A Comparison Between Mental Health in the United States and Morocco

Drew Adamek

With Dr. Mehdi Bourakkadi Idrissi

Acknowledgments to the University of Minnesota and the Hassan II University Hospital

Introduction

This review article is based on a partnership between the University of Minnesota and the Hassan II University Hospital Center in a virtual internship. I have compiled my experiences, the experiences of a surgeon in Morocco, many studies on mental health in both countries, and two questionnaires that were completed by students in both countries into a report of the differences and similarities in mental health in the two countries and recommendations for improvement for each. The United States and Morocco are very different, for example, in their economies, their values and their health systems. So, I propose that these differences have an impact on overall mental health.

Methods

I have divided the topic of mental health into two main categories: “burnout” for students and doctors and stress related to academics as well as stress related to family and social life. In each of these categories, I reviewed many studies from Morocco and the United States to understand the current research in these areas for both countries. Then, I developed two questionnaires with Dr. Mehdi to understand the thoughts of current students and doctors in both countries. I then synthesized these insights with the guidance of Dr. Mehdi in writing and data summaries.

Burnout

A Review of the Literature

The first aspect of mental health that we analyze in this report is burnout — an aspect of stress that is very prevalent in the medical profession. According to Ana Maria Rossi, Pamela L. Perrewé, Steven L. Sauter in "Stress and Quality of Working Life: Current Perspectives in Occupational Health," burnout is a psychological syndrome that occurs with prolonged stressors."[1] According to Abdellatif Bounsir, there are four phases of burnout: enthusiasm, stagnation, frustration and finally apathy.[2] This type of stress is typically associated with the field of medicine because of many years of training, long hours at work and the emotional toll of the work. However, burnout is possible in all fields of work with prolonged stress. Typically, burnout is characterized by symptoms of emotional exhaustion, emotions of cynicism and depersonalization.

In general, burnout rates are similar in the two countries. One study reports a burnout rate of 36.7% in Morocco [3] and a survey of 15,000 physicians in 29 specialties reports 42% of physicians are burnt-out in the United States.[4] However, there is a difference in the specialties that are the most burnt-out in the two countries. In Morocco, according to a study carried out by Dr Fatima Lahlou, 34.2% of those with a medical specialty, 44% of those with a surgical specialty and 80% of those with an intensive care specialty have a high degree of burnout.[3] In the United States, the specialty of internal medicine has a rate of 44%, intensive care has a rate of 43%, and surgery has a rate of 35%. [4]

In addition, the symptoms of burnout are similar in these two countries. In both countries, those who are burnt-out have symptoms such as depersonalization, the feeling that the world is not real and the feeling of being detached from the body, emotional exhaustion, and reduced

personal success.[6] Notably, this phenomenon is different from feelings of depression, discontentment, or fatigue as it is a state of exhaustion due to excessive and prolonged stress. In medicine, these symptoms can cause medical errors [7] and can lead to poor patient treatment resulting from the lack of empathy associated with burnout. burnout also affects the personal lives of physicians: physicians with burnout are more likely to have substance abuse issues [7] and to have an increase in suicidal ideation.[7]

The causes of burnout are complex and numerous, but there are two general factors: work-related and personal. At work, the increase in tasks that are not directly related to patient care is a major cause of burnout for physicians. For example, computerized medical prescription entry is associated with 29% more burnout for physicians in the United States.[8] Likewise, activities such as lack of autonomy and lack of support from colleagues are also associated with burnout.[8] In addition, the lack of work-life balance is a major cause of burnout. A study shows that there is a 3% increase in the chances of burnout with each additional hour per week and a doubled risk of burnout if there are conflicts between work and family.[8] This conclusion is evident in the United States and also in Morocco.[8,9] It has also been suggested that the work culture is very important for burnout: if hospital management is engaged with workers and if management gives doctors more control over work-related issues, there is less burnout in the organization.

The personal factors that cause burnout are a little more unclear. For example, the difference between the burnout rate for men and women is not very conclusive in Morocco. One study showed a higher level of psychological distress in men, but a decreased level of academic achievement perception for women [5] — two important metrics of burnout. However, in the United States, women have an increased level of burnout than men.[4] Additionally, age may be a

factor in the prevalence of burnout. For example, a younger age is associated with an increase in burnout for both countries.[8,9] Personal contentment is very important, for example if doctors have hobbies and if they have a work-life balance. This balance is a key aspect of prevention for the personal domain of burnout.

A meta-analysis of studies on burnout has shown that the most effective strategy for reducing burnout is institutional interventions such as improved communication among members of healthcare teams, improvement in teamwork in control of work, and reduction in workload[8]. These recommendations are more effective than individual interventions like mindfulness or healthy habits, so it is extremely important that hospitals put these institutional changes into practice and provide programs for prevention and treatment, including therapy services in the hospital.

Discussion with the Doctors

During the discussions with Dr Mehdi and other doctors, I learned even more about the differences between the United States and Morocco in relation to mental health. The most important thing, according to these doctors, is the difference in the stigma on mental health in these two countries. While there is still a certain degree of stigma with mental health in the United States, for Moroccans the subject of mental health is very taboo. The reasons for this are a bit unclear, but these doctors believe the cause could be the culture and prevalence of religion. For many Moroccans, if people are diagnosed with a mental health condition, the patients think that this means that they are “crazy” or “not close to the god." Because of this, denial of treatment is very common in Morocco. In the United States, the prevalence of Christianity may serve as a barrier for accessing mental health care, but there is also a culture of self-development

and toxic positivity. Americans often have a facade of contentment; thus they don't seek help. Moreover, many Americans think that if one works harder, one can heal themselves.

The second most important thing is the prevalence of therapy available to students at school and to doctors. At Hassan II University Hospital Center, a therapy unit was created only two years ago for medical students and faculty. Moreover, according to Dr Mehdi, the only system for medical students, apart from the addition of recent treatments, is a break entirely from work. Additionally, one doctor said that other students had tried to help her with her mental health but only made things worse as it created an expectation that students are generally happy, a phenomenon known as "toxic positivity." In the United States, there are more resources for students and faculty, but there is a culture of “workaholism.” So, doctors hide their emotions because they have a need to continue to work hard.

The final difference is the stage in which the students become burned out. For Americans, the majority of stress is in the first and second stages: in university and medical school while in Morocco, the majority of stress is in medical school and in residency. According to Dr Mehdi, it is difficult to be able to choose your preferred specialty. There are only a certain amount of spots in each speciality each year. To be sure that one gets their preferred specialty, they must obtain very high marks on residency exams to be at the front of the “line.” In the United States, while it is important to have good marks in the residency exams, the residency programs choose which candidates they would like and the candidates select their desired programs in a “match.” Over 75% of the students received a placement for residency and thus this process is somewhat less competitive than in Morocco. Additionally, admission to medical school is more competitive for Americans than Moroccans, with admission rates typically less than 10%.

The Questionnaires:

Dr Mehdi and I developed a questionnaire of 11 questions on mental health in the fields of work and in school. The questionnaire was shared with our contacts, so there is a risk of bias here, but all responses were made anonymous. In the US questionnaire, I received 47 responses, and in the Morocco questionnaire there were 21 responses.

Table 1. The questions we asked respondents

The question	Potential responses
From a scale of 1 to 5, rate your stress level at school	1-5
How would you rate your current work environment?	Chill Under control Stressful Overwhelming
Have you ever experienced depression-like symptoms?	Yes or No
Do you feel you can talk to someone at school about your troubles?	Yes, No, I don't know
Does your school have a unit for psychological help?	Yes, No, I don't know
If your answer is no, do you feel there should be one?	Yes or No
Has the COVID-19 pandemic affected your stress levels?	Yes, Not really, A little
Did online classes during the pandemic make studying harder?	Yes, No, A little bit
Do you think in-person classes are better for your psychological health?	Yes, No, Unrelated
Did you notice a change in your grades during the online classes?	Yes or No
Are there other symptoms of burnout that you have had in the last six months?	Free answer

Most of the answers are similar, but there are some notable differences. The first difference is that people in the United States have a high average stress (3.87, se = 0.137, 95% confidence interval = 3.6-4.13) compared to people in Morocco (3.35, se = 0.203, confidence interval at 95% = 2.95-3.75) which is shown in question 1. This result is quite improbable under the null hypothesis (Welch Two Sample t-test, p = 0.044, t = -2.087, confidence interval at 95 % = 0.0150-1.0297). Notably, the outcome of work stress was similar for both countries (60% of people are stressed or overwhelmed in their work in Morocco; 55% in the United States).

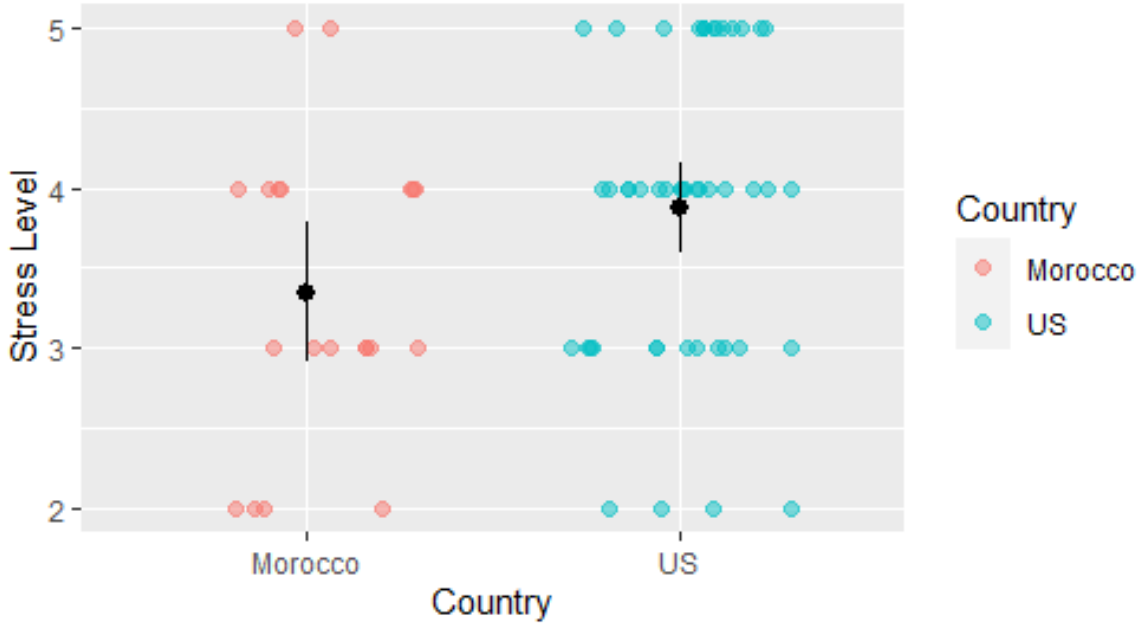

Figure 1. The responses of people in Morocco and the United States to question 1 - "From a scale of 1 to 5, rate your stress level at school" - which shows that people in the United States have a high rate of stress compared to people in Morocco.

The prevalence of depression was somewhat high in the Americans polled (proportion = 0.8298, se = 0.0553, 95% confidence interval = 0.7234-0.9362) compared to Moroccan respondents (proportion = 0.7143, se = 0.1058, confidence interval at 95% = 0.5-0.9). However, this result is probable under the null hypothesis (Fisher Exact probability test, p = 0.336, odds ratio = 1.93).

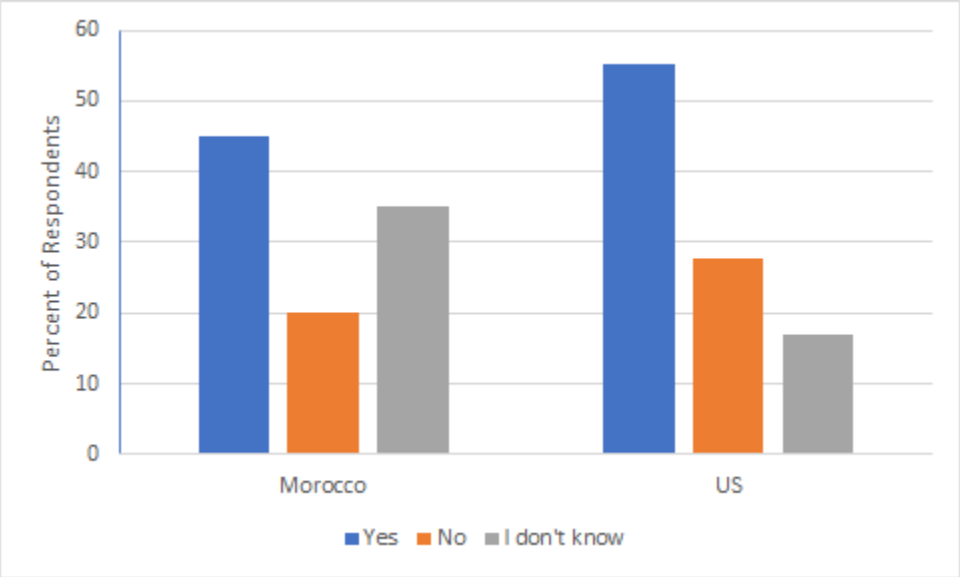

Figure 2. Responses to question 4 - "Do you feel you can talk to someone at school about your troubles?" - which show a similar proportion between the two countries for "yes" and "no," but a high proportion for Moroccans who do not know if they have someone with whom they can speak.

Figure 2 shows that the rate of Moroccans who do not know if they have someone they can talk to is high (0.35) compared to Americans (0.17), but this result is likely under the null hypothesis (Fisher Exact Test, p-value = 0.1215, alternative hypothesis: true odds ratio is not equal to 1, odds ratio = 2.58).

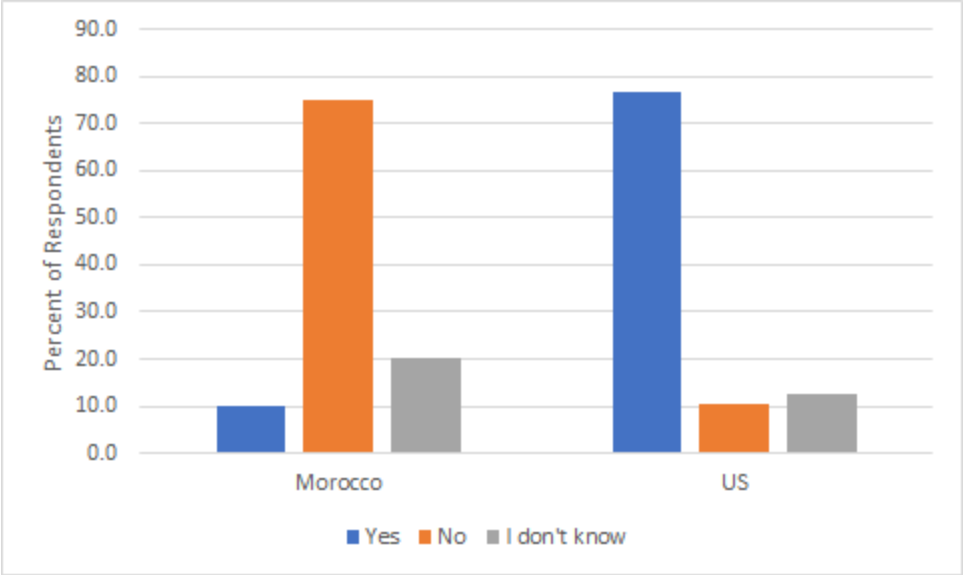

Figure 3. Responses to question 5 - "Does your school have a unit for psychological help?" - which show that many more respondents from the United States have a psychological help unit than respondents from Morocco.

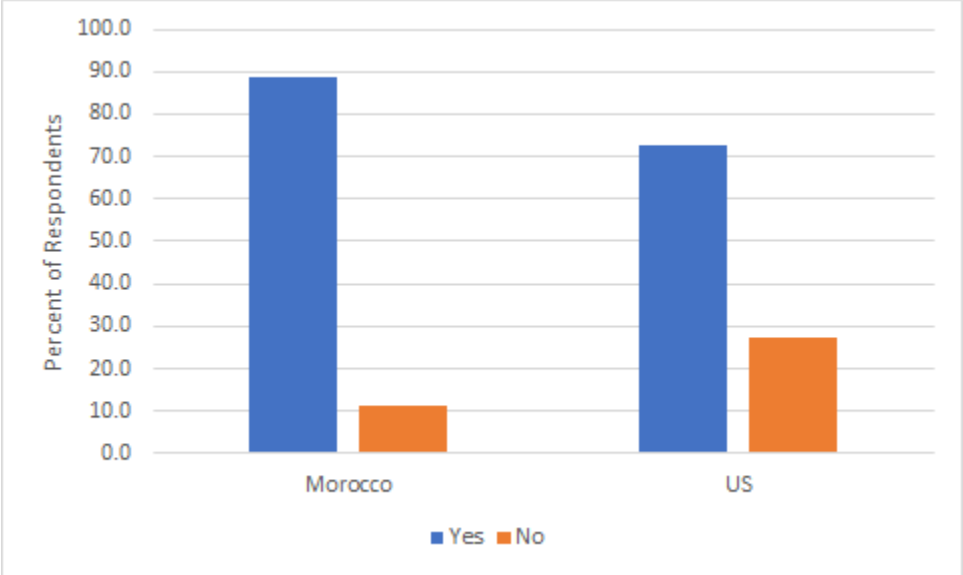

Figure 4. Responses to question 6 - "If your answer is no, do you feel there should be one?" - which show that most respondents in both countries would like a psychological support unit if they do not have one already.

There is a very big difference in access in the two countries. In the American questionnaire, 76.6% of respondents reported that they have a psychological help unit, but in the Moroccan questionnaire, only 30% of respondents reported that they have one. This result is very unlikely under the null hypothesis (Two Proportion z-test, X-squared = 11.107, df = 1, p-value = 0.00086, 95% confidence interval = 0.1958-0.7361). In addition, respondents in both countries said there should be a psychological help unit if there is not currently (72.7% and 88.2% in Morocco).

In the questions about the impact of COVID-19, there are also differences in the answers between the two countries.

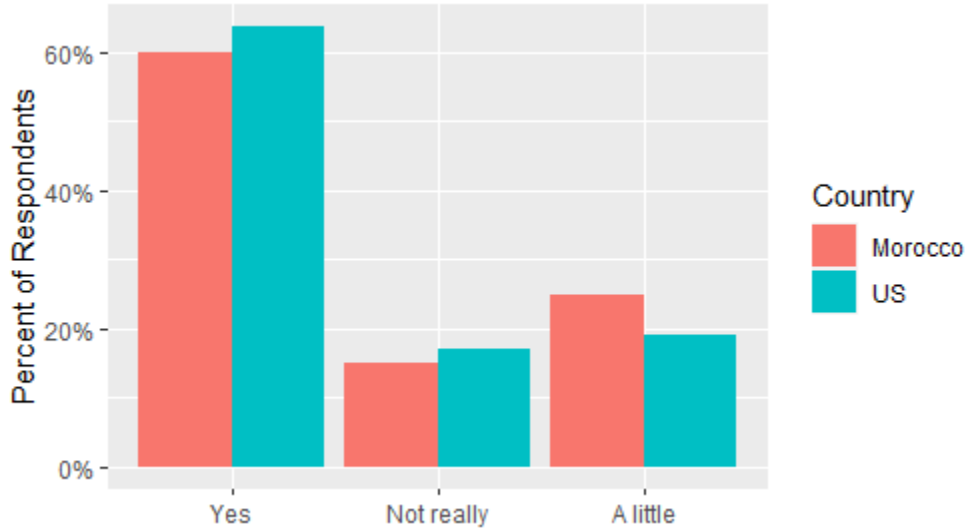

Figure 5. Responses to question 7 - "Has the COVID-19 pandemic affected your stress levels?" - which show that the pandemic has affected respondents in both countries the same linked to stress.

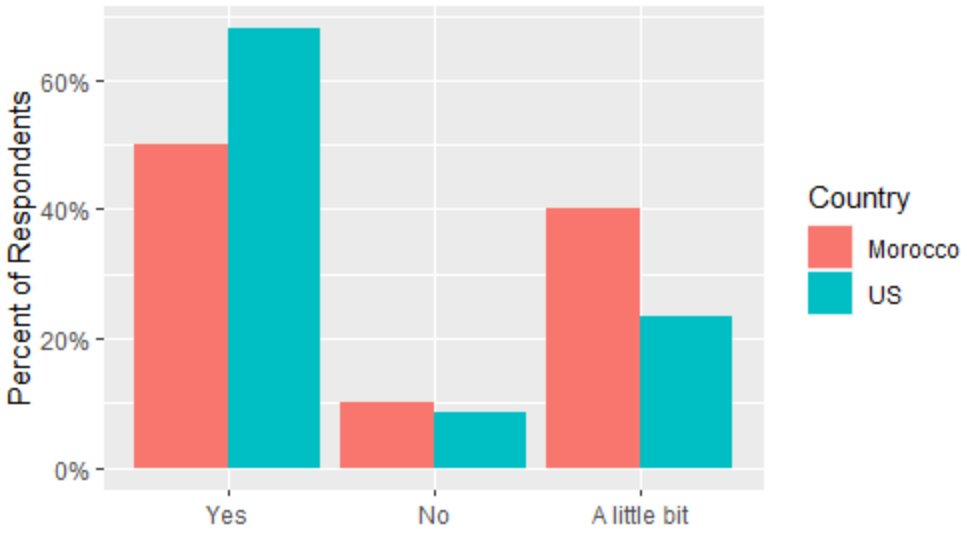

Figure 6. Responses to question 8 - "Did online classes during the pandemic make studying harder?" - which show that the pandemic has affected respondents in both countries the same linked to stress.

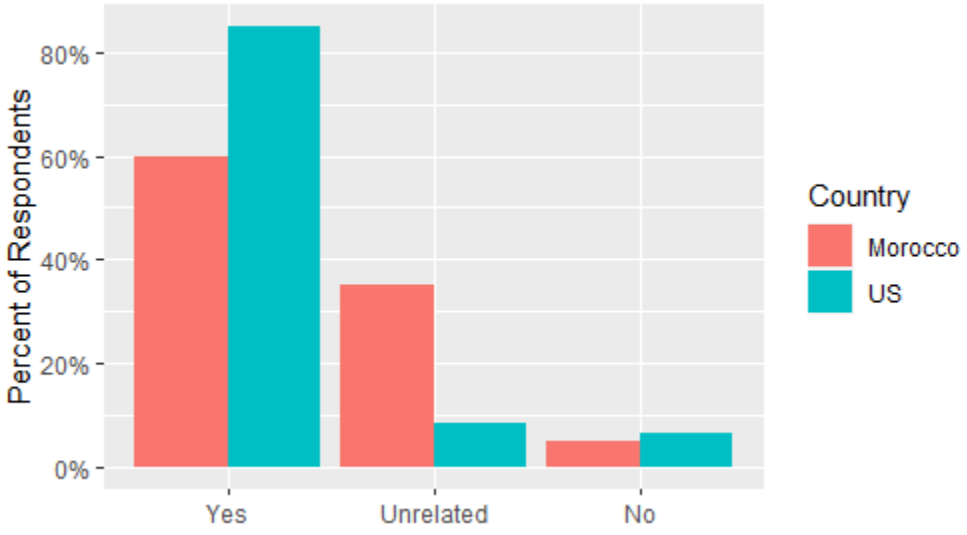

Figure 7. The responses to question 9 - "Do you think in-person classes are better for your psychological health?" - which show that students in the United States believe that in-person lessons are better for mental health than students in Morocco.

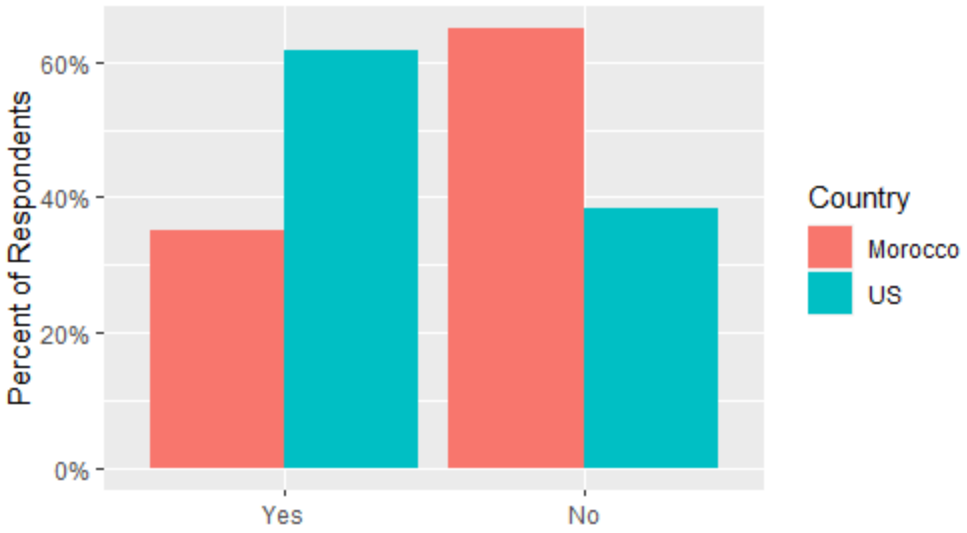

Figure 8. Responses to question 10 - "Did you notice a change in your grades during the online classes?" - which show that more students in the United States have a change in their grades during the pandemic than students in Morocco.

These results indicate that students in the United States and Morocco are affected by the COVID-19 pandemic linked to their stress level at the same rate (Figure 5) (X-squared = 0.00042427, df = 1, p-value = 0.9836, 95% confidence interval: -0.2522277-0.3288235, with a null hypothesis that the two proportions are equal). Americans responded that online courses made studying more difficult than Moroccans (Figure 6), but this result is likely under the null hypothesis (X-squared = 1.265, df = 1, p-value = 0.2607, 95% confidence interval: -0.111-0.473).

However, there are also differences. Americans believe that in-person lessons are better for mental health, while Moroccans believe that in-person lessons are unrelated to mental health which is not likely under the null hypothesis, however, and the uncertainty is large. (X-squared = 3.747, df = 1, p-value = 0.0529, 95% confidence interval: -0.0222-0.524) (Figure 7). Also, more Americans noticed a change in their grades than Moroccans, but this result is likely under the

null hypothesis and it has a large uncertainty (X-squared = 3.0214, df = 1, p-value = 0.08217 , 95% confidence interval: -0.01964-0.5537) (Figure 8).

The Impact of Social Life on Mental Health

A Literature Review

In a national study by Morocco with a representative sample of 5600 people in 2003, 48.9% of people have a mental disorder and 26.5% of respondents were depressed.[19] By contrast, 20.6% of Americans have a mental disorder.[20] One aspect that is very important for mental health is social life. In fact, the WHO has established several social determinants of mental health.[9] These determinants are different aspects of life such as their current environment, their growth, stressors, etc. in any stage of life. It has been found that there are three main social factors that impact mental health [10] : the well-being of one's parents, support and stressors in life, and barriers to mental health care.

The attributes of one's parents are very important for a person's development and mental health. For example, one report found that the prevalence of depressed mood is 2.5 times higher among people aged 10-15 years with low socioeconomic status than in the same group with high socioeconomic status.[11] In fact, a meta-analysis of 115 studies found that over 70% of those noted clear and positive associations between poverty and mental health problems.[12] This conclusion is important to note because, in general, Morocco is a less wealthy country than the United States and, thus, there may be a higher rate of mental health conditions in Morocco due to this reason. Additionally, parental health is important for mental health: if mothers are depressed during pregnancy, their children have a higher risk of being underweight and developing depression.[13] Finally, childhood development is also important. Traumatic events, lack of a support system, or unhealthy parental attachment styles are all implicated in problems with mental health.[14]

Perhaps the most important factor in mental health is chronic stress. This factor has direct impacts on several biological factors. Fisher and Baum, in their review, said that chronic stress deregulates typical stress responses which has cascading effects. For example, the argument for activity in the hypothalamic-pituitary-adrenal axis (the HPA axis), which is typically important for the regulation of the stressor response including the production of cortisol, is invariably associated with major anxiety and depression conditions.[16] With disrupted activity in this axis, patients respond less to treatments for depression.[17] Additionally, increased secretion of corticotropin-releasing hormone in stress response is associated with melancholic depression, anorexia nervosa, panic disorder, and OCD.[17,18] Additionally, arousal and enlarged amygdala in chronic stress response is associated with a wide variety of mental health conditions including anxiety and depression.[18] This clear link between change in the biological chronic stress response is one reason Chrousos and Gold say that chronic stress is a key risk factor in mental health.[16]

Chronic stress is also very important for indicating mental health because of the variety of factors that can be included in the category of chronic stress. In a figure from a study by Fisher and Baum, many factors of life, family, distribution of resources in the country, work, etc. influence chronic stress (Figure 1).[15] So, by focusing on this factor, many other factors will be addressed.

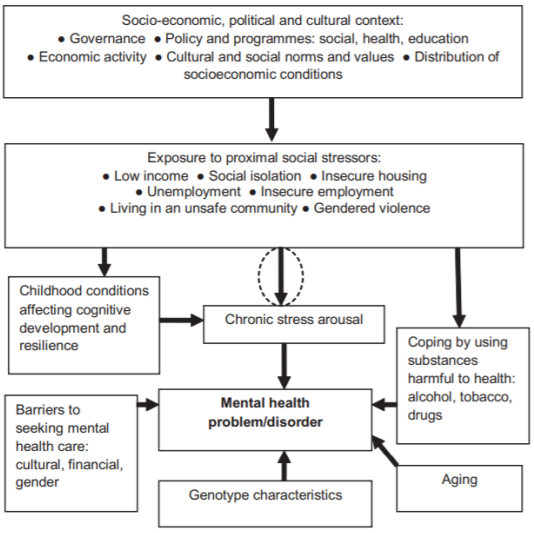

Figure 1. Factors influencing individual onset of a mental health problem/disorder (adapted from Commission on the Social Determinants of Health [1]).

While it is difficult to determine the differences in the factors that affect chronic stress, the differences in access to mental health services are clear between Morocco and the United States. Morocco, unfortunately, has several problems with access to mental health care. It is estimated that there are 350 practicing psychiatrists or only one specialist per 100,000 people. In addition, there is a lack of resources for mental health, so there are only 1,900 beds, or one per 17,000 people in 27 institutions that are mainly concentrated in the largest cities.[21] This distribution of resources is an even greater problem because those in rural areas are typically in lower socio-economic situations without the ability to travel far for health care. In addition, the two state insurance systems do not cover mental health care.[21]

There is also a culture of stigma in the field of mental health in Morocco. In my discussions with Dr. Mehdi and current research, for the majority of Moroccans, to be diagnosed with a mental illness is to be crazy. It has been suggested that colonialism — with racism and with long involuntary hospitalizations of Moroccans — religion, or simply misunderstanding of

mental health could contribute to this culture.[21] Whatever the reason, this culture is a large barrier to mental health care for Moroccans.

There are also similar issues with access to mental health care in the United States. Insurance in the United States is a very complex problem. Oftentimes, mental health is not covered the same as physical health by insurance. It is estimated that 42% of Americans believe that finances are a major barrier to care.[22] This difficulty is also caused by the challenge of finding a mental health specialist — 34% of Americans indicate they have a problem with this.[23] In addition, the rate of out-of-network coverage, in which the cost is high, is 28% compared to primary care at 3%.[23] So, the National Alliance on Mental Illness indicates that about half of the 60 million Americans with mental illness do not have treatment.[23] However, the stigma of mental health is declining in the United States — 76% of Americans believe that mental health is as important as physical health.[22]

The Questionnaire:

Dr Mehdi and I developed a questionnaire with 21 questions on social determinants of mental health. The questionnaire was shared with our contacts, so there is a risk of bias here, but all responses were collected anonymously. In the US questionnaire, I received 44 responses and in the Morocco questionnaire there were 46 responses. For this questionnaire, we analyzed whether there is an increase in some aspects of the social determinants of mental health in people with a mental health condition between the two countries.

Table 2. Questions we asked respondents

The question	Potential answers
Have you ever been diagnosed with a mental health condition?	Yes or No
If yes, did you take any medications?	Yes or No
How old are you?	A number
What is your current education level?	Below high school, completed high school, college, advanced degrees (Master's or Doctorate)
What is your parents' education level? (Indicate the education level for each applicable parent)	Free Response
How would you describe your socio-economical level? (1 is highest and 5 is lowest)	1-5
Were both parents present during your childhood?	Both, just one: father, just one: mother
Do you have a family history of mental health conditions?	Yes or No
Were you a victim of any kind of abuse or violence as a child? (Either physical or verbal?)	Yes or No
If yes, have you ever talked to anyone about it?	Yes: a family member or friend, yes: a mental health practitioner, or no
Do you have a family history of drug / alcohol abuse?	Yes or No
Do you have a personal history of addiction?	Yes or No
What is your relationship status?	Single, In a Relationship, Married, Divorced
Do you have any relationship issues with a family member or friend?	Yes or No
Have you ever or are you currently going through financial trouble?	Yes or No

Are you religious?	Yes or No
If so, does it play a large role in your life?	Yes or No
Did your parents place a significant amount of pressure on you as a child?	Yes or No
How did this make you feel?	Free Response
Was there a traumatic event in your past that significantly impacted your mental health in the long term?	Yes or No
Are there any barriers to accessing mental health support (Financial, cultural, religious etc.)?	Yes or No

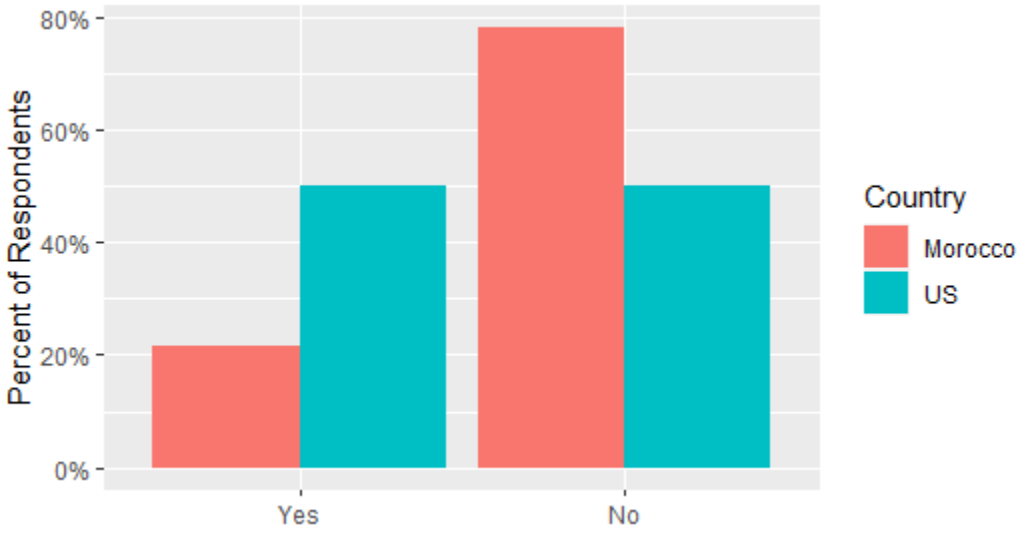

Figure 9. Answers to question 1 - "Have you ever been diagnosed with a mental health condition?" - which show that more respondents in the United States have been diagnosed with a mental health condition than those surveyed in Morocco.

The prevalence of the diagnosis was high in American respondents (proportion = 0.50, se = 0.075, 95% confidence interval = 0.363-0.637) compared to Moroccan respondents (proportion = 0.217, se = 0.063, confidence interval at 95% = 0.109-0.348). This result is not probable under

the null hypothesis (X-squared test; p = 0.0099, X-squared = 6.6539, df = 1, 95% confidence interval = 0.0705-0.495). Notably, the average age of respondents from the United States is 19.4 years and in Morocco the average age is 38.0 years. There is a small decrease in socioeconomic status for respondents who have a mental health condition (2.97 for Moroccans without a mental health condition, 2.50 for Moroccans without a mental health condition, 2.77 for Americans without a mental health condition. mental health condition and 2.86 for Americans with a mental health condition). However, this result is probable under the null hypothesis (F-statistic: 1.155 on 3 and 85 DF, p-value: 0.3319).

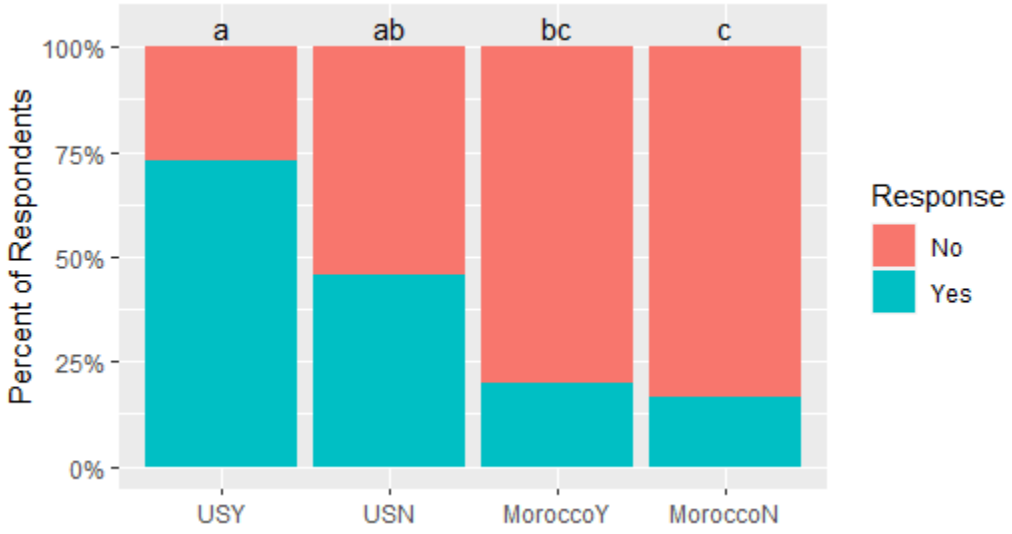

Figure 10. Responses to question 8 - "Do you have a family history of mental health conditions?" The x axis shows the country of the response and whether the respondents have a mental health condition and the y axis shows the response to question 8. Columns with different letters are statistically different.

As Figure 10 shows, there is an increasing rate for respondents who have a mental health condition in the United States compared to Morocco (Fisher's Exact Test Pairwise, the proportion

of American respondents who have a mental health condition and also a family history of mental disorders is 72.7% and the proportion of Moroccan respondents who have a mental health condition and also a family history of mental disorders is 20% (Fisher Pairwise Test, p = 8.37e-03). There is also a significant difference for the proportions in the responses between the two countries (Pairwise Fisher Test, $p < 0.05$)

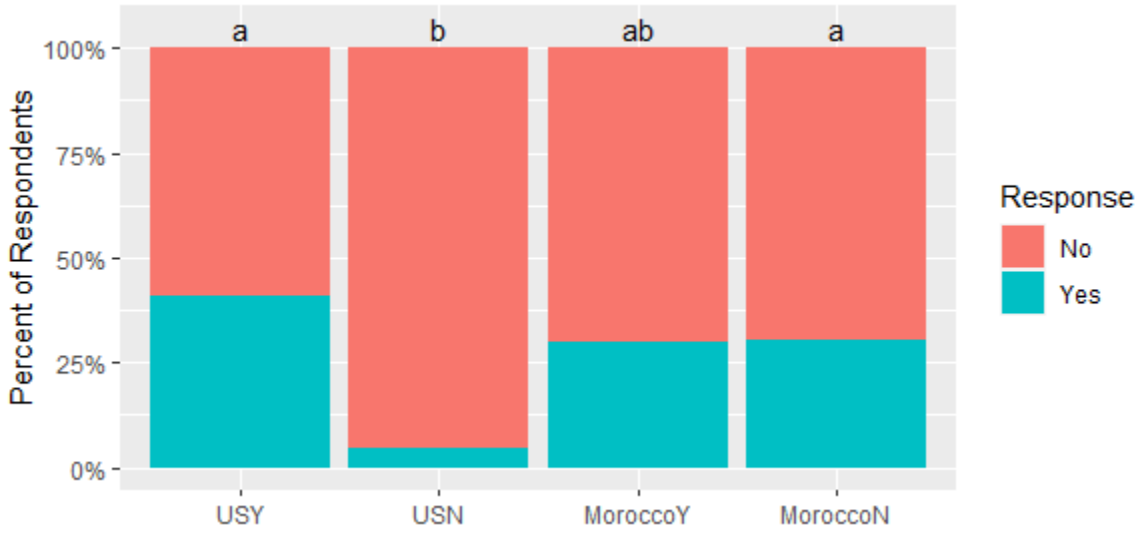

Figure 11. Responses to question 9 - “Were you a victim of any kind of abuse or violence as a child? (Either physical or verbal?)." The x axis shows the country of the response and whether respondents have a mental health condition and the y axis shows the response to question 9. The columns with the different letters are statistically different. There is a difference in the United States between the percentage of respondents who have a mental health condition (USY or USN) who are also victims of violence and a difference in the response between those who do not have a mental health condition (USN or MoroccoN).

In the United States, the proportion of those who were abused in the group with a mental health condition is higher than in the group without a mental health condition, indicating a correlation between childhood abuse and mental health conditions for these respondents in the

United States (Fisher's Exact Test Pairwise, $p = 0.00934$). There are also a greater proportion of respondents who are victims of abuse who do not have a mental health condition in Morocco than in the United States (Fisher's Exact Test Pairwise, $p = 0.02070$). This result could indicate that there is an underdiagnosis in Morocco if those who have been abused have the same rates of mental health conditions.

For question 11, there is not a statistically significant difference between the proportions of respondents from either country who have a family history of alcohol or drug abuse (22.2% of Moroccan respondents without a mental health condition have a family history of alcohol or drug abuse, 40% of Moroccans with a mental health condition have a family history of alcohol or drug abuse, and 54.5% of American respondents with and without a mental health condition have a family history of alcohol or drug abuse; Fisher's Exact Test Pairwise, $p > 0.05$). Likewise, respondents to this questionnaire with a mental health condition do not have a high rate of a personal history of addiction to the report from the other country or to those without a mental health condition (11.1% of Moroccan respondents without a mental health condition have a personal history of addiction, 10% of Moroccans who have a mental health condition have a personal history of addiction, 9.1% of American respondents without a mental health condition have a personal history addiction and 18.2% of American respondents with a mental health condition have a personal history of addiction; Fisher's Exact Test Pairwise, $p > 0.05$).

There is also no statistically significant difference between the proportions of respondents among countries and between those with a mental health condition and those without a mental health condition for question 15: “Have you ever or are you currently going through financial trouble? ” (44.4% of Moroccan respondents without a mental health condition have experienced financial difficulties, 40% of Moroccans who have a mental health condition have experienced

financial difficulties and 27.3% of American respondents without and with a mental health condition have experienced financial difficulties; Fisher's Exact Test Pairwise, $p > 0.05$).

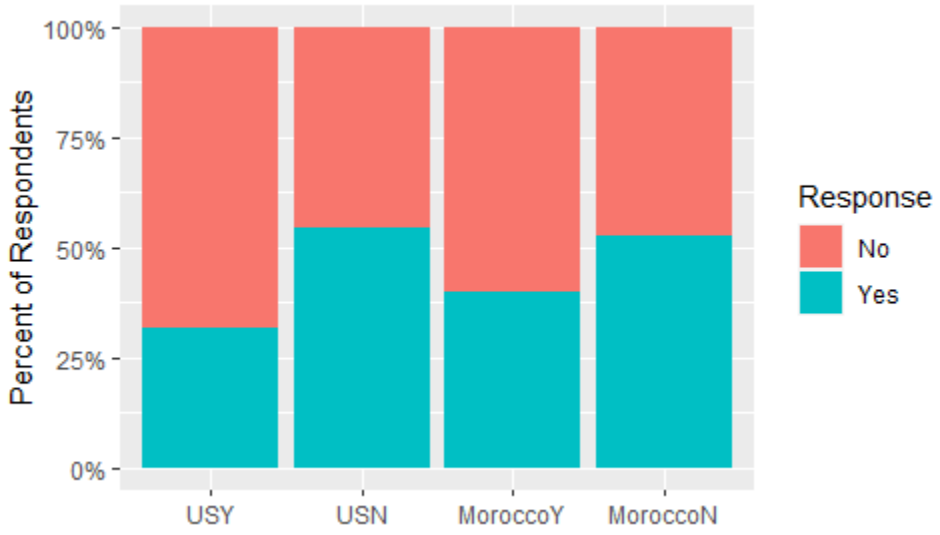

Figure 12. Answers to question 21 - "Are you religious?" The x axis shows the country of the response and whether respondents have a mental health condition and the y axis shows the response to question 16. This shows a small decrease in the rate of mental health conditions in the religious groups in both countries. However, this result is not statistically significant.

There seems to be a small correlation with lack of religion and mental health conditions (q.16 and 17; Figure 12), but there is not a statistically significant difference (52.8% of Moroccan respondents without a mental health condition are religious but 40% of Moroccans are religious and 54.5% of American respondents without a mental health condition are religious and 31.8% of American respondents with a mental health condition are religious; Fisher's Exact Test Pairwise, $p > 0.05$). This result could also potentially indicate under-reporting in religious communities.

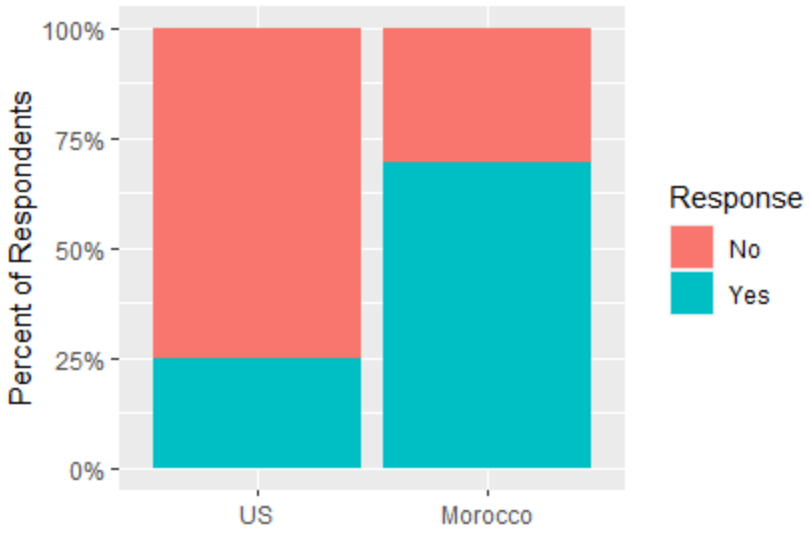

Figure 13. Responses to question 21 - "Are there any barriers to accessing mental health support (Financial, cultural, religious etc)?" The x axis shows the country of origin for respondents and the y axis shows the percentage of respondents who respond with "yes" or "no." This figure shows a greater problem for Moroccan respondents than American respondents with access to mental health care.

A very important result is the answer to question 21 - "Are there any barriers to accessing mental health support (Financial, cultural, religious etc.)?" About 70% of respondents say there is a barrier to accessing mental health support. This percentage is more than twice as large as the percentage for American respondents - 30%, which is not likely under the null hypothesis (Two Proportion z-test with Yates continuity correction, X-squared = 16.159, df = 1, p-value = 5.823e-05, 95% confidence interval = 0.239-0.652).

Conclusion

Work and school-related burnout and mental health conditions related to social factors are both common in the United States and Morocco. While the burnout rate for physicians is similar in the two countries — around 40% [3,4] — the rate of mental health conditions is higher in Morocco, a rate of around 48.9%,[19] than the United States, with a rate of around 20.6%.[20] However, according to the doctors with whom I spoke, perhaps even more Moroccans have mental health conditions that are not reported due to the cultural stigma around mental health and the problems with lack of access to mental health services — in this study, about 70% of Moroccan respondents indicate that there is a barrier to accessing mental health support, compared to 30% for Americans (Figure 13). Additionally, 76.6% of American respondents reported that they have a psychological help unit, only 30% of Morrocan respondents reported that they have one (Figure 3). There are plenty of other complicated factors, like the competitiveness of medical education at different stages and the obsessive work culture in the United States, or administrative tasks that contribute to burnout, but access to mental health support is the most urgent and the most important.

Considering the recommendation made by Panagioti M., et al. which shows in a meta-analysis that institutional interventions are more effective for burnout than personal change [8], I propose that in Morocco, it is essential to create a strong and national system to combat the stigma of mental health conditions and increase access to mental health resources, as 88.2% of Moroccan respondents without psychological unit indicated they would like one (Figures 3 and 4). This increase in access and reduction of stigma could be the foundation of more psychological units for students in schools and more psychologists in hospitals on-site for

psychological assessments on demand that will be needed when the stigma around mental health is reduced.

In the United States, I propose that even more mental health resources are needed in the context of the COVID-19 pandemic. About 65% of U.S. respondents said their stress levels were increased by COVID-19 (Figure 5). With this large increase in mental health issues, more resources are needed to keep up. Additionally, when it is safe, I suggest that students return to face-to-face classes as around 65% of US respondents think studying is more difficult online (Figure 6) and around 85% think face-to-face classes are better for mental health (Figure 7).

Disclaimer: This study does not meet the Institutional Review Board's definition of "generalizable" research - the sample size was too small and the method of participant selection was not robust enough.

References

1. Ana Maria Rossi, Pamela L. Perrewé, Steven L. Sauter. “Stress and Quality of Working Life: Current Perspectives in Occupational Health.” pp 37-38, 1 March 2006.
2. Abdellatif Bounsir. “Burnout Chez Les Étudiants de la Faculté de Médecine et de Pharmacie de Marrakech.” L'Université Cadi Ayyad, 2018.
3. Docteur Fatima Lahlou. Royaume Du Maroc Universite Sidi Mohammed Ben Abdellah Faculte De Medecine Et De Pharmacie Fes. “Le Burn Out En Milieu Hospitalier À La Ville De Fès : Enquête Auprès Des Médecins, juin 2013.
4. Kane, Leslie, MA. “Medscape National Physician Burnout & Suicide Report 2020: The Generational Divide.” *2020,* https://www.medscape.com/slideshow/2020-lifestyle-burnout-6012460
5. Mlle. CHICHOU Hajar. “L'environnement éducatif et la santé mentale des étudiants en médecine de Marrakech.” L'Universite Cadi Ayyad, 2018.
6. West, CP, Dyrbye, LN, Shanafelt, TD. (Mayo Clinic, Rochester, MN; and Stanford University Medical Center, Stanford, CA, USA). Physician burnout: contributors, consequences and solutions (Review). J Intern Med 2018; 283: 516– 529.
7. Shanafelt TD, Balch CM, Bechamps G et al. Burnout and medical errors among American surgeons. Ann Surg 2010; 251: 995–1000.
8. Panagioti M, Panagopoulou E, Bower P, et al. Controlled Interventions to Reduce Burnout in Physicians: A Systematic Review and Meta-analysis . JAMA Intern Med. 2017;177(2):195–205. doi:10.1001/jamainternmed.2016.7674
9. Abusanad, A., Bensalem, A., Shash, E., Mula‐Hussain, L., Benbrahim, Z., Khatib, S., Abdelhafiz, N., Ansari, J., Jradi, H., Alkattan, K. and Jazieh, AR (2021), Burnout in

oncology: Magnitude, risk factors and screening among professionals from Middle East and North Africa (BOMENA study). Psycho‐Oncology. https://doi-org.ezp2.lib.umn.edu/10.1002/pon.5624

10. WHO and the Calouste Gulbenkian Foundation (2014). Social determinants of mental health. WHO.
11. Fisher M, Baum F. “The social determinants of mental health: implications for research and health promotion.” Australian and New Zealand Journal of Psychiatry 2010; 44:1057 – 1063
12. Lemstra M, Neudorf C, D'Arcy C, Kunst A, Warren LM, Bennett NR. A systematic review of depressed mood and anxiety by SES in youth aged 10-15 years. Can J Public Health. 2008 Mar-Apr;99(2):125-9. doi: 10.1007/BF03405459. PMID: 18457287; PMCID: PMC6975760.
13. Lund C, Breen A, Flisher AJ, Kakuma R, Corrigall J, Joska JA, Swartz L, Patel V. Poverty and common mental disorders in low and middle income countries: A systematic review. Soc Sci Med. 2010 Aug;71(3):517-528. doi: 10.1016/j.socscimed.2010.04.027. Epub 2010 May 12. PMID: 20621748; PMCID: PMC4991761.
14. Surkan, PJ, Kennedy, CE, Hurley, KM, & Black, MM (2011). Maternal depression and early childhood growth in developing countries: systematic review and meta-analysis. Bulletin of the World Health Organization, 89(8), 608–615. https://doi.org/10.2471/BLT.11.088187
15. Allen, J., Balfour, R., Bell, R., & Marmot, M. (2014). Social determinants of mental health. International Review of Psychiatry, 26(4), 392–407. https://doi-org.ezp2.lib.umn.edu/10.3109/09540261.2014.928270

16. Chrousos GP, Gold PW. The concepts of stress and stress system disorders: overview of physical and behavioral homeostasis. JAMA 1992; 267(9):1244–1252.
17. de Kloet ER, Joels M, Holsboer F. Stress and the brain: from adaptation to disease. Nat Rev Neurosci 2005; 6:463–475.
18. Tafet GE, Bernadini R. Psychoneuroendocrinological links between chronic stress and depression. Prog Neuro-Psychopharmacol Biol Psychiatr 2003; 27:893–903.
19. Moussaoui D. Psychiatrie et santé mentale au Maroc [Psychiatry and mental health in Morocco]. Bull Acad Natl Med. 2007 Apr-May;191(4-5):781-2. French. PMID: 18225431.
20. Substance Abuse and Mental Health Services Administration. (2020). Key substance use and mental health indicators in the United States: Results from the 2019 National Survey on Drug Use and Health (HHS Publication No. PEP20-07-01-001, NSDUH Series H-55). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from https://www.samhsa.gov/data/
21. Charlotte Hajer. “The Economy of Mental Health: Inequalities in Access to Care in Morocco” Jadaliyya, https://www.jadaliyya.com/Details/31935/The-Economy-of-Mental-Health-Inequalities-in-Access-to-Care-in-Morocco.
22. “America's Mental Health 2018: Attitudes and Access to Care.” Cohen Veterans Network and National Council for Behavioral Health, 2018, https://www.thenationalcouncil.org/press-releases/new-study-reveals-lack-of-access-as-root-cause-for-mental-health-crisis-in-america/.

23. “Doctor is Out: Continuing Disparities in Access to Mental and Physical Health Care.” National Alliance on Mental Illness. 2017, https://www.nami.org/Support-Education/Publications-Reports/Public-Policy-Reports/The-Doctor-is-Out