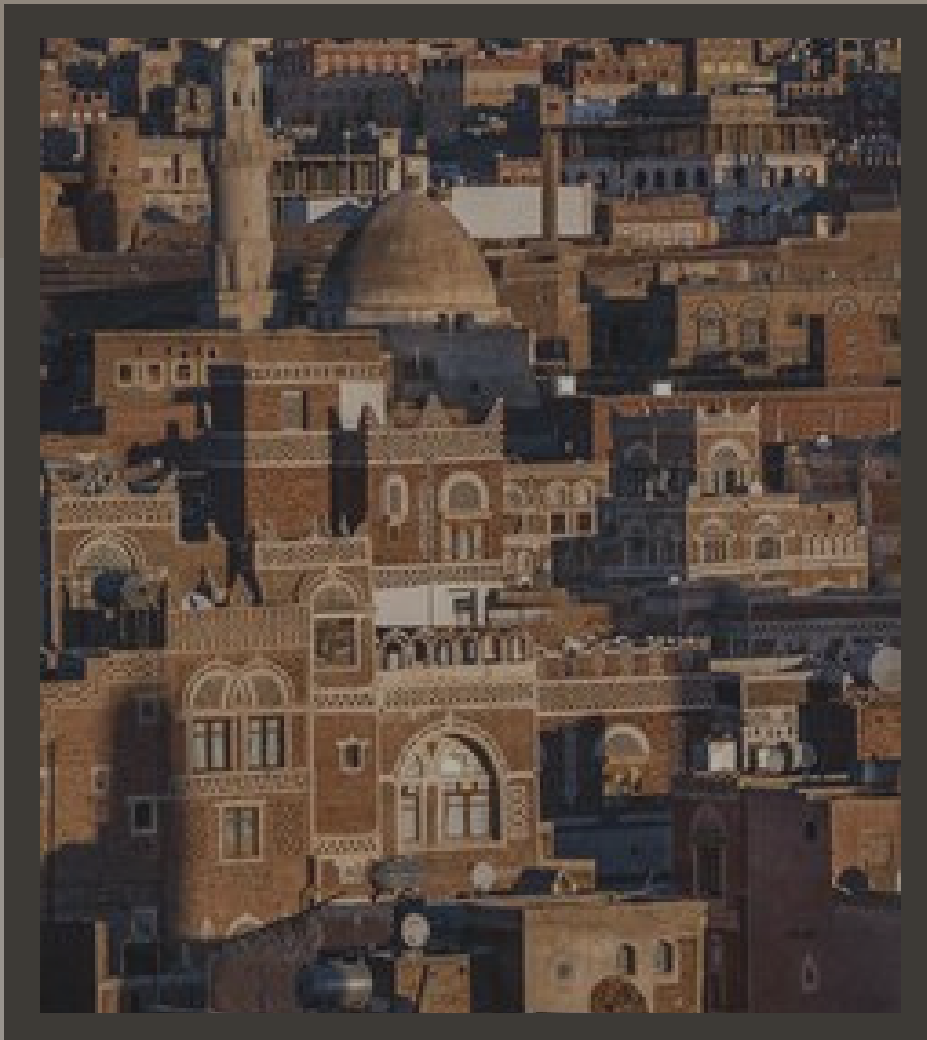


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The Effects of War on Healthcare in Yemen



CREDITS + DEDICATIONS



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SPECIAL THANKS TO EVERY MEMBER OF
OUR AMAZING GEMCO TEAM WHO EACH
PLAYED AN IMPORTANT PART IN
MAKING THIS ALL POSSIBLE

DEDICATED TO ALL THE PEOPLE IN
YEMEN



OPENING STATEMENT

To Readers:

It is my great pleasure to write the opening message for this inaugural issue of the International Youth Journal of Global Health. As I share with many young people, I strongly believe that the capacity to make change grows over time. It is through experiences such as submitting one's work to a journal where we as young people exercise our voice and share our perspective with others. I believe in the power that young people bring to the table - young people possess indomitable hope, energy and creativity to solving global issues. At a moment of converging crises, the need for youth leadership to understand the complexity of global health issues is critical. It is for that reason that this youth-led journal is so important. It is providing an opportunity to elevate youth voices, nurture global citizenship and bring young minds to old issues that are so pressing in our current world. Thank you for your leadership and commitment to play a role in building a better world.



WARMLY,
DUSTIN LIU,
9TH US YOUTH OBSERVER TO
THE UNITED NATIONS

LIMITED RESOURCES MAKES IT HARD TO LIVE

BY PRANALI BENDALE

The world's largest humanitarian crisis started with what appeared to be a good turn of fate for Yemen. The roots of the war in Yemen started in 2011, when an uprising forced an authoritarian president to hand over power to Mr. Hadi. This transition was meant to support the citizens, but instead, the country was overcome with "militant attacks, corruption, food insecurity, and continuing loyalty to Saleh" ("Yemen Conflict Explained in 400 Words"). When the Houthi Shia Muslim rebel movement took place, many areas were seized and Mr. Hadi was exiled. This escalated in March of 2015 when a coalition of countries, including the US, tried to restore Mr. Hadi's government by initiating airstrikes against the Houthi movement ("War in Yemen").

The civil war has been raging in Yemen, leaving over 20,000 civilians killed or wounded and 16 million people waking up hungry since 2015. Moreover, an astonishing 24.1 million people are in need of humanitarian assistance. To put this in perspective, this is 1 out of every 17 people in the US ("Yemen War: No End in Sight"). The fighting has occurred in 21 out of the 22 of the country's provinces, inflicting extensive damage to the country ("Health System in Yemen Close to Collapse"). There have been numerous human rights violations during this war, including airstrikes on homes, schools, hospitals, markets, mosques, weddings, and funerals. Since 2015, there have been 42 reported Coalition airstrikes that have violated international humanitarian law ("Yemen war: No End in Sight").

Due to all of the destruction and devastation, there is a significant lack of resources. According to Dr. Ahmed Shadoul, the World Health Organization (WHO) Representative for Yemen, “WHO is committed to ensuring that all Yemenis continue to have access to health services, including those in the hardest-to-access areas through the provision of emergency life-saving medicines, trauma kits, interagency emergency health kits, diarrhoeal disease kits, and blood bank supplies which are urgently needed” (“Health System in Yemen Close to Collapse”). Specifically, more than two million children under the age of 5 have suffered from being “acutely malnourished and living in near famine conditions” (“Health System in Yemen Close to Collapse”). According to a UN report in early 2019, “Yemen now risks losing its youngest generation to a vicious cycle of violence, displacement, poverty and illiteracy” (“Yemen on the Brink of Famine”). Although the humanitarian crisis in Yemen is prominent, it is extremely difficult to get resources there due to how often they are targeted by those instigating war.

Hospitals and doctors have been targeted a minimum of 120 times spanning 3 years (McKernan, 2020), causing turmoil within the healthcare system. Resources from hospitals are being looted and destroyed, making it hard to take care of civilians affected by the war or those with other medical conditions. Due to the difficulty in controlling rebels which leads to further resources being looted, there have been outbreaks of cholera among a million people (“Health Crisis in Yemen”), and another diphtheria and COVID-19 outbreak in that area are imminent given the sheer lack of resources needed to combat these infectious diseases. Another implicit consequence of hospitals being targeted is that many healthcare facilities have had to shut down due to fear of being bombed or robbed. One hospital that was previously targeted, Al-Thawra Hospital, had been targeted 45 different times, inspiring fear within other hospitals (McKernan, 2020). While there are hospitals that choose to stay open, they have less than half of the personnel they usually do and significantly fewer resources. Instead of the usual 22 healthcare professionals per 10,000 people, there are now only 10 per 10,000 people along with a heavy increase in the number of people needing medical attention (McKernan, 2020).

Currently, the World Health Organization, Yemen's Ministry of Health, and several other humanitarian organizations are working to address these health issues and coordinating the necessary humanitarian response. According to Monica Arpagus, the International Committee of the Red Cross health coordinator for Yemen, the organization's main goal is to "focus on emergency health provision because of the massive numbers of war wounded" ("Health System in Yemen Close to Collapse"). Moreover, in response to the coronavirus pandemic, the International Rescue Committee (IRC) launched a campaign for refugees and those who live in countries with poor health care systems. Its goal is to raise 30 million dollars for them. This is crucial in Yemen because the virus in active war zones could be especially destructive for hospitals and have high rates of infection according to IRC president, David Miliband (McKernan, 2020). All countries are urged by Amnesty International to not supply any party in Yemen with "weapons, munitions, military equipment or technology that could be used in the conflict until they end such serious violations" ("Yemen War: No End in Sight"). Not only will this defund destructive resources, but it will also help in allocating this money to the humanitarian side - resources, personnel, and transportation. To furthermore dedicate resources, donations are widely appreciated to Red Cross or UNICEF. The goal, as stated by the United Nations is 2.4 billion, and Yemen is still 1.1 billion dollars away from that monetary amount.

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OH YEMEN

BY HIBA KARIM

6 am sharp, alarm goes off
Gunshots and bombs are fired
Every pair of eyes open in relief that their roof is still there
Yet afraid the day will be their last
Looking out the window...another building... destroyed
Only smoke and remnants remain
With families mourning
Bodies are covered in thick redness
Nowhere to go
Hospitals are melted into the soil
Doctors flee from the daily oppression
Enemies steal Yemen's prosperity
Leaving no room for care of the ill
Lessened resources and increased diseases
Yemen has been lost in years of war against corruptness
Hate crimes develop into daily funerals
Causing a country to be on the brink of being unknown
Yemen has been failed...



THE CRIMSON MAR

BY REEMA A

ABOUT THE CRIMSON MAR

In this digitally drawn piece, the pale, dull, red roses represent the people who, due to disease, devastation, and lack of healthcare, are losing their petals and wilting. Despite going towards the hospital, a place where they should receive care and be safe, they are losing their red petals, symbolic of bloodshed and demise. The hospital itself has also collapsed from war and is ablaze with the fire of warfare and destruction, also burning the path towards any potential and limited safety. The hospital and the “people” alike are being destroyed by the sharp and disturbingly victorious, shining sword of war and violence looming above and cutting deep. The sword also symbolizes the cutting impact of disease that is an additional burden and disaster that is increasing the depth of the already existing wound. The once peaceful town has been obscured by the smoke and ashes, hoping to heal someday, but alas, not without a pronounced scar.

ALARMING HEALTH CONCERNS IN YEMENI CHILDREN

BY YUG YADAVA

YEMENI CIVIL WAR

In 2011, a movement called the Arab Spring—where people demanded for government reform— took place throughout the Middle East and North Africa. Specifically in Yemen, the then president Ali Abdullah Saleh was forced to resign after nearly twenty years of authoritative rule and current president Abdrabbuh Mansour Hadi took over (BBC, 2020). However, Mr. Hadi's government was weak and could not contain all the uprisings in the country; even more so, the Shia (minority) and Sunni (majority) Yemeni populations—the two main sects in Islam— started to see different views for the country. In early 2015, things took a turn for the worse when a Shia rebel group named the Houthis took over the capital Sanaa at which point President Hadi and his government set up their capital-in-exile in Saudi Arabia (Council on Foreign Relations, 2020).

Since that time, many Sunni majority nations, such as the United Arab Emirates (UAE), have been fighting the Houthi rebels and have since taken control of southern Yemen. But the rebel group still has a strong hold on Sanna as well as Northern Yemen (Figure 1). Unfortunately, there seems to be no end in the conflict leaving many stranded within their own country, causing the public to have major health problems especially in the pediatric population.



Fig 1: The current state of territory ownership in Yemen

CURRENT PEDIATRIC HEALTH CONCERNS

Yemen is one of the poorest countries in the world and with the current civil war, many cannot access basic necessities including medication and hospitals. The near total collapse of the country has left millions of children with a series of health problems that could, if not treated in time, leave permanent damage or in the worst case: untimely death (Figure 2).

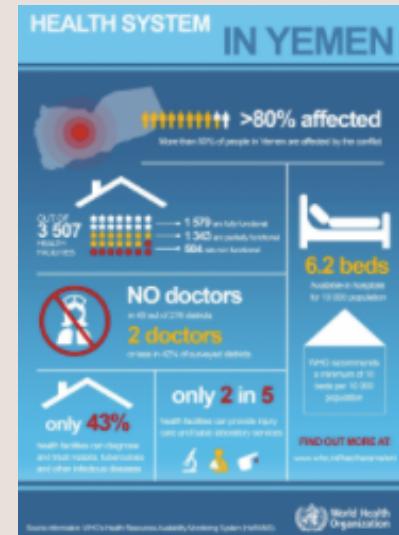


Fig 2: Indicates the current state of Yemen's healthcare system

CHOLERA is a diarrheal illness that is contracted when a person drinks water that has been polluted from a person's feces. In 90 percent (%) of cases, cholera patients will experience no to mild symptoms and can be easily treated with a rehydration of a unique drink—containing a few spoons of salt and sugar in one-liter water—and certain antibiotics (CDC, 2018). If a patient is frequently hydrated, the chance of death is less than 1% (Figure 3) (WHO, 2019). However, the civil war in Yemen has left children that contract cholera without any essential resources. From January-April of 2019, over 100,000 Yemeni people under the age of 15 contracted cholera; bringing the total pediatric cases since 2018 to 236,000 individuals (Taylor, 2019). This has caused widespread alarm throughout the medical community as many of these children have additional health problems making recovery time longer. With this, a majority of families live in rural areas that do not have the funds to go to medical centers in urban areas, resulting in even more pediatric patients to have severe symptoms. One mother noted ““The most difficult thing has been the transportation. I had to pay \$58 [£45] to get a ride from my village to Abs. And then another \$78 just to get to Sana’a”” (Ratcliffe, 2017). With the current state of the war, the number of pediatric cholera cases will rise and without the necessary resources, more of these cases will lead to untimely deaths.



Fig 3: Indicates the steps to prevent Cholera, but in Yemen, these steps may not be even possible

MALNUTRITION occurs in people that do not receive the right amounts of nutrients (Figure 4) (NHS, 2020). There are two different types of malnutrition and children in Yemen are undergoing undernutrition where they are taking in less essential nutrients that are required. An early 2017 report found that an estimated 2.2 million children are malnourished and without a proper diet and medical treatment, 462,000 Yemeni children have been diagnosed with severe acute malnutrition—leading to an array of long-term health problems and possible death (UNICEF, 2017). Pediatric patients can endure a wide variety of effects with undernutrition including low Vitamin A levels, scurvy, underdeveloped organs, etc. One particular interest in malnutrition within pediatrics is Vitamin D. Although common, severe vitamin D deficiency in children can cause the onset of health concerns such as rickets, less bone density, and shortened height (John Hopkins, 2020).

The civil war has led to food insecurity throughout the nation with poor families now having to borrow or beg for food and children under the age of 5 receiving only 1-2 somewhat adequate meals per day (Dureab et al, 2019). Without mandatory provisions, more families will unfortunately end up in this desperate situation and noting that the average woman in Yemen gives birth to 6-7 children, it is probable that clinics will be seeing more malnourished pediatric patients.

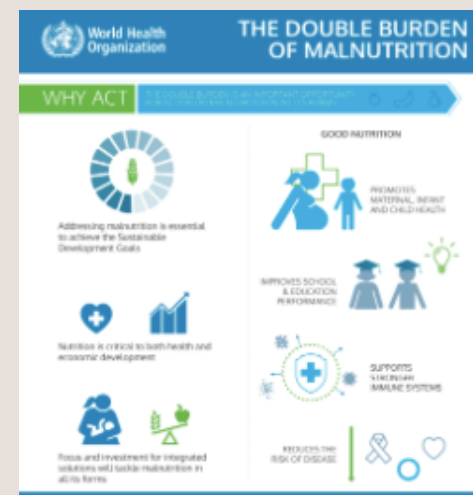


Fig 4: Demonstrates the benefits of proper nutrition

DENGUE is a virus that is spread from the Aedes mosquito and can cause a fever, nausea, and body aches (CDC, 2020). The virus is common throughout the world but occurs more frequently in Southeast Asia and now the Middle East. With proper medical treatment and rehydration techniques, one can overcome Dengue. The Yemeni civil war has unfortunately destroyed much of the healthcare system and many communities do not have access to clean drinking water nor adequate knowledge and how to care for children that have contracted the Dengue virus. It was reported that in early 2020, nearly 52,000 Yemeni pediatric patients were diagnosed with Dengue with 78 of them expiring (Save the Children, 2020).

MALARIA is a parasitic infection that is spread through the Anopheles mosquito. Although hundreds of millions of people have been diagnosed to have malaria, around 405,000 people died from Malaria of which 2 out of 3 people were children (WHO, 2020). In a 2006 study, two hospitals in different geographical locations of Yemen reported 12,301 pediatric malaria cases of which 17% percent of them were severe (Al-Taiar et al, 2006). This number is suspected by researchers to be higher in 2020 and with the absence of essential pharmaceuticals, more pediatric patients could experience the worst symptoms of malaria.

DIPHTHERIA is an infection caused by the bacterium *Corynebacterium diphtheriae* and was the leading cause of death in children throughout the world until a vaccine was widely used in the 1940s; a person can contract diphtheria if they have caught the droplets of an infected person's cough or sneeze (CDC, 2020). However, some countries like Yemen still have outbreaks of Diphtheria and not everyone has been vaccinated against it. Out of the 1294 diphtheria patients in a particular study, 65 percent of them were under the age of 15. If not treated, difficulty breathing and kidney failure could occur, and could lead to death if a child is not healthy.

CONCLUSION

Yemen since 2015 has been a hostile region and with little progress from the UAE and Saudi led forces, the country is still in a desperate state. Over 80% of people have been affected and only a third of hospitals are fully functional (Figure 4). Organizations like UNICEF and Save The Children have been working rigorously to deliver supplies to the pediatric population while foreign and local doctors have been attempting to gain medical information in order to deliver the best treatments. However, it is up to the rest of the world—including you—to help raise awareness of the ongoing situation in Yemen, how children are experiencing a wide range of diseases, and the necessity of the scientific community to aid these amazing kids.

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DOCUMENTARIES

BY GEMCO TEAM + AMBASSADORS



MENTAL HEALTH THE INVISIBLE WOUNDS OF THE YEMENI WAR

BY AUDREY ZHANG

In March of 2015, a civil war in Yemen began between the Yemeni government and the Houthi movement and it is still happening today (War in Yemen, 2020). Children as young as ten years old were recruited into armed forces and many died in the war. Over 100,000 people were killed and it is estimated that an additional 85,000 died as a result of an ongoing famine (Mason and Semmache et al., 2020). Meanwhile in late 2016, the cholera outbreak, the largest in epidemiologically recorded history, caused thousands of preventable deaths and only added to the burdens of an already fragile healthcare system (Federspiel and Ali 2018). This outbreak has extended into 2020. The impact of war and disease on the people of Yemen goes beyond the physical casualties reported by mainstream media. Moreover, with 30 million people living in Yemen, “16 million lack access to basic healthcare, more than half of government health facilities no longer function, and 18% of districts lack physicians” (International Medical Corps, 2019). The Yemen Civil War permeates virtually every level of Yemen life, with perpetual fear and worry as the common theme. By its very nature, the widespread conflict in the area has been nothing but troubling for the minds of the Yemeni people. Dr. Al-Ammar, a leading researcher from the Sana’a Center for Strategic studies, reported that there was a “40% increase in the suicide rate in Sana’a between 2014 and 2015” (Universal Periodic Review of Yemen, 2019). The mental health of its people have also been severely affected. “One in five people in conflict-affected contexts has a mental health condition...which is higher than global prevalence rates (1 in 14 people)” (Charlson and van Ommeren et al., 2019).

The war has killed thousands of children in Yemen. According to Save the Children, a primary humanitarian organization for children, the war has “caused widespread poverty and hunger, leaving some 2.1 million children under acutely malnourished” which can have a negative impact on brain development (Mason and Semmache et al., 2020). The children in Yemen have watched the lives of their friends and family be torn apart and their homes and schools be obliterated. Two million children and counting have since dropped out of school and 3.7 million children feel uncertain about their academic future since teachers are not being regularly paid (Al Jazeera, 2019). In a report by Yemen’s Ministry of Human Rights, 8,000 children suffer from post-traumatic stress disorder and other related issues (Almasirah Media Network, 2019). A large, comprehensive assessment conducted by the organization on more than 1,250 people including children, parents, and caregivers, suggested that there is a mental health crisis among Yemeni children. Coupled with the shortage of external social support systems and significant feelings of fear, researchers have concluded that many children are on the verge of developing mental illness (Mason and Semmache et al., 2020). Little support is available; there are only 40 psychiatrists or 0.14 psychiatrists per 100,000 people while the United States, a developed country, has 13.5 psychiatrists per 100,000 people.

Poor mental health is correlated with low financial status, poor educational achievement, and poverty. According to the United Nations (UN) High Commissioner of the UN for Human Rights, Zeid Ra’ad Al Hussein, “The right to the highest attainable standard of health is fundamental to human dignity, and there is no health without mental health” (Al Hussein, 2018). Without a doubt, the mental health of the Yemeni children must be prioritized. These children have lived through the unimaginable and face an uncertain future, bearing the remnants of war-inflicted wounds: physical and invisible with them. At heart, this war must end and we, as spectators, must act upon this exigence and do our due diligence to ameliorate the current situation.

To start, access to intervention programs such as Healing and Education through the Arts (HEART) must be promoted to allow children to express themselves and their experiences through therapeutic modalities that can greatly improve mental well being. Organizations such as Save the Children propose that we, the international community, “make a global commitment to support children’s mental health...recognizing it as a right [and] as a life-saving component of the emergency response.” More specifically, we must invest in “community-based” solutions that encourage joint responses to their experiences. This requires humanitarian support, funding, and global supporting efforts. Though the road towards peace and wellbeing will be arduous, united under a common goal, we shall bring peace and security to the Yemeni children.

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IMPACT OF WAR ON MENTAL HEALTH IN YEMEN

BY POORNIMA ANANTHASUBRAMANIAN

INTRODUCTION

Yemen is the second-largest Arab sovereign state in the Arabian Peninsula. It is also one of the poorest countries in the Middle East and it is estimated that 35% of its population was living below the national poverty line in 2015 (Al-Batuly & Al-Hawri, 2011). Yemen has experienced multiple conflicts over the years that has intensified into a civil war that started in 2015 and continues to date (Boley J et al., 2017). These conflicts have had a disastrous impact on different sectors including agriculture, service, industry and most importantly, the healthcare. Frequent bombings often damage hospitals and make it difficult for hospitals to maintain basic facilities like electricity and running water. Since the COVID-19 outbreak in January-2020, Yemen's already fragile health system has come under enormous strain. With such a catastrophic crisis, there is little time to address the mental health issues amongst the Yemeni population, leading to an increase in the number of suicides in the country. This review aims to throw light on the impact of war on psychological well-being of the people in Yemen, which is often overlooked.

GENERAL EFFECTS OF WAR ON MENTAL HEALTH:

Wars and conflicts have had a catastrophic effect on the health and well-being of people around the world. But the psychological impact of wars became a topic of discussion only in the 20th century, after the recognition that a proportion of the population was not suitable for army recruitment during the Second World War. This spurred the setting up of the National Institute of Mental Health in the USA. (Srinivasa Murthy et al., 2006).

In the year 2001, the World Health Organization (World Health Organization, 2001) estimated that, in the situations of armed conflicts throughout the world, "10% of the people who experience traumatic events will have serious mental health problems and another 10% will develop behaviour that will hinder their ability to function effectively. The most common conditions are depression, anxiety and psychosomatic problems such as insomnia, or back and stomach aches". (WHO). This estimate was based on several studies conducted in war-prone regions of the world. One such study is the population-based survey conducted in Afghanistan, which included about 800 adult household members aged 15 years and above. Sixty-two per cent of respondents reported experiencing at least four trauma events during the previous ten years. Symptoms of depression, anxiety and post-traumatic stress disorder (PTSD) were found in 67.7%, 72.2%, and 42% of the respondents respectively (Cardozo et al., 2004). PTSD is a psychiatric disorder that occurs commonly in people who have experienced or witnessed a traumatic event such as war and bombing. People with PTSD have intense, disturbing thoughts and feelings related to their experience that last long after the traumatic event has ended. They may relive the event through flashbacks or nightmares; they may feel sadness, fear or anger; and they may feel detached or estranged from other people ("What Is PTSD?", 2020). Furthermore, research shows these patients have a higher risk of developing certain somatic diseases or worsening existing ones, including obesity, hypertension and cardiovascular and cerebrovascular diseases; metabolic syndrome, diabetes mellitus, and ulcer; increased susceptibility to infections; and autoimmune disorders, chronic musculoskeletal disorders, osteoarthritis, chronic pain, fibromyalgia, and chronic fatigue syndrome (Rozanov et al., 2018). Besides, PTSD-suffering veterans often have a wide range of cognitive impairment, psychosocial disturbances, and dysfunctional behaviour including loss of the pre-traumatic personality structure, altered self-perception and distorted social interactions, alterations in the own system of values and meanings, dissociative flashback-driven violence, self-harm, and suicide. Studies show that patients with PTSD and any psychiatric comorbidity have 2.6 times the rate of suicide than those with no psychiatric diagnoses, which explains the unfortunate increase of suicide rates in war-prone countries (Gradus, 2018).

MENTAL HEALTH CRISIS IN YEMEN:

The war in Yemen has turned the country into the world's largest humanitarian crisis. Thousands of civilians have been killed or injured during the conflict and many Yemenis have lost their loved ones in the conflict and live with great fear and suffering. With more than half of the hospitals and clinics destroyed by bombing, the wars have completely wrecked the country's healthcare system. Such an intense exposure to stress and trauma increases the risk of anxiety, depression, and post-traumatic stress disorder (PTSD)(Fawziah Al-Ammar, 2018).

Yemeni mental health experts have reported a 40% increase in the suicide rate in Sana'a between 2014 and 2015, and an increase in psychiatric patients (Sana'a Center For Strategic Studies, 2017). One of the few scientific studies on mental health found that 79% of children reported PTSD symptoms, 70% had trouble sleeping and 63% had doubtful views of the future. (Fawziah Al-Ammar, 2018). Another study reported that "when assessing the state of their children, parents reported that 5% of the kids are suffering from bedwetting, 2% started stuttering again, 47% suffer from sleep disorders, 24% have a difficulty concentrating, and 17% suffer from panic attacks." (Sana'a Center For Strategic Studies, 2017). Given that children under the age of 14 represent some 44% of the total population in Yemen, their well-being is of great concern, especially given the heightened vulnerability of children.

Further, it is disheartening to note that, even with such a mental health crisis going on, only four psychiatric hospitals are treating mental illness in Yemen, with just 0.21 psychiatrists and 0.17 psychologists per 100,000 people (WHO, 2011). These hospitals are for adults and have no special sections for children. According to the most recent Yemen National Health Strategy from 2010, of the 8,500 specialist doctors in the country, there were only 44 psychiatrists (Sana'a Center For Strategic Studies, 2017). Traditional Quranic healers serve as the primary carers for many Yemenis who suffer from mental health conditions and formal psychiatric treatment is often only sought when conditions have seriously deteriorated, such as severe cases of schizophrenia and psychosis (Sana'a Center For Strategic Studies, 2017).

The National Mental Health Programme established in the late 1980s with help from the World Health Organization and the Ministries of Health from North and South Yemeni governments of the time is still being developed and requires support in both human and material resources as well as the development of a database of resources, statistics and epidemiological information. However, non-governmental organisations (NGOs) like the Yemeni Psychiatric and Neurological Association (YPNA), established in 1989, give a little hope for future in this dreaded battleground. They play influential roles in campaigning against physical, mental and sexual violence towards women and children. They organise celebrations for International Mental Health Day, conferences, workshops, radio and television programmes (Maan A. Bari Qasem Saleh, 2008).

CONCLUSION

It is undoubtedly clear that the exposure to armed conflict, forced displacement, and associated adversities such as poverty, unemployment, and social isolation substantially increase vulnerability to psychosocial distress and the prevalence of mental disorders among conflict-affected populations in Yemen. Therefore, the depth and the scope of mental health issues in Yemen must be assessed, appropriately mitigated through evidence-based interventions as much as is possible during the ongoing conflict, while preparing for broader efforts and advocacy in the transition post-conflict reconstruction and reconciliation (Sana'a Center For Strategic Studies, 2017). One of the key challenges is to scale up effective community- based mental health interventions to benefit more people and reduce the treatment gap (Simmons et al., 2007).

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HOPE ARISING

BY HANNAH ZHAO

The voices kept saying “be hopeful,” or at least, those were the words that echoed through everyone's head these days. I found hope so vague and fragile, like a glass vase plummeting down to a hard wooden surface.

It wasn't anyone's reality. It couldn't be. It all started in the year of 2014 when I found out I was pregnant with twins.

My hometown was in Yemen. I thought it would be perfect for my little darlings. I mean, I grew up there with my loving mother and father, who raised me to become who I am today. But it was too late when I realized that this was a mistake. War later fell upon us like an ugly shooting star: no luck, no happiness, just full of nightmares, so quick.

That was when I realized that being a child was so different from being an adult. The outside world, the news, and politics basically surrounded you. My parents had always avoided telling me these things, since they hoped to give me a joyful childhood, like all parents would want.

I couldn't really tell you what happened since it seemed so distant. I didn't even know we were poor since I was always satisfied with what was given to me. I guess it was because I didn't know what being rich was like, so poverty wasn't so different. But I can tell you what I do remember:

Before the war, there were buildings that were tall and spacious for the people who walked around in the morning to feel the fresh air and breeze that flew like angels. But the biggest thing I could remember was that struggle wasn't truly expressed yet in my family: we were as happy as we could be. Poverty doesn't ever mean sadness or lack of love: we survived enough.

People would wave a small good morning with a smile as we walked by doing the same, as it was customary to greet our neighbors. There were marvelous historical sites that we could all see from even a distance. However, as a child, I was oblivious to the fact that there was always struggle and suffering behind the closed doors of our beautiful city. Even as a teen and adult, I maintained these happy illusions to survive in life.

But then, after I grew older and had my boys a couple weeks before the year of 2015, something just seemed off. The whole world seemed as though it shifted in a strange direction, as if the timeline had altered hesitantly among people.

I was a mother now with my husband, Aadam Saleh. After I met him, it didn't take long for us to get married. It was as if we were meant to be: soulmates. My name changed to Elmira Saleh.

Throughout the next couple weeks before 2015, I decided to read up on current events in the newspaper, since avoiding the truth of what was happening doesn't mean that a person was safe from the suffering of maintaining survival. Also, as a mother, I wanted to take care of my boys, so reading was the best option, especially when they were asleep.

Reality struck like lightning. I found out about the past events and pressures we truly faced, and it was all extremely terrifying. My heart always started racing as I flipped and read through the paper with fear of words representing chaos and violence.

I read about 2014, of how the National Dialogue Conference outcome was released and how our people praised it deeply as a compromise with inclusive representation.

This document also extended Hadi's terms for a year, concluding the altering of the multi-party elections and giving equal representation in north and south for the legislative body. We now had guaranteed freedom of religion with a non-sectarian state.

But something still felt off, like the whole situation would turn into something awful. However, my parents always told me to stay hopeful. So I was trying, for my boys, who my husband and I decided to name (after a long debate as couples were):
Akram and Ali Saleh.

Akram meant most generous, and Ali meant greatest. Generosity like an angel and greatness with its price.

Then, I read of how later in the summer, the Houthi-Sunni forces clashed, affecting the NDC outcome. There were photos of protests because of the reduction in fuel subsidies against the Hadi government in September.

However, this allowed the Houthis to take the opportunity to move in a military format. This broke NDC in, which was part of the plan. They were allied with President Saleh (different heritage from our surname), which was their nemesis. The Houthis won rather quickly.

As the reports of bad news in these newspapers kept going on and on, my boys started to grow older: talking and walking. This brought me hope, and I thought maybe chaos would lessen-maybe peace would prevail once and for all.

However, it was the complete opposite actually. The Yemeni Civil War officially started on March 22, 2015. My boys were only one years old by that time.

But enough about the newspapers and war, it was their health that concerned me deeply as a loving mother of two. It was obvious that war affects health, which frightened me. Rumors were that it was because of war that more than 80% of Yemen's population lacked health care services, food, and clean water, which was why I was extremely worried and just wanted my family to stay safe: this percentage could increase in time.

We all desired the best for our generation, our children, but reality always complicated that desire. I realized no matter how hard I tried, their childhood would be lost because of this miserable reality. It wasn't fair to the innocent-no one deserved struggle and pain every day of their lives, especially the younger children and teens.

With the loss of many loved ones and constant desire for everyday supplies, the personality of a younger child or teen changed into a survivor since each generation had to fight for their precious lives every single day. This shouldn't be their concern. It affected mental health deeply wounding it with scars of horrid memories.

I cried each night, silently praying that the war would soon be over and everything would be alright again, praying for my family and everyone in Yemen. Rocking myself to sleep and thinking of hope and good memories, nightmares crept into my brain like pouring a glass of water to the ground that couldn't be brought back.

Then, those horrible illusions became reality: our health system was close to collapse. It was a scary time with my boys. They were growing so quickly and learning so much. They played with their toys as if there weren't a care for the world. I wish it was like that, so simple and easy.

There were bags under my eyes and my husband's from stress and worry. We wanted to leave our country desperately to keep our children safe and healthy from war. We started to plan, trying to store enough food, water, and medical supplies. But we lacked too much of these aspects and had so little time. However, we always had an abundance of hope because of our boys. We wanted to leave suffering behind and bring back true happiness.

Then, to make matters worse, a new disease started spreading throughout Yemen. I was fearful for my boys and husband-- it was a scary time. The fear of them getting this disease always made me tremble with tears rapidly falling down my cheeks like a waterfall. I couldn't live without them: my angels.

The disease was later called the cholera disease. It spread rapidly, killing many familiar faces. Food and clean water was still limited, and it was becoming more and more difficult to even cook a single meal for my boys. But I still had hope.

This war would affect healthcare in Yemen for centuries to come. But I would always have enough strength to keep fighting everyday for my family through the suffering of supplies and materials.

Because with my angels by our side, my husband and I would be able anything. Absolutely anything one could imagine.

So we kept dreaming and planning until the day we could go and reach the peak of the sun into a brand-new life outside of Yemen. Into the world.

PETALS OF HOPE

BY JOSHUA CHO

Ever since I learned about the devastating situation in Yemen, I felt very guilty and pitiful for being the lucky one with a healthy and normal life, while millions of innocent children out there are suffering and losing their lives every single day. Although this isn't much, I wrote a piece dedicated to all the people suffering in Yemen. I wanted to express my feelings of sorrow and grief for Yemen, as well as convey the emotions of what the Yemeni people may be feeling as well. The crisis in Yemen seems to never end, so I decided to end the piece with a sound that doesn't sound resolved.

LISTEN:



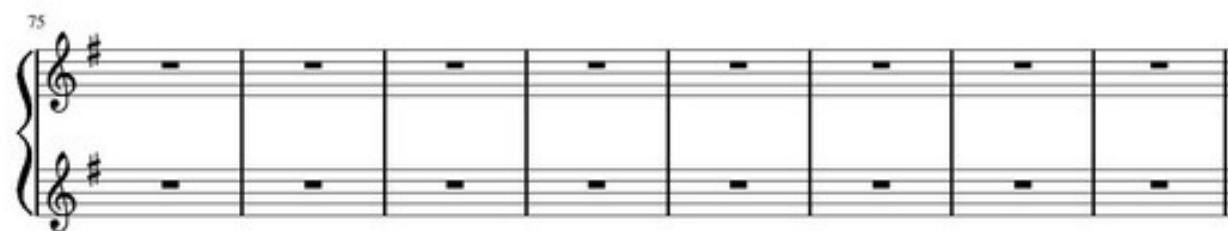
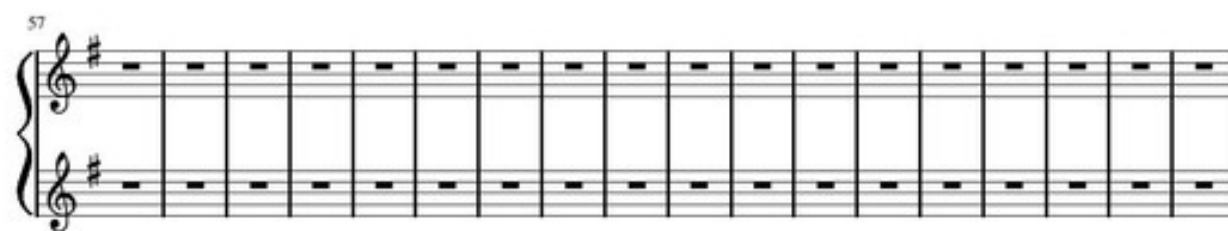
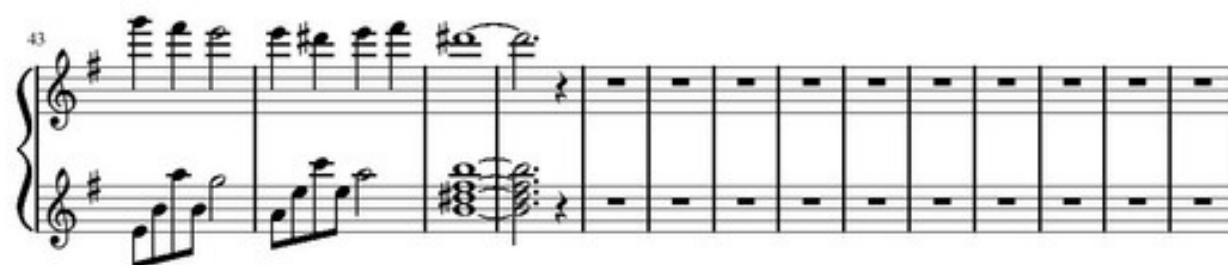
Yemen

Joshua Cho

$\text{♩} = 69$

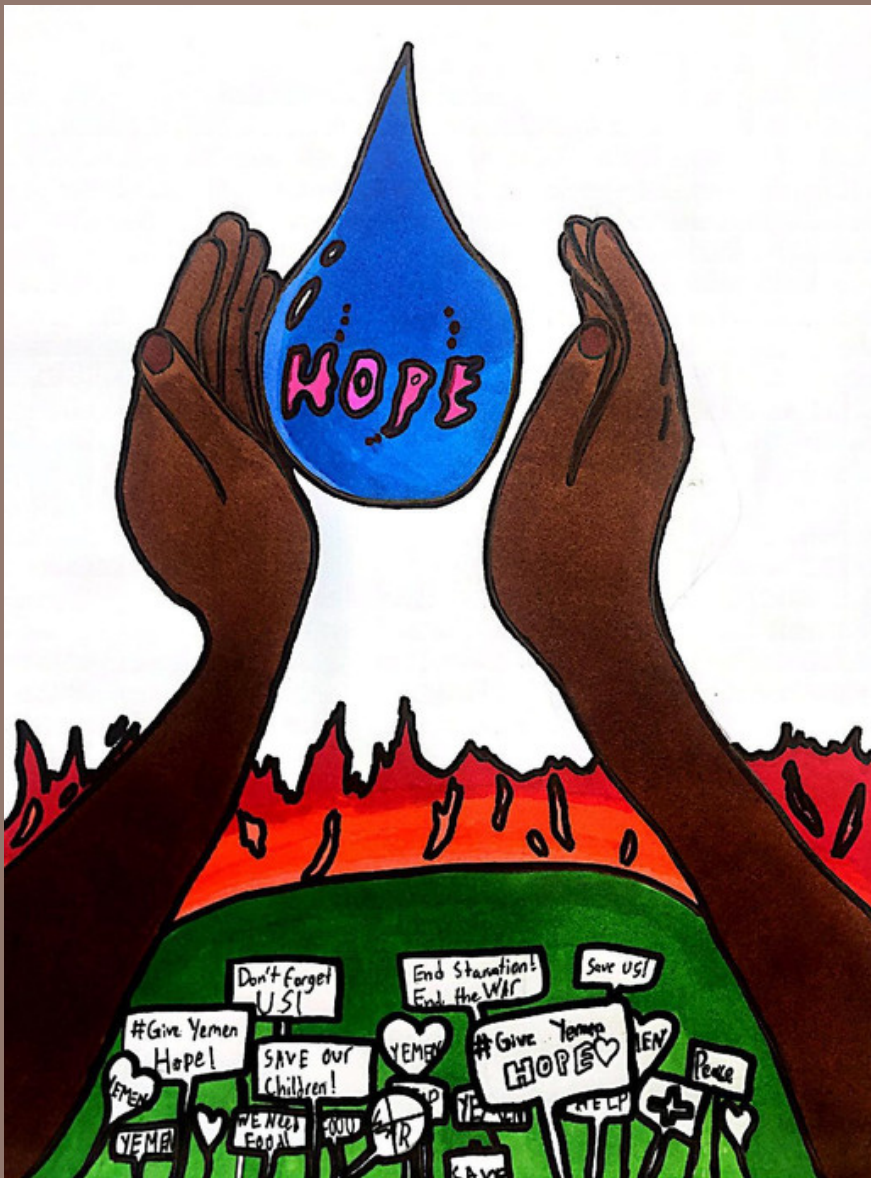
The musical score for 'Yemen' by Joshua Cho is written for piano in 4/4 time with a tempo of 69 beats per minute. The key signature has one sharp (F#). The score is divided into five systems, each containing a grand staff (treble and bass clefs).
- Measures 1-7: The right hand features a melodic line with eighth and quarter notes, while the left hand plays a steady eighth-note accompaniment.
- Measures 8-14: The melody continues with some rests and ties, and the left hand maintains its rhythmic pattern.
- Measures 15-19: The right hand introduces chords and rests, and the left hand continues with eighth notes.
- Measures 20-24: The right hand has more rests, focusing on the left hand's accompaniment.
- Measures 25-29: The final system shows the melody returning in the right hand, concluding the piece.

Joshua Cho



HOPE

BY GRIFFIN GALLIEN



The meaning of my piece is how even one person can give hope to people in any tough situation, not just Yemen. The protest signs in my drawing are the anger and emotion that the people feel in Yemen. The wall of fire represents those that don't understand the challenges of living in Yemen. The person reaching out to put out the wall of fire could be anyone who chooses to help or care. The water resembles hope for the people. The hope could be anything like water, food, nutrition, or economic stability.

AUTHOR/ARTIST BIOGRAPHIES

POORNIMA ANANTHASUBRAMANIAN IS AN UNDERGRADUATE SENIOR FROM CHENNAI, INDIA. SHE IS EXTREMELY PASSIONATE ABOUT RESEARCH AND STEM OUTREACH. SHE IS CURRENTLY WORKING ON THE NEURO-IMMUNE INTERACTIONS IN HEALTH AND DISEASE AT THE INTEGRATIVE MEDICINE LAB IN HER COLLEGE AND ASPIRES TO PURSUE A CAREER IN THE FIELD OF RESEARCH AND DEVELOPMENT IN NEUROSCIENCE. SHE HOPES TO SHARE HER PASSION FOR NEUROSCIENCE WITH STUDENTS ACROSS THE WORLD THROUGH HER WRITING AND EXPLORATION OF THE INTERDISCIPLINARY ASPECTS OF SCIENCE. OUTSIDE OF THAT, POORNIMA ALSO ENJOYS BLOGGING, WRITING, SINGING AND READING NOVELS.

REEMA A. IS A THIRTEEN-YEAR-OLD ARTIST WHO IS HALF-IRANIAN AND HALF-SYRIAN. SHE IS SELF-TAUGHT AND HAS BEEN DRAWING SINCE SHE WAS VERY LITTLE. HER FAVORITE/PREFERRED ART STYLE IS REALISM, AND SHE EXPRESSES HER ART THROUGH VARIOUS MEDIA, INCLUDING COLORED PENCILS, PAINT, SCULPTURE, DIGITAL ART, AND MORE. SHE IS VERY CONNECTED WITH HER CULTURES, SPEAKING FARSI AND LEARNING ARABIC. SHE IS ANXIOUSLY CONCERNED WITH THE PROBLEMS OF TODAY'S WORLD, INCLUDING THE SEVERE AND GROWING IMPACT OF STRIFE AND WARS ON THE PEOPLE OF THE MIDDLE EAST, AND HOPES THAT THROUGH PEACE, LOVE, SUPPORT, AND RESPECT, "THE WHOLE EARTH WILL COME TO BE REGARDED AS ONE COUNTRY" (AS STATED BY BAHA'U'LLAH). THE ARTIST FEELS A DEEP EMOTIONAL CONNECTION WITH THIS PIECE, AS NOT ONLY DOES SHE HAVE RELATIVES IN WARZONES, SHE REGARDS THE INHABITANTS OF THE WORLD AS ONE BIG HUMAN FAMILY.

PRANALI BENDALE IS AN AMBITIOUS AND DRIVEN 17-YEAR OLD WHO ATTENDS NORTH CREEK HIGH SCHOOL IN WASHINGTON. SHE IS CURRENTLY AN AMBASSADOR FOR OUR FUTURE OF CHANGE, THAT FOCUSES ON THE ISSUE OF HUMAN TRAFFICKING. KEEPING UP WITH HER BELIEF THAT SOCIAL AND POLITICAL CHANGE HAPPENS WITH THIS GENERATION, SHE IS PASSIONATE ABOUT GLOBAL ISSUES, AND SPECIFICALLY THE HUMANITARIAN CRISIS IN YEMEN. IN HER FREE TIME, SHE ENJOYS PIANO, READING, AND HANGING OUT WITH FRIENDS. SHE HOPES TO ONE DAY BECOME A LEADER FOR POSITIVE CHANGE IN THE WORLD.

AUTHOR/ARTIST BIOGRAPHIES

BORN IN CALIFORNIA IN 2003, **JOSHUA CHO** (KNOWN AS JYOONSANG) IS A STUDENT AT THE ORANGE COUNTY SCHOOL OF THE ARTS IN THE PIANO CONSERVATORY. HE HAS RECEIVED RIGOROUS PRE-PROFESSIONAL CLASSICAL PIANO TRAINING AND ACCUMULATED NUMEROUS AWARDS IN COMPETITIONS. BESIDES CLASSICAL PIANO, HE ALSO HAS A PASSION AND NATURAL TALENT FOR ALL FORMS OF MUSIC, ESPECIALLY MODERN. HE BEGAN COMPOSING AND SINGING IN 2020, AND HE RELEASED HIS FIRST SHORT SINGLE "THINKING IN THE NIGHT", WHICH WAS A HUGE SUCCESS IN GAINING THE PUBLIC'S ATTENTION. HE ALSO ENJOYS VOLUNTEERING AND LEARNING ABOUT BIOLOGY. THEREFORE, HE FOUND GEMCO'S INTERDISCIPLINARY JOURNAL THE PERFECT WAY TO SHOWCASE HIS MUSIC AND ALSO GIVE BACK TO THE COMMUNITY BY RAISING AWARENESS & PROVIDING HOPE FOR THOSE SUFFERING FROM GLOBAL HEALTHCARE ISSUES.

GRIFFIN GALLIEN IS IN 9TH GRADE AND LOVES TO DO ART. HE IS PART OF A VOLUNTEER GROUP CALLED "LION'S HEART." DURING THE COVID-19 QUARANTINE, HE HAS FOUND MORE TIME TO PARTICIPATE IN ONLINE VOLUNTEER OPPORTUNITIES. THIS GEMCO JOURNAL OPPORTUNITY STOOD OUT TO HIM BECAUSE IT ALLOWED HIM TO GIVE BACK TO HIS COMMUNITY THROUGH HIS LOVE FOR ART. AFTER READING A COUPLE ARTICLES ABOUT THE HEALTH CRISES IN YEMEN, HE WAS SHOCKED. HE COULDN'T BELIEVE HOW DIFFICULT LIFE MUST BE LIVING WITHOUT FOOD FOR UP TO THREE DAYS IN SOME CASES. GRIFFIN BELIEVES THAT THE PEOPLE OF YEMEN DESERVE TO BE HEARD AND NOT FORGOTTEN. GRIFFIN WAS INSPIRED TO TAKE ACTION AND REALLY HOPES TO SPREAD AWARENESS OF THE SITUATION IN YEMEN THROUGH HIS ART PIECE.

HIBA KARIM IS A 17 YEAR OLD HIGH SCHOOL SENIOR FROM FLORIDA. GROWING UP HIBA HAD A PASSION FOR ACTIVISM AND EDUCATING THE PUBLIC. COMING FROM A COUNTRY THAT DEALT WITH ITS OWN ATROCITIES SHE HAD SEEN HOW HATE CRIMES TEAR UP ONE'S WORLD. SHE WANTED THESE TOPICS TO BE BETTER EXPRESSED IN THE PUBLIC, THAT IS WHERE HER LOVE FOR POETRY COMES IN. HIBA BELIEVES THAT POETRY IS A FORM OF LITERATURE THAT CAN CHANGE THE WAY A PERSON PERCEIVES A SITUATION; IT CREATES A BROADENED MINDSET AND A CONNECTION TOWARDS THE READER. HER GOAL FOR "OH YEMEN" WAS TO TAKE ASPECTS OF YEMEN'S CURRENT HUMANITARIAN CRISIS AND WRITE IT IN A MANNER THAT EXPLAINS HOW WAR IS LIMITING THE AMOUNT OF HEALTHCARE RESOURCES AVAILABLE IN YEMEN AND HOW WE ARE LOSING A BEAUTIFUL COUNTRY THROUGH THIS.

AUTHOR/ARTIST BIOGRAPHIES

YUG YADAVA IS A FRESHMAN AT ROWAN UNIVERSITY'S HONORS COLLEGE MAJORING IN BIOLOGY. HE HAS CONDUCTED OVER 10 RESEARCH PROJECTS MAINLY IN THE HEALTHCARE FIELD. HE HAS A KEEN INTEREST IN MEDICINE AND CULTURE AND FINDING A WAY TO COMBINE THE TWO UNIQUE FIELDS. SOME OF YUG'S EXPERIENCE INCLUDES FOUNDING THE HUMAN RIGHTS CLUB AT HIS HIGH SCHOOL, GAINING AN INTERNSHIP WITH THE CHILDREN'S HOSPITAL OF PHILADELPHIA, AND FOUNDING THE STEM INITIATIVE FOR THE YOUTH (SIFTY). HIS MOST RECENT WORK INCLUDED A PUBLICATION OF HIS VIEW OF THE COVID-19 STATUS IN NEW JERSEY THROUGH THE NEW JERSEY ACADEMY OF SCIENCE (NJAS). IN HIS FREE TIME, HE LOVES TO SPEND TIME WITH HIS FRIENDS AND HUGE FAMILY, WALK ON THE BOARDWALK, AND WATCH 'THE CROWN'. YUG CAN BE REACHED AT YUGYADAVA@YAHOO.COM.

AUDREY ZHANG IS A JUNIOR STUDENT STUDYING PSYCHOLOGY AT THE CALIFORNIA STATE UNIVERSITY, LOS ANGELES. AS AN AVID MUSIC AND ANIMAL LOVER, SHE SPENDS MUCH OF HER FREE TIME PLAYING MUSIC FOR FAMILY, FRIENDS, AND PATIENTS AT HER LOCAL HOSPITAL AND TAKING CARE OF HER DOG, POKA. SHE IS PASSIONATE ABOUT ADOLESCENT AND GERIATRIC MENTAL HEALTH AND IS INTERESTED IN THE POWER OF MUSIC TO UNITE AND HEAL ESPECIALLY DURING THESE UNCERTAIN TIMES. SHE IS ALSO AN AMBASSADOR FOR THE GLOBAL EQUALITY FOR MEDICAL CARE ORGANIZATION (GEMCO).

HANNAH ZHAO IS SIXTEEN AND A SOPHOMORE IN HIGH SCHOOL. SHE LOVES TO WRITE WHILE INSPIRING OTHERS TO WRITE WITH PASSION AND DETERMINATION. SHE LOVES HELPING OTHERS AND VOLUNTEERING. SHE LOVES PLAYING TENNIS AND IS IN THE GIRLS' TENNIS VARSITY TEAM IN HER HIGH SCHOOL. SHE WAS ALSO TENNIS CAPTAIN IN HER MIDDLE SCHOOL. HER MIDDLE SCHOOL TENNIS TEAM HAD AN EIGHT YEAR UNDEFEATED STREAK WHEN SHE WAS THERE, AND STILL HAS THIS STREAK TODAY. SHE LOVES PLAYING PINGPONG WITH HER FAMILY. SHE ALSO ENJOYS BAKING COOKIES, CAKES, AND OTHER DESSERTS WITH HER MOTHER. SHE ABSOLUTELY LOVES FISHING WITH HER FATHER AND WAS IN THE COVER OF THE DELAWARE FISHING MAGAZINE IN 2016. SHE IS VERY NICE, LOYAL, CARING, POSITIVE, AND GENEROUS.

CLOSING STATEMENT

Dear Readers:

To our community of readers & emerging advocates- thank you all for supporting our initiatives to improve world health. We hope that this journal will inspire you to create change in your own communities in creative ways, and we want to remind you that you too have the power to change the world. Continue reading, creating, and believing.

To the people of Yemen- we stand in solidarity with you. Although not much, we hope that this journal issue brings you hope and shows you that you have a global community supporting you. Our support for you does not end with this journal issue, and we want to remind you that there will be brighter days coming soon.

Thank you for reading with us.

With love,
Katelyn & Melody

