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Mental Health and Gender Inequality in the MENA Region: An Analysis of Shock Related Factors Within the Context of the COVID-19 Pandemic

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Abstract
This paper investigates the potential associations between factors that affected households during the pandemic (such as food insecurity) and the gendered mental health inequalities in the MENA region. To analyze these potential associations, the paper used data from the World Health Organization (five-question module to measure mental health and well-being) and the ERF COVID-MENA Monitor Survey panel dataset. The results indicate a statistically significant difference in the mental health well-being between men and women, with women's mental health being significantly poorer than that of men. The results reveal that women, on average, worry more over the health consequences of the pandemic and the household's economic situation. The analysis also indicates that women on average report higher levels of food insecurity in their households, and this variable significantly explains the observed difference in mental health outcomes between genders. In terms of policy recommendations to address the burden of the pandemic affecting women's mental health as well as food insecurity, it is crucial to collect more sex-disaggregated data that allows for a more accurate assessment of the food insecurity situation in the MENA region from a gender perspective. To address food insecurity, governments and development partners are advised to invest in food assistance programs as well as to expand existing social safety net programs, especially those that improve female-headed households' access to healthy and nutritious food. In addition, governments are advised to improve access to mental health and psycho-social services for women, as well as to invest in public policies that allow domestic work to be redistributed equally among family members, including assistance and care services for young children.

Résumé

Cet article étudie les associations potentielles entre les facteurs qui ont affecté les ménages pendant la pandémie (comme l'insécurité alimentaire) et les inégalités de santé mentale selon le sexe dans la région MENA. Pour analyser ces associations potentielles, le document a utilisé les données de l'Organisation mondiale de la santé (module de cinq questions pour mesurer la santé mentale et le bien-être) et l'ensemble de données du panel ERF COVID-MENA Monitor Survey. Les résultats indiquent une différence statistiquement significative dans le bien-être de la santé mentale entre les hommes et les femmes, la santé mentale des femmes étant nettement plus mauvaise que celle des hommes. Les résultats révèlent que les femmes, en moyenne, s'inquiètent davantage des conséquences sanitaires de la pandémie et de la situation économique du ménage. L'analyse indique également que les femmes déclarent en moyenne des niveaux plus élevés d'insécurité alimentaire dans leurs ménages, et cette variable explique de manière significative la différence observée dans les résultats de santé mentale entre les sexes.

En termes de recommandations politiques pour faire face au fardeau de la pandémie affectant la santé mentale des femmes ainsi que l'insécurité alimentaire, il est crucial de collecter davantage de données ventilées par sexe qui permettent une évaluation plus précise de la situation de l'insécurité alimentaire dans la région MENA à partir d'un perspective de genre. Pour lutter contre l'insécurité alimentaire, il est conseillé aux gouvernements et aux partenaires de développement d'investir dans des programmes d'assistance alimentaire ainsi que d'étendre les programmes de filets sociaux existants, en particulier ceux qui améliorent l'accès des ménages dirigés par des femmes à des aliments sains et nutritifs. En outre, il est recommandé aux gouvernements d'améliorer l'accès aux services de santé mentale et psychosociaux pour les femmes, ainsi que d'investir dans des politiques publiques permettant une redistribution équitable du travail domestique entre les membres de la famille, y compris des services d'assistance et de soins pour les jeunes enfants.

1. Introduction

Since the outbreak of COVID-19 and its rapid spread throughout the globe, several actors and international players have expressed deep concerns about the effects of the pandemic on the psychosocial well-being of people. Although this pandemic is essentially a health emergency, it has had important spillover effects on people's livelihoods, including unemployment and financial instability caused by the economic fallout from the crisis. These economic and health shocks might trigger high degrees of anxiety, panic, depression, and uncertainty. Furthermore, these psychological impacts may translate into gender inequalities as pre-existing inequalities in socioeconomic and psychosocial factors (such as employment, food security, education etc.) were already prominent in the Middle East and North Africa (MENA) region and beyond (Blundell et al. 2020; Dang & Viet-Nguyen, 2020; OECD, 2020; UNICEF 2020). The pandemic is thus exacerbating these trends and further widening the pre-pandemic gendered mental health gap (Rosenfeld & Mouzen, 2013).

Even though COVID-19 has exacerbated existing challenges and added new threats to the overall population, some disadvantaged groups are more severely affected by these hindrances, namely women. According to research evidence from countries highly affected by COVID-19, the pandemic has heightened anxiety disorders (Huang & Zhao, 2020), mental distress (Pierce et al., 2020), post-traumatic stress symptoms (Liu et al., 2020), and loneliness (Li & Wang, 2020) particularly amongst females. In the case of Tunisia, women presented extreme severity for the three axes of the Depression Anxiety Stress Scales (DASS-21) (Sediri et al., 2020). Moreover, in the context of social isolation and closure of schools, parents reported high levels of anxiety and/or depression due to limited financial and social resources, and a global sense of "loss of control from the juggle between homeschooling and remote work all combined with limited outsourced help" (Almeida et al., 2020, p. 4). However, because cross-cultural traditional gender norms bestow on women the bulk of caregiving responsibilities and the burden of household chores, these heavy loads of parental stress came as a consequence especially for mothers (ibid).

In this study we investigate the potential associations between COVID-19 related factors affecting the household and the gendered mental health inequalities in the MENA region. Even though we do not attempt to make causal claims in this paper since we lack information prior to the pandemic, we argue that investigating the association between COVID-19 related factors and the inequality in mental health is of value given the paucity of research on this topic, with most existing studies focusing on Western societies.

In an attempt to address this research gap, both from a global and regional perspective, this study aims to quantify the extent of the association between factors affecting the household (such as food insecurity or unemployment) which are likely exacerbated due to the pandemic and the difference in mental health between men and women in the MENA region. To this end we make use of the ERF COVID-MENA Monitor Survey panel dataset. This rich data is collected by the Economic Research Forum (ERF) using a series of short panel phone surveys that are conducted approximately every two months, covering topics such as demographic and household characteristics which are fitting for our analysis (ERF, 2021). The data has been collected over 2020 and 2021 for 5 countries in the MENA region (Egypt, Tunisia, Morocco, Jordan, and Sudan). The data for Sudan was not included in the analysis of this paper since it was not yet available at the onset of the study. Using the data for Egypt, Morocco, Tunisia, and Jordan, we analyze the main drivers of the gender mental health gap by quantifying the relative importance and contributions of these COVID-19 related shocks and changes on the gendered mental health inequality. We focus on the common hypothesized mechanisms of differential labor market, income and COVID-19 related changes triggered or exacerbated by the pandemic. To identify the drivers of the gender mental health gap, and the role of COVID-19 related shocks in explaining this gap, an extension of the Oaxaca-Blinder (OB) decomposition is utilized (Blinder, 1973; R. Oaxaca, 1973). More specifically, the OB method is employed to decompose the gap in mental health well-being.

The rest of the paper is organized as follows: in the next section we present a review of the literature comprising a global overview of COVID-19, mental health and gender inequality followed by a conceptual framework of the relationship between gender roles and mental health. In section 3 we present the data and the methodology employed for the analysis, including an alternative methodology as a robustness check. The descriptive statistics and main results are discussed in section 4. Finally, the paper's conclusions and policy recommendations are provided in section 5.

2. Literature Review

2.1. COVID-19, Mental Health, and Gender Inequality: Global Overview

Since the onset of the pandemic caused by the novel SARS-CoV-2, also referred to as COVID-19, and its rapid spread throughout the globe, several actors and international players have expressed deep concerns about the effects of the pandemic on the psychosocial well-being of people. More than just a health emergency, the pandemic has had important spillover effects on people's livelihoods. The World Health Organization (WHO) has warned since the beginning of the emergency that new measures to curb the transmission of the virus, such as self-isolation and quarantine, may lead to an increase in loneliness, anxiety, depression, insomnia, harmful alcohol, and drug use, and self-harm or suicidal behavior (World Health Organization, 2020). Likewise, unemployment and financial instability caused by the economic fallout from the crisis might trigger high degrees of anxiety, panic, depression, and uncertainty (Dong & Bouey, 2020).

During the first quarters of the pandemic, some studies have attempted to identify direct and indirect effects of the health crisis on people's mental health. Despite the scarcity of research that provides evidence on the direct effects of the virus infection on psychiatric symptoms, the global literature seems to point to a common understanding that indirect effects of the pandemic may in fact increase and worsen posttraumatic stress symptoms (PTSS), posttraumatic stress disorder (PTSD), anxiety and depression (Sønderskov et al., 2020; Vindegaard & Benros 2020; Brooks et al., 2020; Atchison et al., 2020). Although the impact of the pandemic on mental health and psychosocial well-being is a phenomenon that is affecting the entire population by disrupting people's usual activities, routines and livelihoods, some groups stand out as being more vulnerable to experiencing such effects. This is the case for women.

In the first months after the commencement of social distancing and lockdown periods, reported cases of domestic violence across the world skyrocketed (UN Women, 2020). Moreover, the pandemic has shown to exacerbate pre-existing inequalities that have disproportionately affected women, such as job losses, increased financial dependence on their husbands, overburden of household tasks, food insecurity, restricted autonomy in their reproductive and sexual health, and lack of available support services (Chaparro & Alfonso 2020). These together may considerably increase levels of stress and undermine the quality of women's mental health. Indeed, studies from China where COVID-19 first surfaced have found that self-reported levels of stress, anxiety, depression, and PTSD are significantly higher among women (Wang et al, 2020a, b; Liu et al. 2020).

2.2. The Relationship Between Gender Roles and Mental Health: A Conceptual Framework

Prior to the onset of the pandemic, the gender gaps in mental health were also present and significant globally. Stratification theory suggests that gender inequality in mental health exists in part because of the gender gaps in other important areas for socioeconomic development, such as access to economic opportunities, resources, and power (Gove & Tudor 1973; Mirowsky & Ross, 2009; Seedat et al. 2009). Previous studies have shown that women experience higher levels of anxiety, depression, and other mood disorders because "women often are disadvantaged across mental health-related resources (e.g., market work) and conditions (e.g., felt control) that are part of stratification processes" (Yount et al. 2014, p. 185). In line with the stratification theory, such deprivations can be largely attributed to the different gender roles that women and men play in society, which for many years have positioned women in more disadvantaged conditions than men (Hill & Needman, 2013). Indeed, the WHO (n.d.) has stressed that traditional gender roles play an important part in key gender differences in the patterns of mental illness.

The way in which the literature has explored the conceptualization of gender roles varies according to the ideological underpinnings of each theory. Traditionalists and natural biology advocates have assigned gender roles according to the biological sex individuals are born with, and therefore their physical attributes. In fact, the symbolic image of women and men through their biological sex is at the core of virtually all societies (Nussbaum, 2000). These advocates have legitimized the role of men in society as breadwinners as they are usually more aggressive, run faster and lift heavier weights; features representative of "masculinity" (Lindsey, 2015, p. 162). Women, on the

other hand, would have their mobility limited by pregnancy, childbirth and nursing; therefore, they are seen as "natural" givers of love and care, which makes them responsible for "the rearing of children and care for home, husband, and family (Nussbaum, 2000, p. 242). This division of labor based on biological sex differences conditioned the institutionalization of the male dominance over women, within the family and in society in general (Lerner, 1986, p. 239).

According to the WHO (n.d. p. 1), these gender differences in roles determine the differential "power and control men and women have over the socioeconomic determinants of their mental health and lives, their social position, status and treatment in society and their susceptibility and exposure to specific mental health risks." For example, there are specific common mental disorders and chronic illnesses with gender differences, including depression, anxiety, and somatic complaints. These are disorders in which women predominate, affecting one-third of the population and constituting a serious public health issue (WHO n.d.; Rosenfield & Mouzon 2012). Finally, the gender-specific risk factors for these common mental disorders that disproportionately affect women include "gender-based violence, socioeconomic disadvantage, low income and income inequality, low or subordinate social status and rank and unremitting responsibility for the care of others" (WHO, n.d., p. 1). As seen earlier, these are all factors that were disproportionately exacerbated by the COVID-19 pandemic.

2.3. COVID-19, Mental Health and Gender Inequality in the MENA Region

Differentiated impacts of the pandemic on women's socioeconomic status have also been observed in the MENA region. In Tunisia, before the pandemic, there were significant gender gaps in labor force participation, employment, and unemployment rates. Women were less likely to participate in the labor force than men and those that did participate experienced higher unemployment rates; marriage and unpaid domestic work are key reasons explaining women's low labor force participation in the country (Hanmer et al., 2017; Assaad et al. 2017). Indeed, an OECD report has shown that in Tunisia women's informal labor in agriculture and as domestic workers have made them vulnerable to job losses and that "most women-led SMEs are closed because of the crisis" (OECD, 2020 p. 7). In Egypt, the female-to-male employment ratio was 0.3 in 2012, as women's participation in the labor force was 24 percent in comparison to 79 percent for men at the time (Hendy, 2015). During the pandemic, Egypt's unemployment rate rose to a near two-year high, with women's unemployment rate at 16.2 percent, nearly double that of men's (El Habachi, 2020).

Arab Barometer data shows there were more job losses among women than men in countries of the region (El Habachi, 2020). Another study pointed out that by November 2020 the total unemployment rate in Morocco was 30 percent, in Tunisia 22 percent and in Egypt 9 percent; however, for women the situation was even worse with 52 percent in Morocco; 41 percent in Tunisia and 16 percent in Egypt (Alayli, 2020). Furthermore, most of the recovery in labor force participation and employment rates documented in 2021 has been concentrated among men in these countries, and particularly worst for Jordan and Egypt. In February 2021, the employment rate was 16 percent among Jordanian women and 21 percent among Egyptian women (Krafft et al., 2021).

In addition to economic instability, another factor that has been particularly decisive for women from the MENA countries is related to food insecurity. Although the global literature does not establish a direct link nor discuss in-depth the relationship between food insecurity and mental health, a study conducted by Chiwona-Karltun et al. (2020) suggests that concerns about the local spread of COVID-19 and the economic impact brought by the pandemic also increase the probability of experiencing food insecurity. Indeed, the MENA region is considered as one of the most vulnerable areas to food insecurity. A recent multi-partner report on Global Food Crises estimates that close to 265 million people globally could be suffering from "acute food insecurity" following the pandemic, with 43 million in the Middle East and Asia (FSIN, 2020) Disruptions in food supply chains affect more adversely poor and vulnerable households, which are predominantly run by women, particularly in terms of day-to-day purchases of fresh products (Devereux et al., 2020; Harris et al., 2020; Malapit et al., 2020). Previous studies show that in some countries of the MENA region, women tend to experience food insecurity more acutely because they are over-represented in the informal sector and have less access to resources, networks, and decision-making power (Malapit et al. 2020). Hence, the issue of economic instability and food insecurity may represent not only a back-tracking of MENA women's achievements in terms of economic empowerment, but also the likelihood of a greater burden in terms of psychosocial well-being.

Prior to the arrival of the first COVID-19 cases in the MENA region, the countries of the region were already characterized by higher than the global average burden of mental health conditions. Many countries of the region are in complex emergency situations dealing with the consequences of war and conflict combined with economic challenges. While the official number on the burden of mental health conditions in the MENA countries (4.7% of the total disease burden in the Eastern Mediterranean Region (EMRO) in 2015) (Mokdad, 2015) may be lower compared to that in Europe with 15.2% of all disease burden attributed to mental health disorders, it has been argued that this could be due to severe lack of data and invisibility of the problem.

According to the survey conducted by Arab Barometer prior to the pandemic[1] roughly one-third (35 percent) of the respondents across the surveyed countries answered that they feel frequently stressed and 29 percent indicated to be suffering from depression (Thomas, 2019). Among the countries studied, Tunisians (53 percent) and Jordanians (42 percent) were most likely to report stress. In Tunisia and Egypt, the urban populations were found to be more likely to report stress. In Morocco, however, the rural population was found to be more likely to report stress, with no substantive difference between urban and rural populations in Jordan (Thomas, 2019). Tunisians were also found to be more likely to suffer from depression (40 percent) with Moroccans to be least likely to report feeling depressed. In all countries under this study (Tunisia, Jordan, Egypt, and Morocco) rural populations were found to be more likely to report being depressed than their counterparts (Thomas, 2019).

Although current research points to the general adverse effects that women in MENA countries are facing due to the COVID-19 pandemic, little is known about the impacts on women's mental health. To the best of our knowledge, there is a gap in the literature which specifically focuses on analyzing the effects of the COVID-19 outbreak on women's mental health in the MENA countries. Based on the assumptions discussed above, we hypothesize that since traditional female gender roles as housewives and caregivers are predominant in the MENA countries (Jamal et al., 2021), they are predominantly responsible for getting groceries and family nutrition. Thus, they are likely to experience more anxiety and stress over the fluctuations in food prices, disruptions in the food supply chains and access to markets and food. This assumption is because women have better access to information about the food markets and security while having less economic power which would also explain that they are generally more likely to report changes in food security levels compared to men. Thus, if there is no money to buy food, or if a family member needs medical care to treat symptoms of COVID-19 infection, women are the first to take over the frontline of these activities.

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[1] The wave V was conducted between 2018 and 2019, and included 12 countries in the MENA region, including the four countries discussed in the present paper.

3. Data and Methodology

3.1. Data

In this paper we use the ERF COVID-MENA Monitor Survey panel dataset collected by the Economic Research Forum over 2020 and 2021 using a series of short panel mobile phone surveys conducted in Egypt, Tunisia, Morocco, Jordan, and Sudan. These surveys are conducted approximately every two months, covering topics such as demographic and household characteristics, labor market status, income, and employment characteristics, among others. The data for Sudan was not included in the analysis of this paper since it was not yet available at the start of the study.

The survey considers the key demographic and socio-economic characteristics of each country in the questionnaires' design to understand the different distributional consequences of the COVID-19 impact and responses to it. This design allows further study of the effect of the pandemic on different vulnerable groups including women, informal and irregular workers, low skilled workers, and youth.

The ERF COVID-19 MENA Monitor Survey is a wide-ranging, nationally representative panel survey. The baseline wave of this dataset was collected in November 2020 for Morocco and Tunisia, and in February 2021 for Jordan and Egypt, and harmonized by the Economic Research Forum. In this study we use the two first waves of data (Wave 1 and Wave 2) for the four countries available at the onset of the study — specifically, Egypt, Morocco, Tunisia, and Jordan. However, the analysis focuses on the results for Wave 2 since this is the only round for which the key mental well-being variable was available for the full sample of the 4 countries — in Wave 1 the mental well-being variable was only available for Tunisia and Morocco. Moreover, the decomposition results indicate that the gaps in mental well-being are only statistically significant in the case of Egypt and Morocco. For this reason, our main analysis is centered around the results for these two countries and for the pooled sample of the 4 countries captured in Wave 2.

A key section of the dataset used in this study is the World Health Organization's five-question module to measure self-reported current mental well-being as the outcome of interest. The five component questions aim at identifying feelings and sentiments of an individual's current mental state by asking individuals to answer on a scale from 0 "at no time" to 5 "all of the time" whether the respondent has:

1. Felt cheerful and in good spirits;
2. Felt calm and relaxed;
3. Felt active and vigorous;
4. Woken up feeling fresh and rested;
5. Felt their daily life has been filled with things that interest them.

The scale responses are then summed to a total of twenty-five and multiplied by four to have a 0-100 scale, with 100 representing the highest mental well-being (WHO-5 mental well-being index). This scale has been found to have validity for screening for depression, capturing mental well-being outcomes in clinical trials and has been validated in various contexts (Downs et al., 2017; Krieger et al., 2014; Topp et al., 2015). In this sense the variable may be considered an indication of the respondent's mental health.

The main hypothesized mechanism underlying the gendered mental health gap is the prevalence of differences in food security as experienced by men and women during the pandemic which is highlighted in the literature (Burke et al., 2020; UNWOMEN & UNESCWA, 2020; WFP Gender Office, 2020). Food insecurity has been consistently shown to be a significant negative determinant of mental well-being (Jones, 2017) and has been on the rise since the onset of the pandemic (Amare et al., 2021). In this study the food constraint or insecurity scale is constructed by summing up the occurrence in the past week of five food security related events resulting in a scale of 0-5: (1) difficulties in accessing markets due to COVID-related restrictions; (2) inability to buy the same amount of food due to shortages; (3) inability to buy the same amount of food due to increased prices; (4) inability to buy the amount of food due to lowered incomes and; (5) reducing the number or portion of meals. Although the food insecurity variable is captured at the household level while the mental health is reported at the individual level, the survey allows us to identify the gender of the respondent. Thus, we exploit the variation in reported household food insecurity as experienced by males and females and investigate its association to the difference in their reported mental well-being.

Given men and women's differential roles within the household —with women, on average, participating less in the labor market and thus to a greater extent in the management of the household's resource allocation— we hypothesize that a given level of food insecurity reported by both genders alike, may impact to a greater extent the mental state of females. In this context it is likely that women have greater access to information about the extent of the resource scarcity faced by their households due to the budgetary constraints resulting from the imposed lockdowns. It is important to note that in the present study we do not attempt to claim causality between the gendered mental health gap and the food insecurity differential since there may be gender-related selection bias in phone response. However, related to this, the empirical literature on political reservation has shown that female leaders favor to a greater extent health and nutrition outcomes (Pathak and Macours, 2017).

Another mechanism under study is the labor market impacts of the pandemic and how its differential impacts for men and women can help explain the potential mental health gaps. Here an indicator on a scale of -1 to 1 is constructed to capture labor market shifts experienced since the onset of the pandemic with -1 being positive labor market shifts, 0 representing no labor market changes and 1 representing negative labor market changes. Negative changes in the labor market status of the household head refer to shifts from paid employment or outside of the labor force (student, retired, not employed, and not looking) to any of the following states: unemployment, unpaid family work, or housewife.

Other variables capturing potential pandemic-related impacts are a dummy variable for decreased income since the onset of COVID-19 and a coping strategy sum scale capturing the number of coping strategies resorted to. This variable indicates the total number of coping strategies adopted by the household. Possible coping strategies include: (i) Taking money out of savings; (ii) Taking money from friends, family, relatives, or friends; (iii) Taking money from friends, family, relatives, or friends abroad; (iv) Going back to the village or family; (v) Borrowing from a bank, employer; and (vi) Selling assets.

A set of sociodemographic control variables, which have been found in the literature to be related to mental health, are included in the main specifications to adjust for these potentially confounding variables. These include pre-pandemic employment status (employed, unemployed, inactive), age, urbanity, household size, children ratio in the household, educational attainment, and marital status.

3.2. Empirical Strategy

The Oaxaca-Blinder (OB) decomposition model is utilized to quantify the drivers of the mental health gap during the pandemic (Blinder, 1973; Oaxaca, 1973). This methodology allows the quantification of the relative contribution of each studied determinant to the mental health difference into a part explained by differences in the averages of observed characteristics used in the model (the 'explained part') and the differences due to the coefficients – or return to these characteristics (the 'unexplained part') (Fortin et al., 2011).

The standard OB method is based on two steps. Firstly, two separate linear (OLS) regressions are fitted on the main explanatory and control variables of interest determining mental well-being (the WHO-5 mental well-being index, MH) for females (f) and males (m) separately to derive the differing return on characteristics by sex respectively, as:

$$\overline{MH}_m = \hat{\beta}_m \bar{X}_m + \varepsilon_m \quad \text{where} \quad \varepsilon_m \sim N(0, \sigma^2_{\varepsilon m}) \tag{1}$$

$$\overline{MH}_f = \hat{\beta}_f \bar{X}_f + \varepsilon_f \quad \text{where} \quad \varepsilon_f \sim N(0, \sigma^2_{\varepsilon f}) \tag{2}$$

where $\overline{MH}_m$ and $\overline{MH}_f$ represent the average values of mental health (measured by the WHO-5 mental well-being index), $\bar{X}_m$ and $\bar{X}_f$ represent the average values of a vector of determinants of mental health, or the observed characteristics determining mental health, of males' $(\bar{X}_m)$ and females' $(\bar{X}_f)$, $\hat{\beta}_m$ and $\hat{\beta}_f$ are the estimated parameter vector effects of these characteristics on mental health including intercepts, and ε_m and ε_f are random error terms of the models.

The standard two-way OB decomposition can then be used to decompose the average mental health score gap between males and females[2]:

$$\Delta \overline{MH} = \overline{MH}_m - \overline{MH}_f \qquad (3)$$

with a part explained by the differences in means of the included explanatory variables ('*explained*' part), and a part due to differences in the returns to these characteristics ('*unexplained*' part) by using the outputs of equations (1) and (2) and computing the standard OB decomposition where the mental health gap is estimated as:

$$\Delta \overline{MH} = \left(\hat{\beta}_{m0} - \hat{\beta}_{f0} \right) + \underbrace{\sum_{k=1}^{K} \bar{X}_{fk} \left(\hat{\beta}_{mk} - \hat{\beta}_{fk} \right)}_{\Delta_{Coefficient\ effect}^{MH}\ (Unexplained\ part)} + \underbrace{\sum_{k=1}^{K} (\bar{X}_{mk} - \bar{X}_{fk}) \hat{\beta}_{mk}}_{\Delta_{Endowment\ effect}^{MH}\ (Explained\ part)} \qquad (4)$$

The explained part estimates the part of the mental health gap $(\Delta \overline{MH})$ that can be explained by the differences in characteristics of females compared to males, assuming both groups have the same average returns to these characteristics: $\sum_{k=1}^{K} (\bar{X}_{mk} - \overline{X_{fk}}) \hat{\beta}_{mk}$. In other words, the explained part quantifies the level of mental health the females would have if they had the same level of characteristics as males (Jann, 2008). The unexplained part denotes the extent of the mental health gap resulting from the differences in the returns to each characteristic, $(\hat{\beta}_{mk} - \hat{\beta}_{fk})$, and intercepts $\left(\hat{\beta}_{m0} - \hat{\beta}_{f0} \right)$ while assuming the two groups have identical characteristics, $\bar{X}_{mk}$. This measures the expected mental health levels of females if they had the same returns to characteristics as the males.

Decompositions are nevertheless sensitive to the choice of reference group which is often arbitrarily chosen – this is known as the path-dependence or index number issue. The choice of reference coefficients often follows the common approach taken in the labor economics literature of choosing the more advantaged group as the reference group to compare the more disadvantaged group to this counterfactual (Madden, 2010). Adopting this approach in this case, the reference group would be males who, on average, have been consistently found to enjoy better mental well-being and various socioeconomic outcomes. However, some have argued that in certain circumstances, there are no appropriate reference structures or norms. Other propositions have thus been suggested, such as giving equal weight to the coefficients of both groups (Reimers, 1983), weighting the coefficients in each group by the respective size of observations in each (Cotton, 1988) and the most common alternative approach of using a pooled regression either including the group indicator (Fortin, 2008; Jann, 2008) or excluding it (Neumark, 1988).

For this paper we ran the main analysis using the pooled regressions of the Oaxaca-Blinder (OB) decomposition (hereinafter called 'pooled OB') and the standard two-way OB decomposition with males as the reference group for robustness. Note that in this case the 'pooled' term does not refer to the sample of countries, but rather to the method of decomposition. We also ran the standard two-way OB since the literature does not seem to establish whether either males or females should be regarded as the reference or norm. The results are substantially similar. For synthesis purposes, in the results section we only report the analysis using the pooled OB regressions.

For the pooled OB decomposition, we adopt the approach of Fortin et al. (2011) and Jann (2008) which includes the group indicator of sex in the pooled reference model as it has been shown that the exclusion of the group indicator may lead to omitted variable bias which can thus bias other covariates and affect the unexplained component (Elder et al., 2010). Following this approach, the first step of the traditional OB decomposition is augmented by fitting a third linear regression for the reference model (in addition to equations (1) and (2) which pools males and females and adds a binary indicator variable for group membership (sex; male or female):

$$\overline{MH}_m = \hat{\beta}_m \bar{X}_m + \varepsilon_m \qquad (5)$$

$$\overline{MH}_f = \hat{\beta}_f \bar{X}_f + \varepsilon_f \qquad (6)$$

$$\overline{MH}_p^* = \hat{\beta}_p^* \bar{X}_p^* + \delta female + \varepsilon_p^* \qquad (7)$$

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[2] The Oaxaca command is used in STATA 16.

The return to coefficients of the pooled model (7) are then used as the reference group in the pooled OB decomposition which is a modification of the standard OB approach (4):

$$\Delta\overline{MH} = \sum_{k=1}^{K}(\bar{X}_{mk} - \bar{X}_{fk})\,\hat{\beta}_{pk}^{*} + \underbrace{\sum_{k=1}^{K}\bar{X}_{mk}\,(\hat{\beta}_{mk} - \hat{\beta}_{pk}^{*}) + \sum_{k=1}^{K}\bar{X}_{fk}\,(\hat{\beta}_{pk}^{*} - \hat{\beta}_{fk})} \qquad (8)$$

$$\underbrace{}_{\Delta_{Endowment\,effect}^{MH}\,(Explained\,part)} \qquad \underbrace{}_{\Delta_{Coefficient\,effect}^{MH}\,(Unexplained\,part)}$$

where $\bar{X}_{mk}$ and $\bar{X}_{fk}$ denote the average values of a vector of observed characteristics assumed to determine mental health of males and females respectively (for variables k =1, …, K), $\hat{\beta}_{mk}$, $\hat{\beta}_{fk}$ and $\hat{\beta}_{pk}^{*}$ are the estimated parameter vector effects of these characteristics on mental health for males, females and the pooled model with the group membership (sex) indicator variable respectively (for variables k =1, …, K).[3]

The explained part here captures the part of the mental health gap $(\Delta\overline{MH})$ that can be explained by the differences in observed characteristics of females in contrast to males, assuming both groups have the same average returns to these characteristics that are derived from the pooled model gender-neutral reference coefficients: $\sum_{k=1}^{K}(\bar{X}_{mk} - \bar{X}_{fk})\hat{\beta}_{pk}^{*}$. The explained part quantifies the gender gap of mental health arising because females and males have different endowments of the characteristics that determine mental health. In other words, this component quantifies the level of mental health females would have if they had the same level of characteristics as males (Jann, 2008). The unexplained part here depicts the extent of the mental health gap resulting from the deviations of each group's returns to each characteristic from the average return derived from the pooled reference model: $\sum_{k=1}^{K}\bar{X}_{mk}\,(\hat{\beta}_{mk} - \hat{\beta}_{pk}^{*}) + \sum_{k=1}^{K}\bar{X}_{fk}\,(\hat{\beta}_{pk}^{*} - \hat{\beta}_{fk})$. The sum of these computations for each variable yields the aggregate endowment and coefficient effects and the relative contribution of each variable to these effects for variables k =1, …, K.

It must also be noted that OB decompositions are sensitive to the choice of omitted baseline categories when dealing with categorical variables (Fortin et al., 2011). Omitting a reference category also poses the issue of not being able to distinguish between the true unexplained part (difference in intercepts) from the part due to the differences in the base categories' coefficients. The following analysis adopts the solution developed by Yun (2005) where the vector of coefficients for categorical variables are transformed to their deviations from the grand coefficient mean and this coefficient mean is also added to the baseline category resulting in the sum of these coefficients equaling zero. The result is a mathematically equivalent model which avoids the omitted category issue.

To test the robustness of the OB decomposition results, we also employ the Gelbach decomposition which is path independent (Gelbach, 2016). A base model is first estimated where mental health is regressed on the gender variable:

$$MH_i = \hat{\beta}_0 + \hat{\beta}_1^{base}female_i + \hat{\varepsilon}_\iota \qquad (9)$$

and then the full model is estimated, adding the vector of explanatory variables determining mental health (X_k):

$$MH_i = \hat{\beta}_0 + \beta_1^{full}female_i + \hat{\beta}_{ki}^{full}X_{ki} + \hat{\varepsilon}_\iota \qquad (10)$$

The difference in the group membership indicator's coefficient in the base and full models, $\Delta = (\hat{\beta}_1^{base} - \hat{\beta}_1^{full})$, is the extent to which the unconditional mental health gap (β_1^{base}) is explained by the vector of coefficients included in X_k added in the full model. Using the formula for omitted variable bias, the difference between $\hat{\beta}_1^{base} - \hat{\beta}_1^{full}$ can be decomposed into the contributions of each individual covariates included in the vector X_k. Each covariate is regressed on the group membership indicator (sex) in auxiliary regressions to recover the estimated omitted variable bias of excluding each individual covariate in the vector X_k, which is captured by $\hat{\Gamma}_{female}^{k}$ from the auxiliary regressions: $X_k = \hat{\Gamma}_{female\,i}^{k} + u_i$, for all covariates k =1, …, K. These are then used to scale each covariate's effect on mental health respectively: $\hat{\pi}_k = \beta_k^{full} * \hat{\Gamma}_{female}^{k}$, for all covariates k =1, …, K. This yields the contribution of each covariate to the gendered mental health gap explained by these variables: $\Delta = \sum_{k=1}^{K}\beta_k^{full} * \hat{\Gamma}_{female}^{k}$, or $\Delta = \sum_{k=1}^{K}\hat{\pi}_k$. Essentially, the effect of each covariate in the full model is scaled by the gender difference in the value

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[3] The *Oaxaca* command with the option *pooled* is used in STATA 16.

of said covariate which results from the auxiliary regressions. In other words, this denotes the extent to which the gap can be explained by differences in characteristics, and each characteristic individual - similar to the OB interpretation. Dividing each contribution $\hat{\pi}_k$ by the unconditional gendered mental health gap, $\hat{\pi}_k \, / \, \hat{\beta}_1^{base} female$, yields the extent to which the gendered difference of each covariate explains the total unconditional gendered mental health gap, whilst the coefficient of the group membership indicator $\beta_1^{full} female$ in the full model represent the left over unexplained gendered mental health gap.

4. Descriptive Statistics, Results and Discussion

As specified in the previous chapter, the analysis in this study focuses on the results for Wave 2 since this is the only round for which the full data sample of the 4 countries is available (in Wave 1 the data was collected for Tunisia and Morocco only). The decomposition results indicate that the gaps in mental well-being are only statistically significant in the case of Egypt and Morocco. For this reason, our main analysis is centered around the results for these two countries and for the pooled sample of the 4 countries captured in Wave 2.

Table 1 presents the descriptive statistics in Wave 2 for the pooled sample of all four countries, as well as for Egypt and Morocco alone. The statistics for the mental well-being indicator, the WHO-5 scale, indicate that for the pooled sample of all 4 countries there is a positive and statistically significant gap between men and women, with the average male mental well-being approximately 2.5 percentage points higher than that of females. In Egypt and Morocco, the gap in WHO-5 mental well-being index is also positive, significant, and considerably higher in magnitude relative to the pooled sample (4.3 percentage points in Egypt and 7.5 in Morocco). Other measures relating to the respondent's mental state, such as the anxiety scales measuring the extent of worry over the pandemic and the household's economic situation, confirm that men suffer less from anxiety than women; for the pooled sample and the two separate countries the mean differences between men and women are negative and statistically significant. Note that these variables are highly correlated to the mental well-being WHO-5 scale and therefore are not included as main variables of interest in the decomposition analyses.

The statistics for the food insecurity scale also portray a disadvantaged position for females. Women respondents report on average statistically significant higher levels of food insecurity than men, though the magnitude of the gap is modest, particularly in the pooled sample, (0.2 based on a 5-point scale). In Egypt and Morocco, the gap is also significant and slightly larger in magnitude (0.38 for Egypt). In terms of the employment-related factors, the variable capturing negative shifts in labor market status presents differences between men and women which are significant, though low in magnitude (0.05 for the pooled sample and as low as 0.02 for Egypt, on a scale ranging from minus 1 to 1). In this case men report slightly more negative shifts in labor market status, most likely indicating their significantly higher participation in the labor force.

Finally, several additional sociodemographic characteristics present statistically significant differences based on gender (e.g., age, urbanity, household size and child ration). These variables are thus included in the decomposition analysis as socio demographic controls.

Table 1. Descriptive statistics (Wave 2)							
	All 4 countries: Pooled sample					Egypt	Morocco
	Male (M)	Female (F)	t-test Difference in means			Difference in means	
Variable	Mean SE	Mean SE	(M)-(F)	Min	Max	(M)-(F)	
Mental wellbeing (WHO-5 index) (1)	41.650 [0.377]	39.185 [0.420]	2.465***	0	100	4.360***	7.505***
Anxiety scale: Level of worry over COVID-19 (1a)	2.202 [0.017]	2.674 [0.022]	-0.471***	1	5	-0.536***	-0.555***
Anxiety scale: Level of worry over the economic situation (1b)	2.995 [0.017]	3.200 [0.018]	-0.205***	1	5	-0.390***	-0.325***
Food insecurity scale (2)	1.826 [0.023]	2.060 [0.028]	-0.234***	0	5	-0.382***	-0.379***
Shifts in labor market status (3)	0.075 [0.006]	0.021 [0.005]	0.054***	-1	1	0.020	0.077***
Decrease in income	0.497 [0.007]	0.480 [0.009]	0.017	0	1	-0.037*	-0.010
Number of coping strategies (4)	1.157 [0.014]	1.111 [0.017]	0.046**	0	6	0.052	0.043
Age	37.700 [0.172]	36.503 [0.208]	1.197***	18	64	0.887	1.666***
Urban	0.661 [0.007]	0.749 [0.007]	-0.088***	0	1	-0.079***	-0.162***
Household size	5.249 [0.034]	4.843 [0.036]	0.406***	1	54	0.270***	0.589***
Child household ratio	34.588 [0.429]	33.398 [0.478]	1.189*	0	500	-0.428	0.313

Notes:

The value displayed for t-tests are the differences in the means across the groups (i.e. males versus females).

Standard errors in parentheses. The asterisks indicate the p-values for the t-tests as follows: * p<0.10; ** p<0.05; *** p<0.01

(1) The **mental wellbeing WHO-5 index** is comprised by five component questions that aim at identifying feelings and sentiments of an individual's current state of mind. The individuals are asked to answer on a scale from 0 "at no time" to 5 "all of the time" whether the respondent has: 1) Felt cheerful and in good spirits; (2) Felt calm and relaxed; (3) Felt active and vigorous; (4) Woken up feeling fresh and rested; (5) Felt their daily life has been filled with things that interest her. The scale responses are summed to a total of twenty-five and multiplied by four to have a 0-100 scale, with 100 representing the highest mental wellbeing.

Table 2 presents the results for the pooled OB decomposition of the mental well-being gap, the preferred specification in this study. As mentioned above, we focus on the results for Wave 2 since it is the round for which the key mental health variable was consistently available for the full sample of countries at the time of the study (column 1). Additionally, to provide some country specific insights, we present the results in Wave 2 for Egypt (column 2) and Morocco (column 3), since the mental health gap is only statistically significant in these two countries. In the case of Tunisia and Jordan the mental well-being of women is not statistically distinguishable from that of men; as such, from a statistical viewpoint, there is no significant gap to decompose.

	All countries (Wave 2)	Egypt (Wave 2)	Morocco (Wave 2)
Panel 1: Summary estimates			
Males	41.65***	42.86***	47.11***
	(0.625)	(0.795)	(1.688)
Females	39.19***	38.50***	39.61***
	(0.675)	(0.999)	(2.140)
Difference in WHO-5 index (1)	2.465***	4.360***	7.505***
	(0.920)	(1.276)	(2.726)
Explained	1.218	1.040	4.189*
	(0.784)	(1.301)	(2.368)
Unexplained	1.247	3.320*	3.315
	(1.214)	(1.854)	(3.466)
Explained (in percentage)	49.40	23.85	55.82
Unexplained (in percentage)	50.60	76.15	44.18
Panel 2: Explained part (Detailed estimates)			
Food insecurity scale (2)	0.812***	1.003***	1.814**
	(0.217)	(0.286)	(0.718)
Shifts in labor market status (3)	-0.107	0.0159	-0.0276
	(0.0761)	(0.0451)	(0.239)
Decrease in income	-0.0472	0.0283	0.0682
	(0.0507)	(0.0510)	(0.274)
Number of coping strategies (4)	-0.0986	-0.136	-0.104
	(0.0808)	(0.171)	(0.186)
Baseline labor market status (5)	0.970**	0.758	1.298
	(0.452)	(0.762)	(1.061)
Panel 3: Unexplained part			
Food insecurity scale	-2.918**	-0.954	-3.614
	(1.280)	(1.450)	(3.217)
Shifts in labor market status	0.0653	-0.00482	0.974*
	(0.0988)	(0.0515)	(0.555)
Decrease in income	-1.879**	-1.505	-5.079
	(0.930)	(1.066)	(3.396)
Number of coping strategies	1.326	-0.958	1.587
	(0.908)	(1.210)	(2.983)
Baseline labor market status	0.836	0.228	1.331
	(0.686)	(1.173)	(1.702)
Constant	-1.087	7.169	8.085
	(5.302)	(6.760)	(14.17)
No. of observations	8628	2000	2002
Includes:			
Sociodemographic controls (5)	YES	YES	YES
Country controls	YES	NO	YES
Wave effects	NO	NO	YES

Notes:

Standard errors in parentheses. The asterisks indicate the p-values for the estimated coefficients as follows: * $p<0.10$; ** $p<0.05$; *** $p<0.01$

(1) The **mental wellbeing WHO-5 index** is comprised by five component questions that aim at identifying feelings and sentiments of an individual's current state of mind. The individuals are asked to answer on a scale from 0 "at no time" to 5 "all of the time" whether the respondent has: 1) Felt cheerful and in good spirits; (2) Felt calm and relaxed; (3) Felt active and vigorous; (4) Woken up feeling fresh and rested; (5) Felt their daily life has been filled with things that interest her. The scale responses are summed to a total of twenty-five and multiplied by four to have a 0-100 scale, with 100 representing the highest mental wellbeing.

(2) The **food insecurity sum scale** variable is based on the response to the question: In the past 7 days, have you or any household member experienced any of the following? (1) Difficulties in going to food markets due to mobility restrictions imposed by government/closures; (2) Unable to buy the amount of food we usually buy because of shortages of food in markets; (3) Unable to buy the amount of food we usually buy because the price of food increased; (4) Unable to buy the amount of food we usually buy because our household income has dropped; (5) Had to reduce the number of meals and/or the portion of each meal we would usually eat. The sum scale indicates, ranging from 0 to 5, indicates the number of deprivation items reported by the respondent. Thus a higher mark indicates a higher level of reported food insecurity.

(3) **Shifts in labor market status** is an indicator on a scale of -1 to 1 is constructed to capture labor market shifts experienced since the onset of the pandemic with -1 being positive labor market shifts, 0 representing no labor market changes and 1 representing negative labor market changes. Negative changes in the labor market status of the household head refer to shifts from paid employment or outside of the labor force (student, retired, not employed and not looking) to any of the following states: unemployment, unpaid family work, or housewife.

(4) This variable indicates the total **number of coping strategies** adopted by the household. Possible coping strategies include: (i) Taking money out of savings; (ii) Taking money from friends, family, relatives or friends; (iii) Taking money from friends, family, relatives or friends abroad; (iv) Going back to the village or family; (v) Borrowing from a bank , employer; and (vi) Selling assets.

(5) Baseline labor market status refers to the employement status of the respondent prior to Wave 1 of the survey.

Under the specified model, the 'explained' part accounts for up to 49 percent of the gap in Wave 2 for the pooled sample. In other words, nearly half of the mental health gap is explained by the differences in means of the included explanatory variables. In Egypt this explained percentage is lower (only 23 percent) while in Morocco the explained part accounts for fifty-five percent of the gap, similar in magnitude to the pooled sample.

The point estimates for each of the variables for the explained proportion of the gap are displayed in Panel 2 of Table 2. The variable which consistently yields significant coefficients is the household's level of food insecurity. The results indicate that the difference in the extent of food scarcity in the household between the female and male respondents is correlated with the gap in mental well-being between the two genders. The positive sign and statistical significance of this result is held for the pooled sample and for the two separate countries. This result suggests that the fact that women on average report higher levels of food scarcity in their households, is correlated significantly with the finding that women suffer more from anxiety and poorer mental well-being than men. This finding is consistent with the empirical evidence showing the prevalence of disparities in food insecurity between men and women during the pandemic (Burke et al., 2020; UNWOMEN & UNESCWA, 2020; WFP Gender Office, 2020). Moreover, food insecurity has been consistently shown to be a significant negative determinant of mental well-being (Jones, 2017) and has been on the rise since the onset of the pandemic (Amare et al., 2021).

The panel at the bottom of Table 2 displays the coefficients for the variables contributing to the 'Unexplained' part of the mental health gap. This component captures the extent to which a difference in the 'returns' to each variable contributes to the gap in mental well-being. In other words, the 'unexplained part' indicates how, for the same mean level of a variable, the mental well-being gap is explained by the difference in the effect of each variable on mental well-being for men versus women. In the case of the variable capturing food insecurity, the unexplained part is only statistically significant for the pooled sample of countries (Table 2, Panel 3). The coefficient for the unexplained part is negative indicating that, assuming men and women reported the same level of food insecurity, the gap in mental well-being between females and males would be smaller. More intuitively, this negative sign suggests that the association of food insecurity to mental well-being is greater for men. It is plausible that the differential effect of food insecurity on the mental well-being of men and women is related to their differential roles within the household. Women may be expected to be more knowledgeable about the household's constraints in terms of food availability and thus be better positioned to face the aliment scarcity given their much higher involvement in unpaid household labor (as documented in the literature review).

The ensemble of results for the explained and unexplained parts indicates that, for the pooled sample of countries, both components contribute to the differences in mental well-being status disfavoring women. As such, reducing the gender inequities in access to food resources could potentially reduce the inequality in mental well-being observed between the two groups.

Overall, the remaining variables included in the analysis do not yield robust significant results for the explained part of the model. The only exception is the variable capturing baseline labor market status. In particular, the results for the pooled sample indicate that men on average exhibit higher labor market status and that this is associated with the observed gap in mental well-being between the groups.

5. Conclusion and Policy Recommendations

Although this pandemic is essentially a health emergency, it has had important spillover effects on people's livelihoods, including unemployment and financial instability caused by the economic fallout from the crisis. These shocks have triggered high degrees of anxiety, panic, depression, and uncertainty. In this study we investigated the potential drivers explaining the observed gender gap in self-reported mental well-being within the context and time frame of the COVID-19 pandemic. Specifically, we focused on factors affecting household members' living experiences which are likely to have been exacerbated due to the restrictions imposed by lockdowns, namely food insecurity, labor market status, among others. This study provides a potential contribution since the research on mental health disparities in the MENA region is scarce with most existing studies looking at Western societies.

In the present study we analyzed the main drivers of the gender mental well-being gap by quantifying the relative importance and contributions of these COVID-19-related shocks and changes on the gendered mental health inequality. We focused on the common hypothesized mechanisms of differential labor market, income, and COVID-19 scarcity triggered or exacerbated by the pandemic. To understand the factors that may accompany worsening female mental wellbeing, and the impact of COVID-19 related factors in explaining this gap, we employed an extension of the Oaxaca-Blinder (OB) decomposition.

The results for Wave 2 of the pooled sample of the four countries as well as for Egypt and Morocco separately indicate that men report better mental well-being in comparison to women, as measured by the standard WHO-5 index scale. Moreover, this difference in the mental well-being perception between males and females can be explained within the OB model to a considerable extent by the gender differences (close to fifty percent for the pooled sample of countries). More specifically, the analysis indicates that women on average report higher levels of food insecurity in their households, as suggested by the statistically significant mean differences for the pooled sample of all countries, as well as for Egypt and Morocco alone. This finding is consistent with the empirical evidence showing the prevalence of disparities in food insecurity between men and women during the pandemic (Burke et al., 2020; UNWOMEN & UNESCWA, 2020; WFP Gender Office, 2020). Moreover, this variable explains significantly the observed difference in mental health between genders. This is also consistent with the empirical evidence establishing that food insecurity is a significant negative determinant of mental well-being (Jones, 2017) and has been on the rise since the onset of the pandemic (Amare et al., 2021).

The results for the unexplained part of the decomposition model suggest that the association of food insecurity to mental health is greater for men. It is plausible that the differential effect of food insecurity on the mental health of men and women is related to their differential roles within the household. We assume that women may be expected to be more knowledgeable about the household's constraints in terms of food availability and thus be better positioned to face the aliment scarcity given their much higher involvement in unpaid household labor (as documented in the literature review). In synthesis, the ensemble of results obtained from the decomposition analysis (e.g., the explained and unexplained parts) indicates that both components contribute to the inequality in mental health status disfavoring women. As such, reducing the gender inequality in access to food resources could potentially reduce the inequality in mental well-being observed between the two groups.

In light of the results identified in this study and discussed in the previous paragraphs, we propose two main avenues to address and mitigate both gender inequality in mental health and women's greater vulnerability to be food insecure as compared to men. The first recommendation is related to the "monitoring and evaluation" field — that is, the need **to collect more data** that will allow for a more accurate assessment of the food insecurity situation in the MENA region from a gender perspective. The second recommendation is for "targeted policy interventions and initiatives" to address not only the issue of food insecurity in the short- and long-term, but also the gap in mental wellbeing between women and men.

5.1. Increase the collection of gender disaggregated data in the MENA region

Prior to the COVID-19 pandemic, food insecurity already represented a growing challenge to MENA, especially due to the conflicts that for years have affected countries in the region; with the economic repercussions of COVID-19, acute food insecurity will be further exacerbated in these fragile contexts (FSIN & Global Network Against Food Crises, 2021). However, there is a lack of gender-disaggregated data to understand how women, children and other vulnerable groups are more exposed to suffer drastic consequences from the economic downturn — and therefore food insecurity.

According to the World Bank, "in 2020 MENA's share of the world's acutely food insecure people was 20%, disproportionately high compared to its 6% share of the population" (Belhaj & Soliman, 2021). Although studies indicate that women are more likely to suffer from food insecurity more severely (UNICEF, 2020), lack of more sex-disaggregated data makes it difficult to determine the extent and severity of the problem within the region, including how women struggle with insufficient and poor-quality diets, limited access to nutrition and health services, and poor sanitation and hygiene (Global Report on Food Crisis, 2021). Therefore, by collecting more data, policymakers will also be able to better monitor these issues, specifically limited access to nutrition and health service by children in female-headed households, in order to create more effective strategies to diminish and mitigate the long-term effects generated by these external shocks.

5.2. Investments in food assistance programs, and improved access to mental health and psychosocial services for women

In terms of mental health, it is imperative that governments, civil society organizations, and the private sector work together to reduce not only the double journey women face in and out of their homes —which previous studies have shown to be one of the key drivers of unequal gender mental health (WHO, n.d., Wang et al, 2020a, b; Almeida et al., 2020)— but also to provide support and assistance to women who already have their mental health at risk. On one hand, domestic work (e.g., the responsibility for household chores and the care for the children and elderly) should be redistributed between family members as well as the government, considering that "States' failures to provide, regulate and fund domestic and care formal services increase the burden for communities, families and especially women" (OECD, 2014, p. 9). Policies focused on this redistribution include: a) **paid maternity leave of at least 18 weeks**, which allows mothers to re-adapt to a new routine between caring for a newborn and other activities (UNICEF, 2019); b) **equal amounts of maternity and paternity leave**, so that fathers not only share the responsibilities equally with mothers, but can also participate in this re-adaptation process in the same way (OECD, 2014); c) c**reating more affordable, accessible and quality public childcare services** and care for the elderly, in which both governments and business must guarantee universal access to quality affordable childcare from the end of parental leave to children's entry into the first grade of school — previous studies have also shown that having access to quality affordable childcare reduce parental stress (UNICEF, 2019); d) **incentives for the creation of more family-friendly working conditions**, such as flexible working schedules, teleworking/home-office, etc., which in turn allows women and men to choose working hours that better accommodate their caring responsibilities (OECD, 2014); and e) **child benefits**, including conditional cash transfers programs (that are commonly targeted at the mothers), in order to not only diminish the distress in terms of economic vulnerability, but also to improve pregnancy care, child immunizations, improved food security and educational attendance, particularly for girls (UNICEF, 2019).

On the other hand, governments should also increase the number and improve access to mental health and psychosocial services for women, such as the creation of mental health crisis support hotlines to offer counseling and to share information regarding the various social aid options that are available to them. According to UNICEF (2021, p. 17), mental health services are extremely limited in MENA, and there is a lack of dedicated mental health legislation in nearly half of the countries within the region, as well as insufficient gender-sensitive national policies and plans addressing mental health in 30% of MENA countries, "which indicates that a large portion of women are likely left without prevention and response services." Therefore, it is essential to improve access, programming, and information about these services for women and girls.

Finally, in terms of food security, there are several programs and initiatives that must be considered both for short- and long-term effects. Considering the emergency to mitigate short-term impacts caused by the pandemic, governments should invest in cash transfer programs and in-kind food distribution. Food assistance in the form of in-kind food or cash transfers to vulnerable households, as well as vouchers for food purchase have the potential to alleviate immediate food insecurity (World Food Programme, 2022). For the long-term, policies should focus on providing investments for social safety net programs. Social protection programs help mitigate micro- and macro-level economic losses generated by COVID-19, protecting household consumption and welfare through the injection of cash into local economies (World Bank, 2020). Finally, bearing in mind that many countries in the MENA region suffer from budgetary constraints due to conflicts and overall economic disruptions, it is vital to reinforce international dialogue and receive the support of the international aid community. Importantly, previous studies have shown that women are more likely than men to protect the food security of their household when resources are under their control (UNICEF, 2020); therefore, it is key to expand existing social safety net programs, in particular those that improve female-headed households' access to healthy and nutritious food.

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