only 6.2 beds per 10000 people, and with 42% of the districts in Yemen having 2 doctors or less.[26] Moreover, financial barriers exist for both the patient and the healthcare team. In 2017 Yemen's total health expenditure was 2093 US dollars per capita of gross domestic product. Compared to mental health spending in the US which was 3-4$ per capita in 2015, Eastern Mediterranean region countries, including Yemen, spent on average 0.15 US dollars, and 2% of the government's health budget was allocated to mental health[27], meaning that the cost of the treatment could be financially catastrophic for patients. Another barrier to be faced is the social stigma associated with seeking treatment for depression. Stemming from stigma there is fairly low demand in LICs for seeking care and hence there is a lack of national investment in mental health. Weak health system capacities in LICs limit health care providers from delivering quality care.[15] Lastly, if these mental health programs were implemented, they would require follow-up as the goal is to achieve remission as well as freedom from future depressive episodes and currently the state of Yemen cannot foster this type of care.[15]

Despite the limited capacity for managing depression in Yemen, some promising steps are being taken. One step is increasing the number of trained healthcare providers to deal with the current and suspected future increase in mental disorders. The WHO together with the Ministry of Public health is leading the integration of mental health and psychosocial support in Yemen's primary care system. So far, workshops with 200 psychologists and primary healthcare workers have occurred.[26] To address depression in Yemen, mental health research needs to be conducted to understand the population affected by depression, and to identify opportunities for reform. Some research is currently underway through the Sana'a center project with aims to improve the understanding and responses to mental health in Yemen.[4] The goal of this project is to provide evidence to inform policymakers at the local, national and international stakeholder levels, with hopes to engage aid agencies and to promote the rights of Yemenis who suffer from mental health problems. The intended results are to mitigate the current burden of depression in Yemen and to have an intervention in place for when the country transitions out of conflict and is faced with the devastating mental health consequences.

Conclusions

In Yemen without access to healthcare NCDs are becoming "more deadly, killing far more people than bullets, bombs, and cholera [combined]'.[26] The current capacity for NCD management in Yemen is lacking, however promising actions are being taken to address the need for NCD care. Yet, without better diagnostics, financial support for the government and improved access to healthcare the impacts of depression in Yemen will be devastating. It is time to pay attention to the burden of NCDs, particularly depression in Yemen.

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Measurement	1990	2007	2017
Prevalence	366,565.39	682, 046.81	958,095.88
Incidence	443,752.54	822,762.54	1,150,978.29
Disability adjusted life years (DALYs)	64,761.76	121,640.76	170,726.98
Years lived with disability (YLD)	64,761.76	121,640.76	170,726.98

Table 1. Measuring the burden of depressive disorder in Yemen 1990, 2007 and 2017.[28]

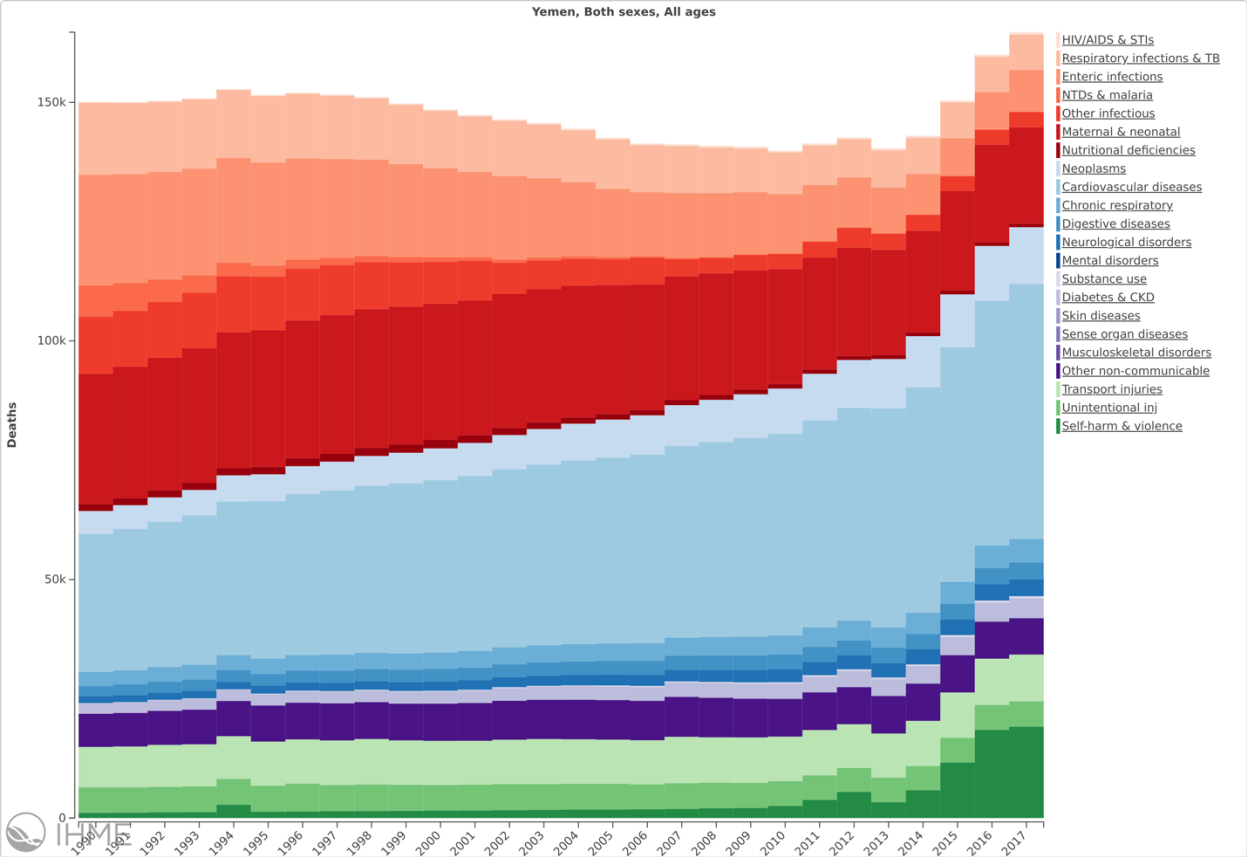
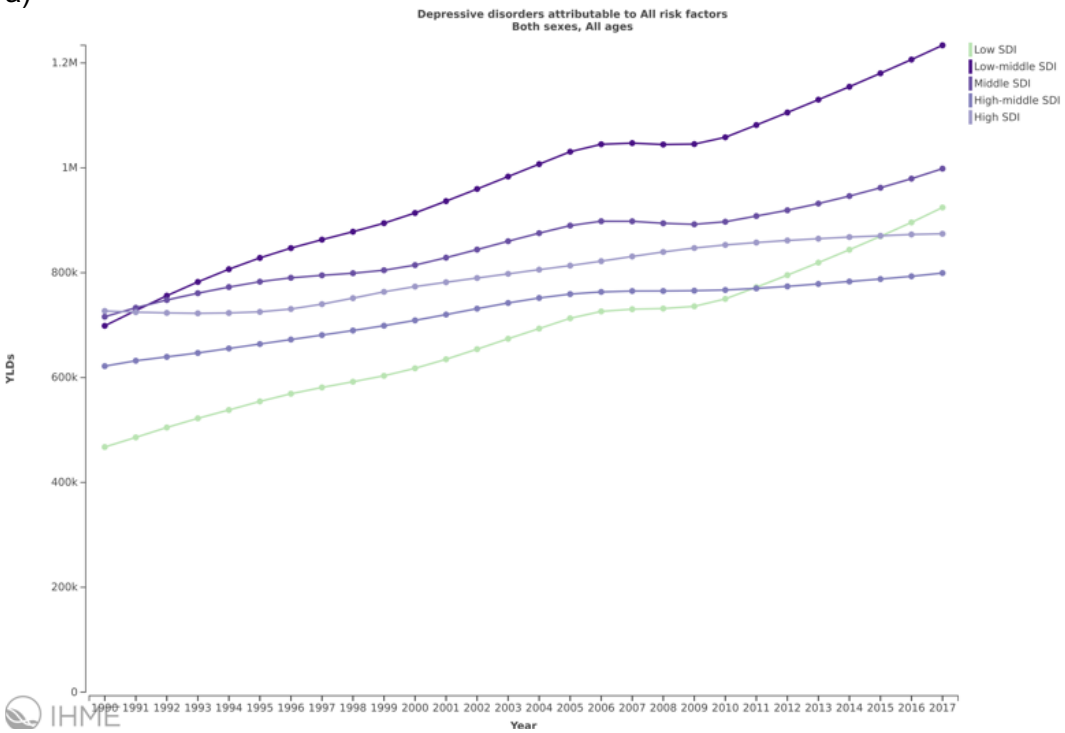


Figure 1. Illustrates the shifting burden of disease in Yemen from 1990 to 2017. The y-axis indicates the number of deaths from each disease. The colors of the bar graphs depict each disease group, red = group 1 GBD communicable, blue/purple = group 2 GBD non-communicable diseases, green = group 3 GBD injury.[6]

a)



b)

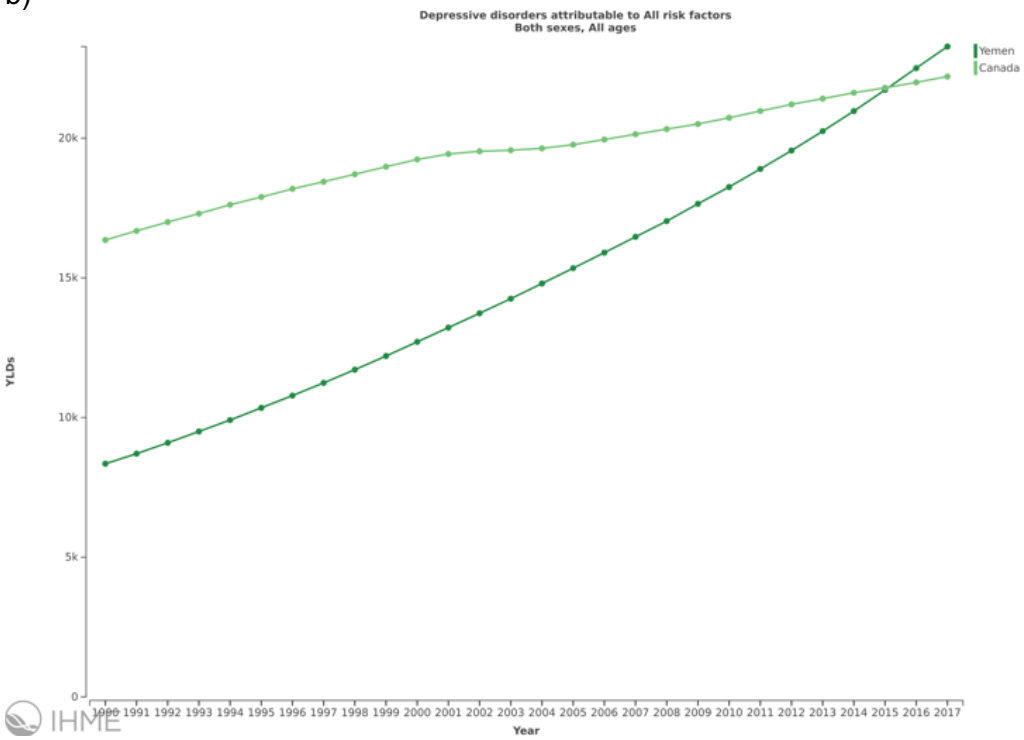


Figure 2. The number of years lived with disability (YLD) from depressive disorder, 1990 – 2017. a) Comparing the number of years lived with disability due to depressive disorder between countries classified by socioeconomic index (SDI). b) Comparing years lived with disability due to depressive disorder in Canada, a high SDI country, to Yemen, a low SDI country.[6]