

►► The Impact of the COVID-19
Pandemic on **Women's Care** Work
and **Employment**
in the Middle East and North Africa



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An ILO/ERF working paper by

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Abstract

The COVID-19 pandemic has been accompanied by widespread child care and school closures. Emerging evidence – primarily from high-income countries – suggests that these changes have disproportionately increased women's time in unpaid care, which may be a particular challenge for women who have to balance these increased care needs with paid employment. This paper uses the waves of the ERF COVID-19 Middle East and North Africa (MENA) Monitor phone surveys in five countries to examine how MENA women's unpaid care responsibilities have changed during the pandemic and how the impacts of the pandemic on their employment depend on care responsibilities and type of employment. Several research questions are addressed: (1) How has the COVID-19 pandemic, and particularly the closure of schools and nurseries, impacted women's time spent in care work? (2) How are exits from employment related to care responsibilities?; and (3) How do changes in employment vary by pre-pandemic type of employment?

Keywords: Care work; women's employment; COVID-19; Middle East and North Africa

J.E.L. classification: J22, J13, J63, I18, O53

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Key Messages:

- The closure of schools and nurseries increased care work for married women in households with young or school-aged children.
 - While women had lower employment rates and were more likely to exit work during the pandemic, these patterns appear to be continuations of existing trends from prior to the pandemic. Women and men experienced similar recoveries in employment rates.
 - Although married women with children had lower employment rates during the pandemic, this too was a continuation of pre-pandemic trends. After accounting for pre-pandemic labour market status, women with children were not more likely to exit work during the pandemic or during school closures. Married women with children had already largely selected out of types of work that were difficult to reconcile with care responsibilities.
 - The pandemic has underscored gender inequality in care work, but also offers an opportunity to rethink care responsibilities and ultimately recognize, reduce, and redistribute care work.
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1. Introduction

The COVID-19 pandemic disrupted caregiving arrangements, particularly child care and schools, around the world (Gromada, Richardson, and Rees 2020; Kenny and Yang 2021; UNICEF 2021). Women, who perform a disproportionate amount of care work globally (International Labour Organization 2018), faced a sharp increase in their care responsibilities as a result of these closures. Women's employment also dropped substantially and more so than men's, so much so that the pandemic recession has been referred to as a "shecession" (Alon et al. 2021). Increased care burdens are one important factor contributing to women's worse employment outcomes during the pandemic. Yet the existing evidence on the impact of COVID-19 on care work and women's employment has come primarily from high-income countries (e.g., Alon et al. 2021; Collins, Landivar, et al. 2021; Hipp and Bünning 2021; Hupkau and Petrongolo 2020). This is an important gap in the literature, as the impact of COVID-19 on care work and women's employment may be more severe in low- and middle-income countries, where the gendered division of care work is relatively more unequal and fertility rates are higher (Kenny and Yang 2021).

This paper investigates the impact of COVID-19 on care work and women's employment in the Middle East and North Africa (MENA). MENA had the highest female-to-male ratio of time spent on unpaid care work of any world region prior to the pandemic, with women spending on average 4.7 times more time on unpaid care than men (International Labour Organization 2018). The region also had the world's lowest rates of female labour force participation pre-pandemic (Verick 2018). Even prior to COVID-19, difficulties reconciling care work and employment outside the home led women in MENA to frequently leave employment at marriage (Assaad, Krafft, and Selwaness 2022; Selwaness and Krafft 2021). This trend may have been exacerbated since 2020; national statistics suggest that women in the region may have been particularly affected by the pandemic. For example, in Egypt, women's labour force participation rates dropped from 16 per cent in the first quarter of 2020 to 12 per cent in the second quarter of 2020 (CAPMAS 2020a; b). These employment losses threaten to worsen the already tenuous status of women's economic participation in the region, with potential long-term consequences for the economic empowerment of women and their households.

Although labour market trends for women during the pandemic are concerning, there has been limited in-depth research⁵ on the impact of COVID-19 on care work and women's employment in the MENA region. This paper contributes new insights on this important topic. We analyse multiple waves of longitudinal mobile phone surveys from 2020-2021 that include data on women's care work and labour market outcomes. The paper adopts a comparative approach, using data from Egypt, Jordan⁶, Morocco, Sudan, and Tunisia. In addition, we compiled data on the timing of school closures in all those five countries. This multi-country, comparative approach allows us to assess the relationship between school closures, women's care work, and women's employment. The findings have important policy implications for gender responsive pandemic recovery efforts in low- and middle-income country contexts where women's labour force participation is already low.

⁵ Barsoum and Majbouri (2021) examine employment, care work, and subjective wellbeing in four MENA countries. Ilkkaracan et al. (2020) explore the likely changes in care work and employment for women in Jordan, given pre-pandemic patterns and sectoral composition.

⁶ Jordan Survey is funded by the Foreign, Commonwealth, and Development Office (FCDO)

We find that when schools were totally closed during the pandemic, women with children under age 18 reported performing more care work. Women with these care responsibilities had the same or lower employment rates than other groups of women. However, exits from employment during the pandemic were not increased by women's care responsibilities, after accounting for women's pre-pandemic labour market status. We obtain a similar result when we limit our analyses to women employed pre-pandemic and directly estimate the impact of closures. Indeed, exits for married women with children during the pandemic were actually lower than for other women in Egypt, Jordan and Tunisia, although higher in Morocco and Sudan. These patterns are likely because married women in Egypt, Jordan, and Tunisia were more likely to be in public sector employment – which is more protected, both before and during the pandemic – while married women in Morocco and Sudan are more likely to be engaged in non-wage employment. Women appear to have largely already selected out of the types of employment that were difficult to reconcile with care responsibilities even before the pandemic. They were already concentrated in sectors with more pandemic-related employment protections or that experienced smaller pandemic impacts. These findings underscore the importance of local employment conditions in mediating the impact of the pandemic on gender inequality.

The paper is structured as follows. The following section discusses the global literature and presents a conceptual framework for understanding the pandemic's impact on care work and women's employment. We also provide background on care work and employment specifically in the MENA context, as well as school closures and employment rates in the region during the pandemic, the latter based on national labour market statistics. Drawing on the literature and our conceptual framework, we then present the hypotheses about care work and women's employment in the MENA region that we test in our empirical analyses. In the third section, we describe the phone survey data and childcare and school closures data we use, the outcomes we examine, and our covariates. Section four describes our descriptive and multivariate methods. We then present our results, both descriptively on care work and employment and in terms of multivariate models of care work and employment. The final section discusses our results and their implications.

2. Background and context

2.1 Global literature on the pandemic, care work, and women's employment

The COVID-19 pandemic has had gendered impacts on employment through a number of pathways (Figure 1). Literature from high-income countries has focused on the fact that pandemic-related lockdowns have led to job losses in service sectors, such as tourism and hospitality, with high shares of women workers. This stands in contrast to “typical” recessions, in which male-heavy sectors such as construction and manufacturing are usually harder hit (Albanesi and Kim 2021; Alon et al. 2020, 2021). The general economic downturn experienced in many countries as a result of the pandemic has also been particularly severe in some service sectors, leading to reduced hiring of workers. These sector-dependent, labour demand-side pathways have contributed to greater reductions in female than male employment in a number of high-income countries (Albanesi and Kim 2021; Alon et al. 2021; Corsi and Ilkharacan 2022).

Similar patterns have held in some low- and middle-income countries (LMICs), where women were more likely to experience job losses and reductions in employment hours than men (Seck et al. 2021). However, in other countries, including many of those in MENA, women are not as heavily concentrated in service sectors at high risk of pandemic-related job losses (Alon, Doepke, and Manyшева 2022; International Labour Organization 2020; UNDP 2021). Rather, high shares of women were employed in education and healthcare, “essential” sectors where the public sector plays a strong role and – for healthcare – that saw an increase in demand during the pandemic (Ilkharacan et al. 2020; UNDP 2021). The strong sectoral gender division of employment in the MENA region may therefore mitigate job losses among women.⁷

On the labour supply side, the COVID-19 pandemic has resulted in the widespread closure of schools and child care facilities globally. Access to informal child care arrangements may also have been limited due to lockdowns or social distancing concerns. The increased care burden resulting from the loss of these care arrangements has in many contexts fallen predominantly on women (Corsi and Ilkharacan 2022).⁸ As a result of increased incompatibility between employment and care responsibilities, women may therefore make the “deeply constrained choice” to leave the labour market (Collins, Ruppner, et al. 2021).⁹ Correspondingly, in some high-income countries, the gender gap in the impact of the pandemic on employment has been higher among workers with children (Albanesi and Kim 2021; Alon et al. 2021; Fuller and Qian 2021). Although the evidence from low- and middle-income countries is more limited, a study of a number of countries in Latin America and the Caribbean demonstrated that the negative effects of the pandemic on employment were particularly acute for women with school-age children (Viollaz et al. 2022). The nature of school closures or alternative learning modalities may be important in this regard.

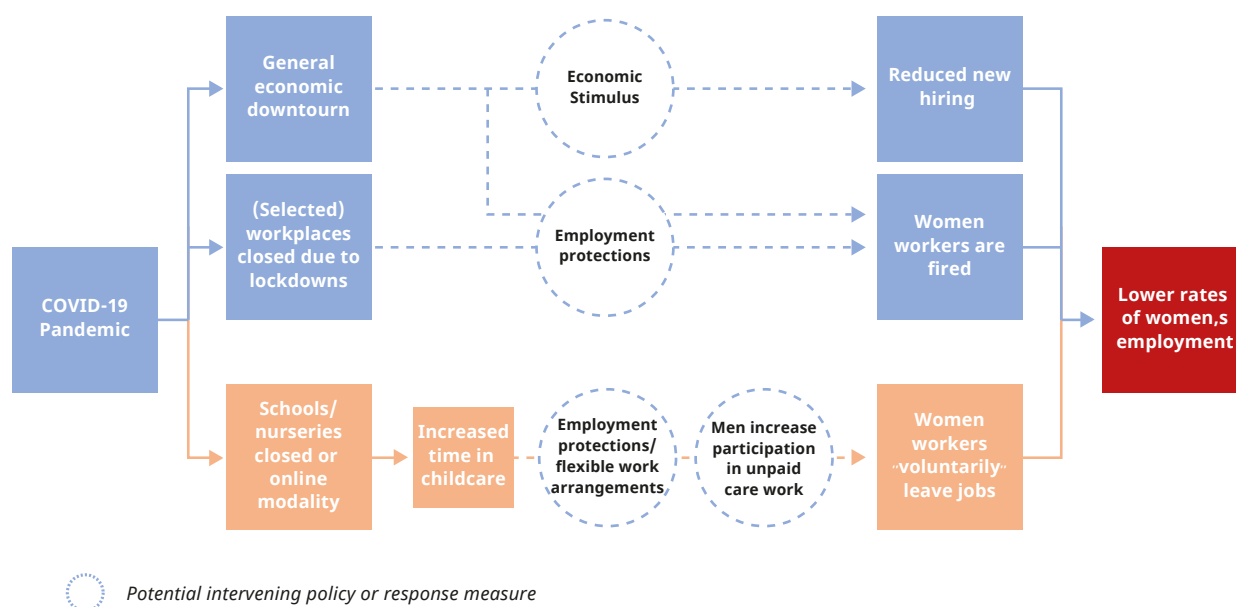
⁷ One important potential exception that has received little attention in the literature is early childcare and education (nurseries), a sub-sector of education that is overwhelmingly female, more heavily dominated by the private sector, and where employment was more vulnerable even pre-pandemic (Economic Research Forum and UN Women 2020).

⁸ Women's time spent in care work may also have increased due to restrictions on the availability of domestic labour saving services, such as restaurants (United Nations 2020). However, we do not consider this pathway in this paper as our measure of care work is related specifically to time spent caring for children, not care work overall.

⁹ Short of loss of/leaving employment, added care burdens may also lead (women) workers to reduce their hours of work and/or experience reduced productivity (see e.g., Alon et al. 2021); the latter is a pathway that may lead to involuntary job loss over the longer-term. We do not examine these other possible outcomes in this paper.

To examine this phenomenon in more detail, several studies from the United States have linked geographic or temporal variation in school closures to employment rates – our empirical strategy in this paper. Collins et al. (2021) find that, while employment of mothers with elementary-school aged children declined more than that of fathers across the board, the gap was largest where fully remote (as opposed to hybrid or in-person) schooling was adopted. Focusing on closure of childcare centres for children under age five, Russell and Sun (2020) conclude that mandatory closures increased unemployment rates for mothers of young children, an effect that persisted even after childcare centres began to reopen. Using a different approach, Petts et al. (2021) find that self-reported loss of childcare and participation in home-schooling were associated with increased risk of leaving employment for mothers but not fathers. The possibilities of remote work for one or both parents may also mediate the relationship between school closures and job leaving (Alon et al. 2021).

Figure 1. Conceptual framework for the impacts of the COVID-19 pandemic on women’s employment rates and potential intervening policy or response measures



Source: Authors' construction

The negative effects of the pandemic on women’s employment may persist after the health crisis recedes and emergency measures are relaxed (Alon et al. 2020; Fuller and Qian 2021; Russell and Sun 2020). The implementation of gender-sensitive policies to mitigate the negative employment impacts of the pandemic and support a gender-equitable recovery is therefore pressing. Importantly, mitigating the different pathways through which the pandemic may impact women’s employment necessitates different policy approaches. On the demand-side, countries have implemented a wide range of employment protection measures intended to prevent (permanent) job losses. Some of these have been specific to hard-hit sectors while others are economy-wide (IMF 2021). Similarly, economic stimulus packages that support businesses to retain workers in the context of a general economic downturn can prevent involuntary job loss and encourage greater (re)hiring (Webster, Khorana, and Pastore 2022).

For households facing increased childcare needs due to school and nursery closures, different types of employment protections and flexible work arrangements may protect women from being forced to leave the labour market due to competing childcare demands (Corsi and Ilkcaracan 2022). Flexible work arrangements, most prominently teleworking, have become much more common during the pandemic for workers in certain sectors and occupations. Such arrangements allow parents to take care of their children while continuing their employment and are disproportionately likely to benefit women given that they perform more childcare in most contexts (Alon et al. 2020). Furlough schemes that allow employees to reduce hours while holding on to their jobs may have reduced the gender gap in employment impacts in some high-income countries (Alon et al. 2021). Other countries implemented longer leave periods for care givers (Fuller and Qian 2021).

Another non-policy mechanism that would protect women employees from job leaving would be for their husbands to take on a greater share of the increased childcare burden. The extent to which this has happened in practice is likely to depend both on gender norms and on the teleworking opportunities of men versus women in dual-earner couples (Alon et al. 2020). In the United States, empirical studies have confirmed that in households where fathers performed more childcare, mothers were employed for more hours and had lower odds of leaving their employment in the early months of the pandemic (Petts, Carlson, and Pepin 2021).

2.2 MENA context

2.2.1 Care work

MENA has the world's highest gender gap in unpaid care work. Women in MENA spend 4.7 times more time on unpaid care work than men (International Labour Organization 2018). Globally, women spend 3.2 times more time than men in unpaid care work (4.1 times more in Asia and the Pacific, 3.4 times more in Africa, and 1.7 times more in the Americas (International Labour Organization 2018)). This ratio of women's to men's time spent in unpaid care work in MENA is also potentially underestimated due to important data gaps across the MENA countries.

As for our five countries of focus, the ratio of women's to men's unpaid care work is substantially higher than the average even in MENA.¹⁰ Table 1 shows pre-pandemic care work and employment patterns by country. In the MENA region, the ratio of women's to men's unpaid care work reaches a maximum of 19:1 in Jordan (Economic Research Forum and UN Women 2020), with women performing on average 19 hours per week of unpaid care work. Egypt comes in second place, where the ratio of women's to men's unpaid care work is 12:1 (Economic Research Forum and UN Women 2020). In Morocco, women spend seven times more hours in unpaid care work than men (Charmes 2019). In Tunisia, women spent 6 times more time than men in unpaid care work in both 2005/6 and 2014 (Charmes 2019; Economic Research Forum and UN Women 2020). Our knowledge on the amount of unpaid care work and gender gap in Sudan is very limited, due to lack of data on this key topic.

¹⁰ Although absolute values of time spent in unpaid care work might differ between time-use data and household survey data in the region, the ratios of women's to men's unpaid care work are consistent. Using Tunisia Labor Market Panel Survey data from 2014, women report they performed 17 hours per week of care work (Economic Research Forum and UN Women 2020). This is much lower than the 38 hours per week from time use-surveys (Charmes 2019), which are likely to be a more accurate source of statistics on unpaid care work than labour market surveys. The latter tends to underestimate unpaid care work. However, the ratio of female to male unpaid care work is quite consistent across sources.

Table 1. Pre-pandemic patterns of care work and employment in MENA

	Ratio of women's time spent in care work/men's	Women's employment rate in 2019	% of women's employment in public sector	% of women's employment in non-wagework
Egypt	12:1	12%	43%	32%
Jordan	19:1	10%	49%	3%
Morocco	7:1	19%	9%	36%
Sudan	N/A	In 2014: 26%	12%	73%
Tunisia	6:1	19%	30%	20%

Sources: Authors construction based on care work studies (Charmes 2019; Economic Research Forum and UN Women 2020), employment rate data (see Figure 2), and studies on the structure of employment (Assaad, AlSharawy, and Salemi 2022; Assaad and Salemi 2019; Ebaidalla and Nour 2021; Krafft and Assaad 2020; "Advancing the Decent Work Agenda II Report (Forthcoming)." 2022)

Notes: N/A notes not available. Sudan data for women in the public sector is based on women in public administration, education, and health as sector data were not available.

Gender norms and particularly a female homemaker/male breadwinner norm play an important role in why women in MENA countries perform most of the unpaid care work (Economic Research Forum and UN Women 2020; El-Feki, Heilman, and Barker 2017). Other factors also reinforce those gender norms, such as high fertility rates (Krafft, Kula, and Sieverding 2021), which feed into high dependency ratios, coupled with severe shortages of care facilities (both childcare and elderly care) and other market-based care services that are accessible and affordable for women (Economic Research Forum and UN Women 2020).

There is a strong association between women's time spent on unpaid care work and the household structure/presence of children. Recent studies from Egypt, Jordan and Tunisia show that the presence of children under three years old was associated with the largest and most significant increase in unpaid care, followed by the presence of children aged 3-5 years (Economic Research Forum and UN Women 2020).¹¹ Unpaid care work did not significantly increase with the presence of school-age children (aged 6-17), owing in part to their regular enrolment in schooling.¹² Thus, there is an important potential link between school closures and disruptions due to COVID-19, changes in women's time spent in unpaid care work during the pandemic, and, ultimately, their employment.

¹¹ The latter was insignificant in countries with high Kindergarten enrolment rates such as in Jordan.

¹² Except for Tunisia, where the presence of children of school age is associated with a significant increase in unpaid care work.

2.2.2 Employment

Women's employment rates in MENA were anaemic pre-pandemic (see Table 1). Based on official statistics (see also Figure 2, below), in 2019, Jordan, and Egypt had similar (low) employment rates among women, at 10 per cent and 12 per cent, respectively. Morocco and Tunisia were in a slightly better position, with employment rates of 19 per cent in 2019. Very little data is available on Sudan, which had its most recent labour market survey in 2011 and most recent household budget survey in 2014/15. In 2014, the employment rate for women was 26 per cent, with the vast majority of women engaged in agricultural self-employment or family businesses (Ebaidalla and Nour 2021).

When they engage in wage employment, women tend to be concentrated in public sector jobs as these offer safer and more socially acceptable workplaces, shorter hours of work, and other benefits such as social security, maternity leaves, and other care provisions (Assaad and Barsoum 2019). The patterns of public sector employment and associated benefits enable women to reconcile care work and their engagement in the labour market. This is because women's responsibility for unpaid care work in their households in MENA is a rigid obligation, which does not change whether or not they engage in paid employment (Assaad, Krafft, and Selwaness 2022). In comparison, private sector wage employment is not considered hospitable to women, owing to its longer hours of work, worse job quality and working conditions, as well as lack of care provisions (Assaad, Krafft, and Selwaness 2022; Economic Research Forum and UN Women 2020). It is thus harder to reconcile between unpaid care work and employment when working for a wage in the private sector. Non-wage employment (typically agriculture on a family farm or survival self-employment) is often home-based and tends to be somewhat easier to reconcile with care responsibilities, however the degree to which such employment is viable varies substantially across countries (Assaad, Krafft, and Selwaness 2022).

Accordingly, across our countries of focus, employed women are most concentrated in public sector jobs in Egypt (43 per cent), Jordan (49 per cent) and to a lesser extent Tunisia (30 per cent) (Assaad, AlSharawy, and Salemi 2022; Assaad and Salemi 2019; Krafft and Assaad 2020). Morocco and Sudan, which are more agrarian, have more women in non-wage employment, primarily agriculture (Ebaidalla and Nour 2021; Haut-Commissariat au Plan 2019). There is some variability in the participation of women in the private sector across countries, depending on the extent of its hospitality in terms of working conditions and the care economy. Employed women in Tunisia are considerably more likely to work in private sector wage employment (50 per cent of total female employment in 2014), followed by Jordan (46 per cent in 2015) (Assaad and Salemi 2019; Krafft and Assaad 2020). Women who work in the private sector are also more concentrated in paid care sectors, like education, health, and social work, which are more likely than non-care sectors to be reconcilable with unpaid care work (Economic Research Forum and UN Women 2020).

In Egypt, fewer women who are employed are private sector wage workers (17 per cent), whereas a large share of Egyptian women are involved in non-wage employment (32 per cent) (Assaad, AlSharawy, and Salemi 2022). In Sudan, in 2014, only 27 per cent of employed women were wage workers and 73 per cent non-wage (Ebaidalla and Nour 2021). In Morocco, as of 2019, only 9 per cent of women were public sector workers, while 36 per cent were non-wage workers (Forthcoming ILO/ERF report on jobs and growth in North Africa, 2022.) Furthermore, 47 per cent of employed women worked in agriculture (Forthcoming ILO/ERF report on jobs and growth in North Africa, 2022.) There is thus important cross-national variation in the nature of women's employment, related to the structures of the countries' economies, as well as their care economies, that may act as an important mediator of the impacts of the pandemic.

2.2.3 Care work and school closures during the pandemic

Although the empirical literature on women's time spent in care work during the pandemic is limited in the MENA region,¹³ closures of schools and nurseries were extensive, suggesting that care work burdens are likely to have increased. This section reviews the changes to schools and nurseries (early child care) that may have led to increased care work. We ultimately refer to these closures as school closures for simplicity.

In Jordan, nurseries, primary and secondary schools switched to an online format starting in March 2020 and remained so through the end of the 2019-2020 school year (Ministry of Education in Jordan 2020). The Jordanian 2020-2021 school year started with in-person instruction during the first half of September. However, after a rise in COVID-19 cases, the second half of September consisted of online classes for pre-primary and partial in-person instruction for primary students (grades 1 to 3 optional in-person, and grades 4 to 9 online), while classes remained in-person for secondary students (U.S. Embassy in Jordan 2020). All classes resumed online from October through mid-January 2021 (Roya News 2020). In February 2021, schools opened for partial in-person instruction (Al-Ziadat 2021) before switching back to online lessons from March until the end of the school year in mid-June 2021 (Ministry of Education in Jordan 2021). The 2021-2022 academic year started in September 2021 with schools reopened at full capacity for in-person learning (The Jordan Times 2021).

In Morocco, nurseries, primary and secondary schools similarly switched to an online format starting in March 2020 and remained so through the end-of-year break (France24 2020). The 2020-2021 school year started in September, with schools open in partial capacity (limited number of students per class) (Omri 2020). Schools fully opened from October 2020 to March 2021 (Prime Ministry 2020), before switching back to partial capacity in-person instruction from April to June 2021 (UNESCO 2021). The 2021-2022 academic year started in October 2021, with schools reopened at full capacity for in-person learning (Moutamadris 2021).

In Tunisia, public schools were still on academic break in March 2020, but private schools closed their doors (AlHurra 2020). Public schools remained closed during the remainder of the 2020 school year while private schools held classes online (Sadaqi 2020); however, baccalaureate (final year) exam students still went to school in shifts (Tunis Afrique Presse 2020). The 2020-2021 school year started mid-September 2020 with partial capacity in-person instruction through mid-December 2020 (limited number of students per class). However, there were several brief periods during the fall term when schools were completely closed, including for the winter break (Drabble and Verheijen 2020). Schools reopened in-person from January till mid-April 2021, then closed till mid-May 2021 except for students in exam years (Radio Tunisienne 2021). Schools switched back to partial capacity in-person instruction from mid-May to June 2021 before breaking for summer in July (Business News 2021). The 2021-2022 academic year started in mid-September 2021, with schools reopened at full capacity for in-person learning (Shems FM 2021).

Nurseries, primary, and secondary schools closed in March 2020 in Egypt, before continuing online from April until the end of the school year in June (Ali 2020). The 2020-2021 school year

¹³ Descriptive case studies of the impact on labour markets in Egypt, Morocco, and Tunisia (Assaad et al. 2022; Krafft et al. 2022; Marouani et al. 2022) include a few figures on care work; Barsoum and Majbouri (2021) examine work, care work, and wellbeing.

started in mid-October with partial capacity in-person instruction (students attended 3 to 4 days in-person only) (Sabah 2020), before switching to online instruction in the first half of January 2021 (Nassar 2020). Schools were out of session from the second half of January through the first week of March, with the exception of exams being held for certain grades. Schools then switched back in mid-March 2021 to partial capacity in-person instruction before breaking for summer in May (Masrawy 2021). The 2021-2022 academic year started in October, with schools reopened at full capacity for in-person learning (Al-Ain 2021).

Children in Sudan experienced the greatest disruption in schooling, with nurseries, primary and secondary schools fully closed from March 2020 through September 2020, a period which included the usual summer break (Abdelrahman 2020). With delays in starting the new school year, schools remained closed in October and November 2020 except for exam years 8 and 11 who attended classes in-person. All students went back to school in-person from December 2020 through May 2021 (Albadaoui 2020). The 2021-2022 academic year started in early October, with schools reopened at full capacity for in-person learning (Khabar Press 2021).

2.2.4 Employment and employment protections during the pandemic

Research examining the impact of the pandemic on MENA labour markets and economies has emphasized how impacts varied substantially by sector (Krafft, Assaad, and Marouani 2021a). The labour market responses to the pandemic, in terms of employment protection, were primarily targeted to workers in the public sector, and to a lesser extent formal workers who contributed to social security in the private sector (Krafft, Assaad, and Marouani 2021b, 2022). These responses included paid or unpaid leaves, wage subsidies, and/or reduced work time.

There were minimal responses to protect jobs for vulnerable workers, particularly informal wage workers, or those in non-wage employment (Krafft, Assaad, and Marouani 2021b, 2022). Some short-term financial assistance (but necessarily no binding employment protections) was provided to informal workers (Krafft, Assaad, and Marouani 2022, 2021b). The main mechanism through which government responses may have indirectly mitigated against job losses among those categories was through fiscal stimulus to support businesses. However, the largely informal and disproportionately microenterprises which employed such workers very rarely received government support, even in comparison to small and medium firms (Krafft, Assaad, and Marouani 2021a).

In terms of leaves, or reduced work time, Jordan allowed a two-week vacation for all public and private sector workers in 2020. Such a paid leave was not to be deducted from the normal allocation of sick leave (Gentilini et al. 2022). Sudan adopted reduced work time where employees in the public and (formal) private sectors worked half time with full payments (Gentilini et al. 2022). Female public sector employees in Egypt, with children younger than 12 old or children with disabilities were also eligible for unpaid leaves under Decree No. 719 of 2020 (National Council for Women (Egypt) 2021).

During the lockdown period in 2020 (March-April), public and (formal) private sector establishments were forced to close in many countries, with varying associated labour market policies. Government decrees did not allow public or private employers to undertake layoffs or reduce salary during closures in Jordan (Al Nawas 2020). The number of layoffs from formal firms

during the lockdown was very small in Jordan, and layoffs were primarily temporary (Kebede et al. 2020). Also, the forced closure was not applied to private sector establishments that were able to continue working remotely. However, the most vulnerable workers, particularly those working informally who lacked legal protections, almost all lost employment and income during the lockdown (Kebede, Stave, and Kattaa 2020).

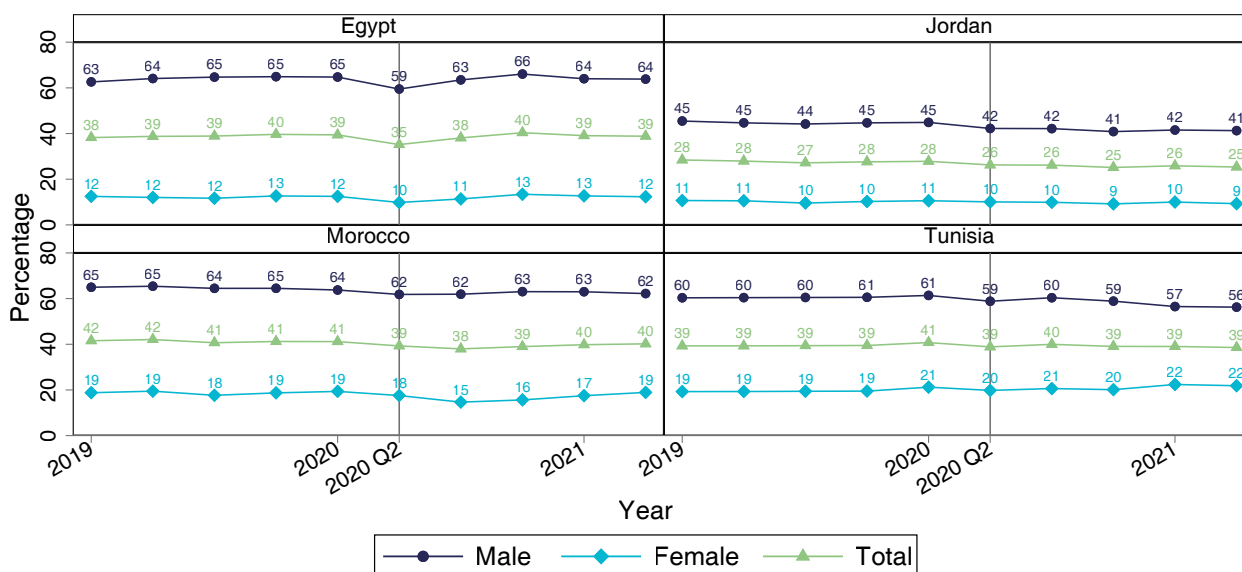
In terms of wage subsidies, Jordan introduced the programme “Estidama” for employment stabilization in the private sector. It provided wage subsidies, from December 2020 up until May 2021, amounting to 75 per cent or 50 per cent of monthly salary, for workers employed by enterprises in the most affected sectors or those unauthorized to function (Gentilini et al. 2022). Morocco increased wages for public sector employees and the government paid unemployment insurance to (formal) private sector workers who became unemployed (Abouzzohour and Ben-Mimoune 2021).

In terms of business support, there were a number of fiscal stimulus plans to either protect existing jobs (e.g., JD 113 million, USD 159 million in Jordan (Krafft, Assaad, and Marouani 2022)) or to sustain business in specific distressed sectors (e.g., EGP 50 billion, USD 3.1 billion for the tourism sector in Egypt (Krafft, Assaad, and Marouani 2022)) or through facilitating access to finance, e.g. among SMEs in Morocco (Gentilini et al. 2022; Krafft, Assaad, and Marouani 2022).

As a result of these responses, layoffs, suspensions, and income losses for wage workers were rare in the public sector, but more common in the private sector, particularly for informal workers (Krafft, Assaad, and Marouani 2022). Non-wage workers (self-employed workers and farmers) struggled during the pandemic and were not a central target of policy responses or employment protections (Krafft, Assaad, and Marouani 2022). There has, however, generally been substantial recovery in terms of employment rates from November 2020 through June 2021 (Krafft, Assaad, and Marouani 2022).

Figure 1 presents national statistics on quarterly employment rates, by sex, over 2019-2021, based on official statistics. Sudan is not included as its latest labour force survey was conducted in 2011. Employment rates fell with the initial pandemic lockdown period in Q2 of 2020, to a relatively similar extent for women and men. For instance, in Tunisia, from Q1 to Q2 2020 women’s employment dropped from 21 per cent to 20 per cent while men’s employment dropped from 61 to 59 per cent. Employment then generally recovered; by Q3 of 2020 women’s employment in Tunisia had recovered to 21 per cent and men’s to 60 per cent. Morocco experienced a slightly more disparate trend, with men’s employment dropping from 64 per cent in Q1 of 2020 to 62 per cent in Q2 and Q3, while women’s dropped from 19 per cent to 18 per cent in Q2 and then 15 per cent in Q3, but recovering back to 19 per cent by Q2 of 2021, while men’s employment was still lower at 62 per cent. Overall, the national statistics do not suggest a particular impact on women compared to men in MENA, but impacts may be quite heterogenous across different types of workers, a point we explore in this paper, focusing on women with children and women employed in different sectors.

Figure 2. Employment rates (percentage), by country, sex, and quarter, 2019-2021



Source: Authors’ construction based on country’s official quarterly labour force survey bulletins.

Notes: Since employment rates are not consistently reported, we calculate the employment rate (e) based on the labor force participation rate (l) and unemployment rate (u) by using the following formula: $e=l(1-u)$. Tunisia labour force participation rates for 2019 are annual rather than quarterly.

2.3 Hypotheses

Drawing on the global literature, our conceptual framework, and the MENA country contexts, we test the following hypotheses about the pandemic, care work, and employment:

H1: During periods when schools and nurseries were closed, time spent on care work increased for women with school-age or younger children.

H2: The pandemic has caused women with school-age or younger children to exit employment.

H3: Impacts of the pandemic on women’s employment depend on the type of employment they engaged in pre-pandemic.

3. Data

3.1 Surveys

We use all waves and countries of the COVID-19 MENA Monitor (CMM) household mobile phone surveys (OAMDI 2021)¹⁴ Waves took place in November 2020, February 2021, April 2021, June 2021, and August 2021. The surveys covered Egypt (two waves), Jordan (three waves), Morocco (four waves), Sudan (two waves), and Tunisia (four waves). Approximately 2,000 respondents were contacted per wave in each country and the surveys attempted to follow all respondents across waves, creating a panel. Respondents were also asked retrospective questions about key measures, such as labour market status, prior to the pandemic (i.e., in February 2020).

The universe for the surveys was all mobile phone users aged 18-64 in a country. Samples were stratified by mobile operator and weighted based on nationally representative in-person surveys pre-pandemic to account for differential non-response among mobile phone owners on observable characteristics. Weights for the panel sample also accounted for these and other characteristics in modelling attrition. We restrict our analysis sample to women, since our research questions relate to women and their care work responsibilities. Additional analyses are specific to married women in households with children or women who were employed in February 2020 (pre-pandemic). Table 2 presents the sample size for these different samples, by country and wave.

Table 2. Sample size (number of observations) by wave and country, various samples

Wave	Nov. 2020	Feb. 2021	Apr. 2021	Jun. 2021	Aug. 2021
Sample of women					
Jordan		1,218		1,182	1,217
Morocco	836	675	693	712	
Sudan			1,081		1,030
Tunisia	824	825	841	832	
Egypt		729		733	
Sample of married women with children in the household					
Jordan		781		799	832
Morocco	449	377	382	304	
Sudan			408		299
Tunisia	392	408	423	439	
Egypt		496		534	
Sample of women employed in February 2020					
Jordan		231		220	232
Morocco	150	127	223	231	
Sudan			107		135
Tunisia	314	302	288	302	
Egypt		182		167	

Source: Authors' calculations based on the COVID-19 MENA Monitor, all waves.

¹⁴ Data are publicly available from www.erfdportal.com

3.2 School closures data

We also compiled a dataset that tracks school and nursery closures in the five study countries for the entire MENA Monitor data collection period on a weekly basis. The data were based on the UNESCO global monitoring of school closures database (UNESCO 2021), complimented by, for each country, information from the Ministry of Education and, where gaps remained, general Google searches about school closures. A general outline of school closure dates was first developed based on the UNESCO database. Information for each week was then verified individually via Ministry or other internet (mostly newspaper) sources; the latter sources were also used to determine what type of closure (e.g., online classes only, classes only for certain grades) or reduced capacity modality (e.g., alternating shifts) was adopted. When detailed data on closure types or dates was not found, the UNESCO data was adopted. When information differed between the UNESCO database and newspaper or Ministry articles found during searches, the data from the articles was triangulated and this data was used if it was consistent, given that some UNESCO monitoring data were outdated given last-minute changes that happened in some situations. Internet searches were conducted in English and Arabic, as well as French for Morocco and Tunisia.

The calendar data were compiled for three levels of education (nursery, primary and secondary school) in each country. For each country-week-school level combination, the following codes were possible: open (in-person as usual), partially open (e.g., only some days in person), entirely online, or on break/not in session (e.g., summer break). These data are transformed into a vector indicating whether there were closures and their degree each week. Since in almost all cases all school levels followed the same modality, the data is collapsed into a single vector regardless of the level of education. In the few cases where selected grades, such as exam years, were attending in-person classes while the remainder of the school system was following a different modality, the modality followed by the majority is adopted. The resulting key covariate is measured at the time (week) each respondent was interviewed in each wave.

3.3 Outcomes

The key outcome we examine for H1 is care work. We focus on a measure capturing respondents' self-reports of their time spent caring for children in the past week as compared to February 2020, with the option choices of "more than usual," "same," or "less than usual". This question was only asked for women in households that included children under 18. The key outcome we examine for H2 and H3 is employment in the seven days preceding the survey at each wave.

3.4 Covariates

Our key covariate for H1, that closures particularly impacted women with school-age or younger children, is closures metrics from the calendar data. Our key covariate for H2 is having school-age or younger children. This is based on three questions, one on marital status, one on the number of children under age 6 and one on the number of school-age children in the household. We create a binary variable for (0) not being married or not having school-age or younger children in the household versus (1) being married and having school-age or younger children in the household.

In addition to the key covariates discussed above, our models control for age (categorically), education level, urban/rural residence, administrative level one geography (state, governorate, or province, depending on the country), and wave of the survey. In our models for employment, we

also include initial (February 2020, pre-pandemic) labour market status, categorized into public sector wage work, private sector wage work, non-wage work, unemployment (using the broad definition, including discouraged workers) or being out of the labour force (neither employed nor unemployed).

4. Methods

We initially present descriptive statistics to illustrate our key outcomes and covariates. For our multivariate models, we estimate logit models for the outcomes of more care work than usual compared to February 2020 (versus same or less) and employed (versus not employed) in the past week. We also estimated fixed-effect logit models, with woman fixed effects, leveraging the multiple observations per woman in the panel. Standard errors are clustered on the individual level and weights are used throughout.¹⁵ Models are estimated both pooled across countries¹⁶ and separately for each country. We present odds ratios from the models in our tables.

5. Results

We present the results first for changes in care work and then employment exits. For each outcome, we present the descriptive and multivariate results together.

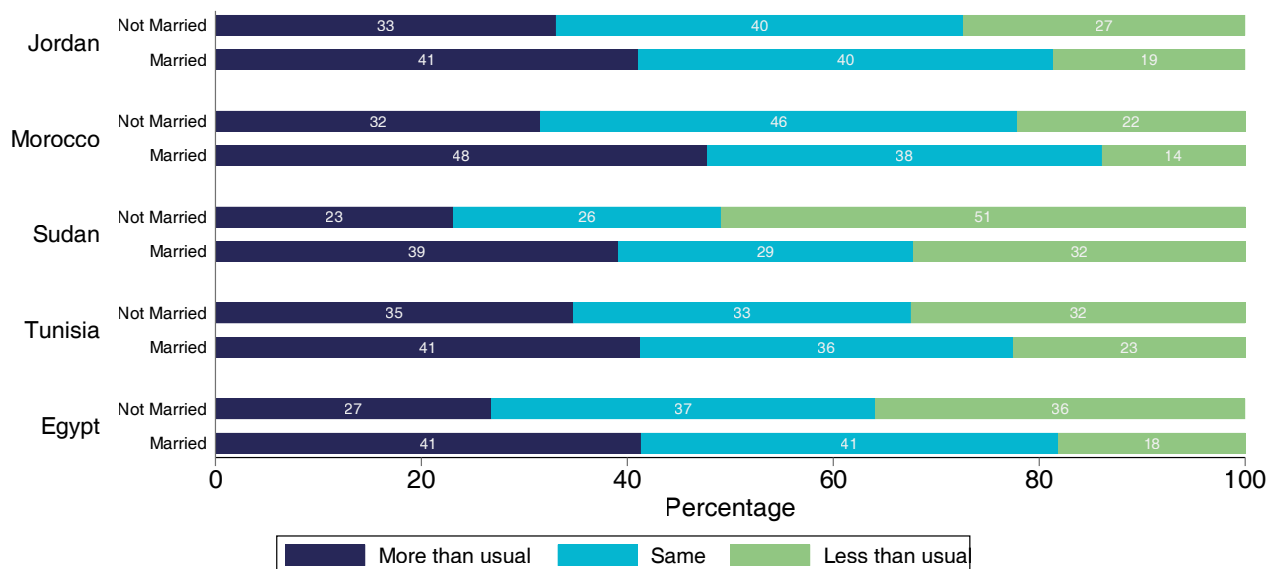
5.1 Changes in care work

Figure 3 presents women's reports of time spent in direct care work (caring for children) in the past week (pooled across waves) compared to February 2020, by household structure. Women in households with children aged 18 or younger were asked these questions. A key pattern is that married women consistently report doing more care work than prior to the pandemic. Between 23-35 per cent of women who are unmarried (but live in households with children) report more care work, compared to 39-48 per cent of married women. Differences range from 6 to 16 percentage points across countries. Women who are not married are, in contrast, more likely to report less care work than usual (22-51 per cent across countries, versus 14-32 per cent of married women). Overall, there was a clear increase in care work for married women with children, consistent with the hypothesis (H1) that the pandemic reduced external care supports and created additional responsibilities for married women with children.

¹⁵ For panel data models, weights are based on when the observation was first observed.

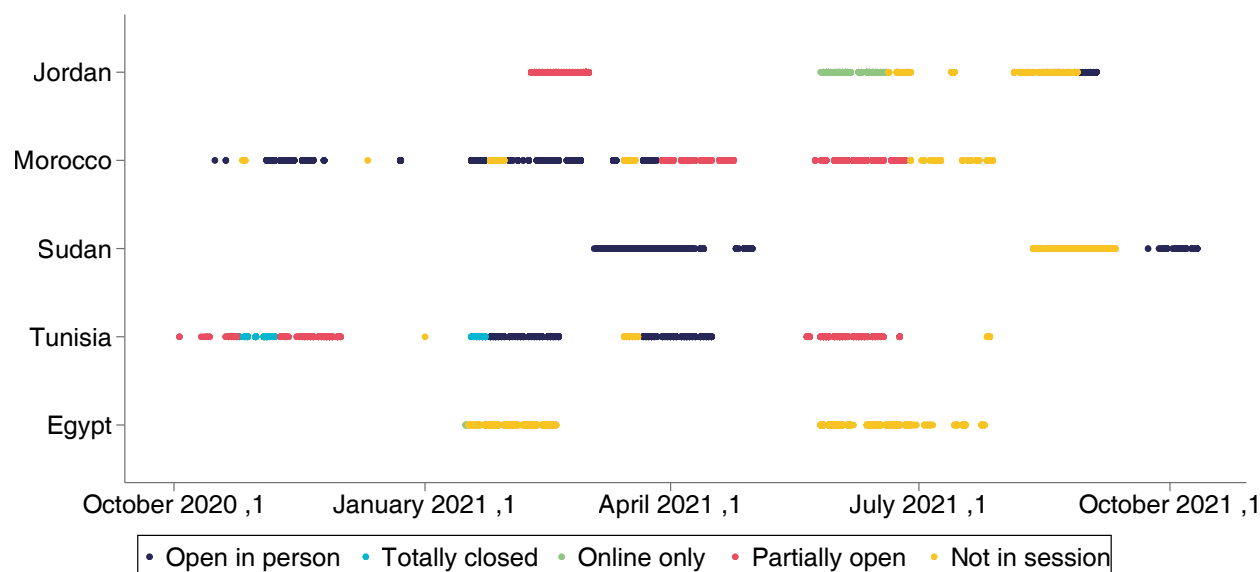
¹⁶ For pooled models, weights are normalized on a country basis so that observations from different countries are weighted equally overall within the pooled model.

Figure 3. Direct care work in the past week versus February 2020 (percentage), by country and marital status, women in households with children aged 18 or younger



Source: Authors' calculations based on the COVID-19 MENA Monitor, all waves.

Figure 4 presents our school calendar data during the periods with survey observations for each country. Jordan initially was partially open in the February 2021 wave, then online only at the end of the school year (June 2021 wave), before being not in session for the latter part of the June 2021 wave and start of August 2021 wave. By the end of the August 2021 wave, schools had returned to in person instruction. Morocco was initially open in person in November 2020, with some breaks for periods not in session, then starting during the April 2021 wave was partially open for the rest of the school year. Sudan was open in person during the first wave in April 2021 and out of session for much of the August 2021 wave, although school resumed towards the end of the data collection period. Tunisia was initially partially open in November 2020, but then totally closed for a period of the data collection wave. The following waves of data collection included short periods of closures or not in session mixed with being open in person, before being partially open during the June 2021 wave. Egypt was not in session (on winter break and summer break) during both periods of data collection. In sum, there is clear variation across time in terms of school closures and modalities in Morocco, Tunisia, and Jordan, but not in Sudan or Egypt.

Figure 4. Operating status of schools by country and date

Source: Authors' creation based on school closures data

Notes: Showing weeks with survey observations in the COVID-19 MENA Monitor data, all waves.

Our first multivariate model tests H1, that during periods of closures (as shown Figure 4), care work increased for women with school-age or young children. We limit our analysis sample to married women in households with children aged 18 or younger and estimate pooled and country-specific models both with covariates and then with fixed effects (most covariates drop in the fixed effect models, since the covariates are largely time-invariant). Our key covariate is the time-varying closure status of schools and nurseries. Table 3 presents the results. Note that although we include Egypt and Sudan in the pooled model, we do not present country-specific results because there was not substantial variation in closures captured by our study period. For the fixed effect models, it is important to keep in mind that estimates are identified based off of variation in outcomes and covariates over time, within the same individual. This is a stronger identification strategy but does not account for potential time-variant confounders (such as workplace closures or the health situation changing care responsibilities).

In the pooled model, the reference category for our key covariate is open normally (in person and normal schedule/capacity). Compared to open in person, when schools were totally closed a report of more care than usual was significantly more likely (odds ratio of 1.995). This result carries over into the fixed effect model (significant odds ratio of 2.473) and is significant for Tunisia (only in the fixed effect model, odds ratio 2.511).

Although no other results are significant in the pooled model without fixed effects, in the pooled fixed effects model we find that schools not being in session significantly reduced the probability of more care than usual (odds ratio 0.520) as does school being online only (odds ratio of 0.305). These results carry over in country models for Jordan and Tunisia. In Jordan, schools being online only significantly reduced the odds of more care (odds ratio 0.152) as did school not in being in session (odds ratio 0.263). In Tunisia schools not being in session significantly reduced the odds of more care (odds ratio of 0.187); no periods of online only education were observed in Tunisia. In no case did schools being partially open significantly relate to more care work.

Keeping in mind that only some modalities were observed in each country, the results suggest that school closures during periods when school was normally in session increased care work, likely because of the presence of children at home when they would otherwise have been in school or nursery. Parents may have faced both increased care responsibilities and attempted to teach children in the place of lost schooling. However online modalities and not being in session reduced care work. The not in session result is intuitive, as families may plan for children to be out of school during these periods, which also cover the summer months when children may be engaged in other activities. Additionally, the not in session period would neither have required caregivers to support children’s education nor replace lost time in school.

However, the online modalities result is unexpected and contradicts the results found in higher-income countries. Low connectivity and capacity for online teaching in lower- and middle-income countries may mean that online school in effect meant no or little schoolwork, or that children were engaged online during the school day but did not have substantial homework; caregivers may have thus faced less time caregiving but also felt children were being educated and no substitute efforts were needed (unlike when schools were totally closed). A youth survey in Jordan (the country where we observed substantial online learning) corroborates this interpretation; youth reported generally engaging with, but spending less time on, online learning (Assaad et al. 2021). Overall, the results support H1, that when schools and nurseries were closed, time spent on care work increased for women with young and school-age children. However, the results also suggest important nuance in terms of total closures versus online teaching (which was more like not being in session).

Table 3. Logit models and logit fixed effects (FE) models for increase in care work outcome (odds ratios), married women in households with children aged 18 or younger

	Pooled	Jordan	Morocco	Tunisia	Pooled- FE	Jordan- FE	Morocco- FE	Tunisia- FE
School closures (open in person omit.)								
Totally closed	1.955* (0.603)			1.312 (0.476)	2.473* (0.955)			2.511* (1.176)
Online only	0.618 (0.205)	0.761 (0.293)			0.305** (0.125)	0.152** (0.102)		
Partially open	1.139 (0.332)	1.246 (0.320)	1.195 (0.432)	0.483 (0.261)	1.062 (0.345)	0.419 (0.235)	0.917 (0.337)	1.915 (1.302)
Not in session	0.791 (0.146)	1.028 (0.269)	0.679 (0.221)	0.334* (0.184)	0.520** (0.129)	0.263* (0.151)	0.942 (0.349)	0.187** (0.106)
Age group (20-24omit.)								
18-19	2.354 (1.068)	1.352 (0.741)	14.628* (18.152)					
25-29	1.032 (0.219)	0.848 (0.254)	2.731 (1.777)	0.376 (0.258)				
30-34	1.109 (0.225)	1.251 (0.353)	2.400 (1.542)	0.431 (0.255)				
35-39	1.217 (0.248)	1.445 (0.416)	2.876 (1.846)	0.418 (0.247)				
40-44	1.318 (0.275)	1.250 (0.368)	2.777 (1.759)	0.593 (0.356)				

	Pooled	Jordan	Morocco	Tunisia	Pooled- FE	Jordan- FE	Morocco- FE	Tunisia- FE
45-49	0.970 (0.214)	1.174 (0.372)	0.916 (0.591)	0.375 (0.230)				
50-54	1.265 (0.317)	1.817 (0.727)	1.937 (1.253)	0.322 (0.217)				
55-59	0.686 (0.227)	0.578 (0.347)	1.061 (0.726)	0.294 (0.232)				
60-64	0.533 (0.203)	0.270* (0.166)	0.908 (0.730)	1.059 (0.797)				
Education level (less than basic omit.)								
Basic	1.260 (0.156)	1.470 (0.330)	0.989 (0.263)	0.876 (0.200)				
Secondary	1.434** (0.169)	1.660* (0.361)	1.231 (0.416)	1.021 (0.230)				
Higher education	1.492** (0.183)	1.858** (0.391)	0.516 (0.226)	1.136 (0.253)				
Location (urban omit.)								
Rural	1.160 (0.124)	1.198 (0.242)	0.754 (0.179)	1.138 (0.232)				
Camp	0.489 (0.358)	0.511 (0.370)						
Wave (first wave omit.)								
Feb. 2021	0.473 (0.238)		0.414** (0.114)	0.421* (0.183)	0.326* (0.178)		0.264*** (0.099)	1.137 (0.723)
April 2021	1.163 (0.414)		1.685 (0.595)	0.596 (0.316)	1.291 (0.468)		1.054 (0.403)	2.386 (1.585)
June 2021	0.822 (0.236)	1.533 (0.425)	0.964 (0.402)	0.907 (0.269)	1.082 (0.220)	2.617** (0.792)	0.619 (0.285)	1.039 (0.216)
Aug. 2021	0.542 (0.213)				0.439* (0.158)			
Wave and country int.								
Feb. 2021 # Morocco	0.889 (0.523)				1.145 (0.810)			
Feb. 2021 # Tunisia	1.782 (1.157)				2.076 (1.545)			
Feb. 2021 # Egypt	1.618 (0.686)				2.959* (1.587)			
April 2021 # Morocco	1.480 (0.836)				1.000 (0.579)			
April 2021 # Sudan	0.688 (0.401)				1.381 (0.788)			
June 2021 # Morocco	1.238 (0.543)				0.611 (0.284)			
Admin. 1 included	Yes	Yes	Yes	Yes	No	No	No	No
p-value (model)	0.000	0.003	0.000	0.002	0.000	0.001	0.000	0.000
N (obs.)	7017	2360	1380	1578	2329	819	512	760
N (ind.)	4428	1374	899	743	862	316	193	234
Pseudo R-sq.	0.061	0.037	0.117	0.058	0.066	0.035	0.136	0.044

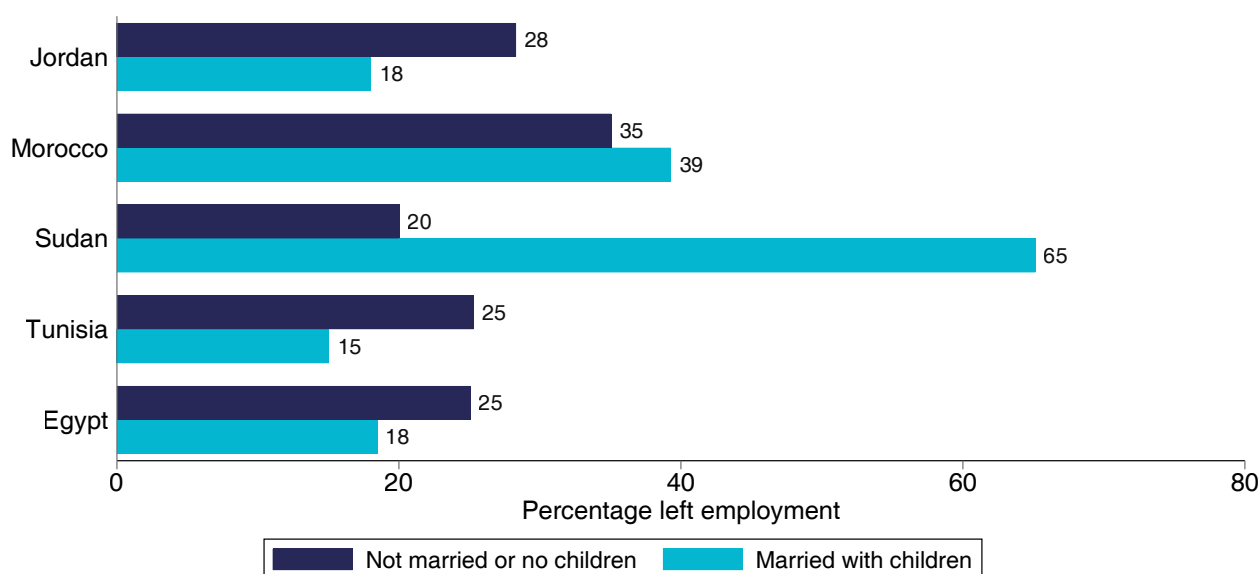
Source: Authors' calculations based on the COVID-19 MENA Monitor, all waves.

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Standard errors (clustered by individual) in parentheses

5.2 Employment and exits from employment

We now turn to women’s employment outcomes during the pandemic. We initially describe exits from employment for those who were employed as of February 2020. Exit rates from employment tended to be high, but varied substantially by country and care responsibilities, as illustrated in Figure 5. The figure focuses on the employment status during the wave for women who were employed in February 2020. Women with children were the most likely to have left employment at the time of the survey in Morocco (39 vs. 35 per cent of those without children) and Sudan (65 vs. 20 per cent). Women who were unmarried or had no children were most likely to exit in Jordan (28 vs. 18 per cent) Egypt (25 vs. 18 per cent) and Tunisia (25 vs. 15 per cent).

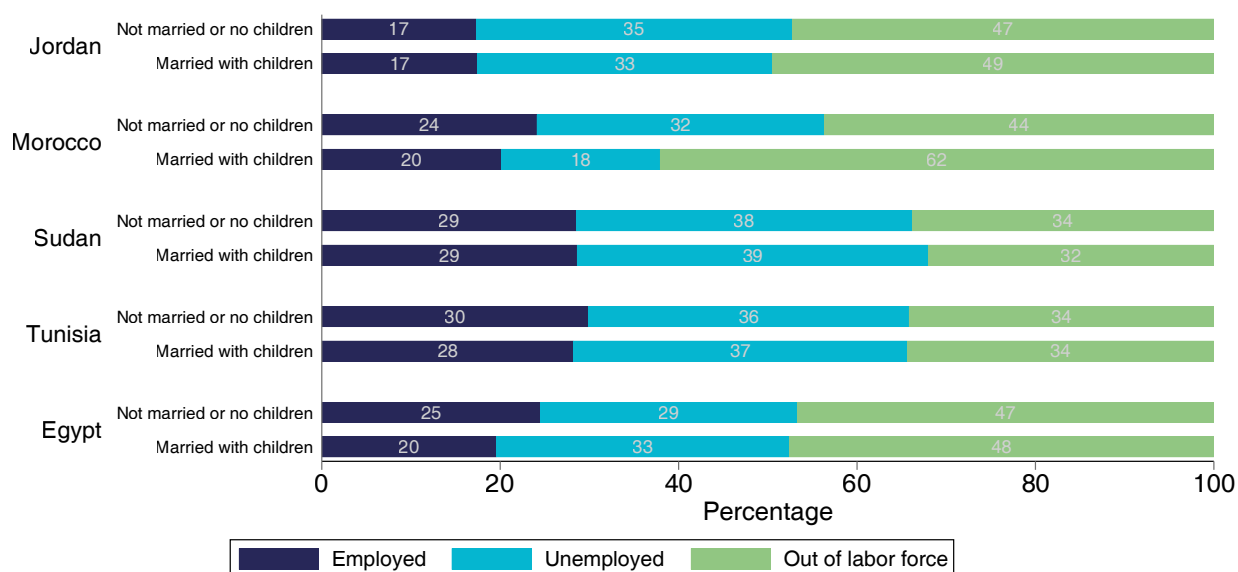
Figure 5. Percentage of women who were employed in February 2020 who had left employment at the time of the survey, by country, marital status and household composition



Source: Authors’ calculations based on all the COVID-19 MENA Monitor waves.

Differences in exits by care responsibilities across countries may be related in part to the structure of the labour market and employment. Figure 6 presents women’s labour market status during the pandemic by their care responsibilities. Women who are married with children have similar or lower employment rates than women who are not married or have no children, which may relate to the pandemic but is also consistent with past, pre-pandemic research (Assaad, Ghazouani, and Krafft 2018a; Assaad, Krafft, and Selwaness 2022; Krafft, Assaad, and Keo 2022; Selwaness and Krafft 2021). Women’s employment rates are generally quite low – the MENA region has the lowest women’s employment rates in the world (Verick 2018). Much of women’s participation in the labour force is unemployment, consistent with past research (Assaad, Ghazouani, and Krafft 2018b; Assaad, Krafft, and Keo 2019; ILO and ERF 2021; Krafft, Assaad, and Keo 2022). Women are thus often interested in employment, but unable to find employment that meets their (or their families’) reservation working conditions – including the ability to reconcile employment and family responsibilities (Assaad et al. 2021; Dougherty 2014; Gauri, Rahman, and Sen 2019; Groh et al. 2015).

Figure 6. Labour market status (percentage), by country, marital status, and household composition

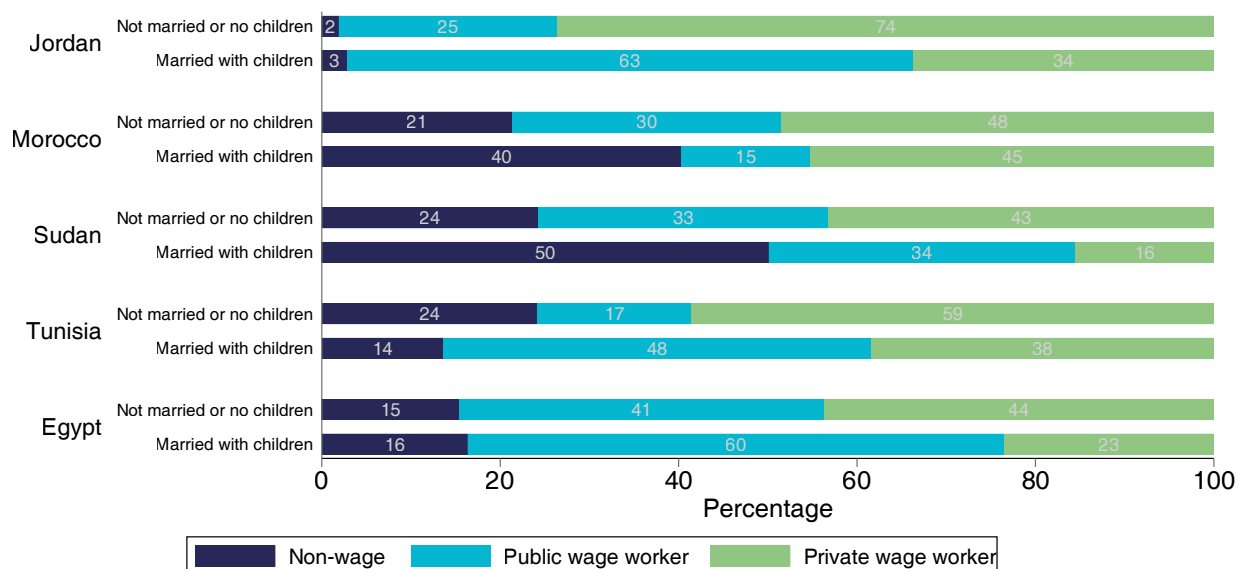


Source: Authors' calculations based on all the COVID-19 MENA Monitor waves.

Figure 7 shows employment type in February 2020 for women who were employed at that time. Married women with children were consistently less likely to be engaged in private sector wage work across countries (by 3 to 30 percentage points). In Morocco and Sudan, employed women, particularly women who were married with children under age 18, tended to be engaged in non-wage work. While 21 per cent of employed women who were not married or had no children in Morocco (and 24 per cent in Sudan) were in non-wage work, 40 per cent of women who were married with children in Morocco (and 50 per cent in Sudan) were in non-wage work. This non-wage work in Morocco and Sudan is primarily unpaid family work and work in agriculture (Ebaidalla and Nour 2021; Krafft et al. 2022), as these countries remain primarily agrarian with agricultural labour acting as a substantial labour absorbing sector.

Non-wage work is nearly non-existent in Jordan (2-3 per cent) and plays a smaller role in women's employment in Egypt (15-16 per cent), without clear differences by care responsibilities. In Tunisia, non-wage work is actually more common for employed women who are not married or have no children under 18 (24 per cent) than married women with children (14 per cent). Public sector employment was most common for married women with children in Jordan (63 per cent), Egypt (60 per cent), and Tunisia (48 per cent), compared to Sudan (34 per cent) or Morocco (15 per cent).

Figure 7. Employment type in February 2020, women who were employed in February 2020, by marital status and household composition

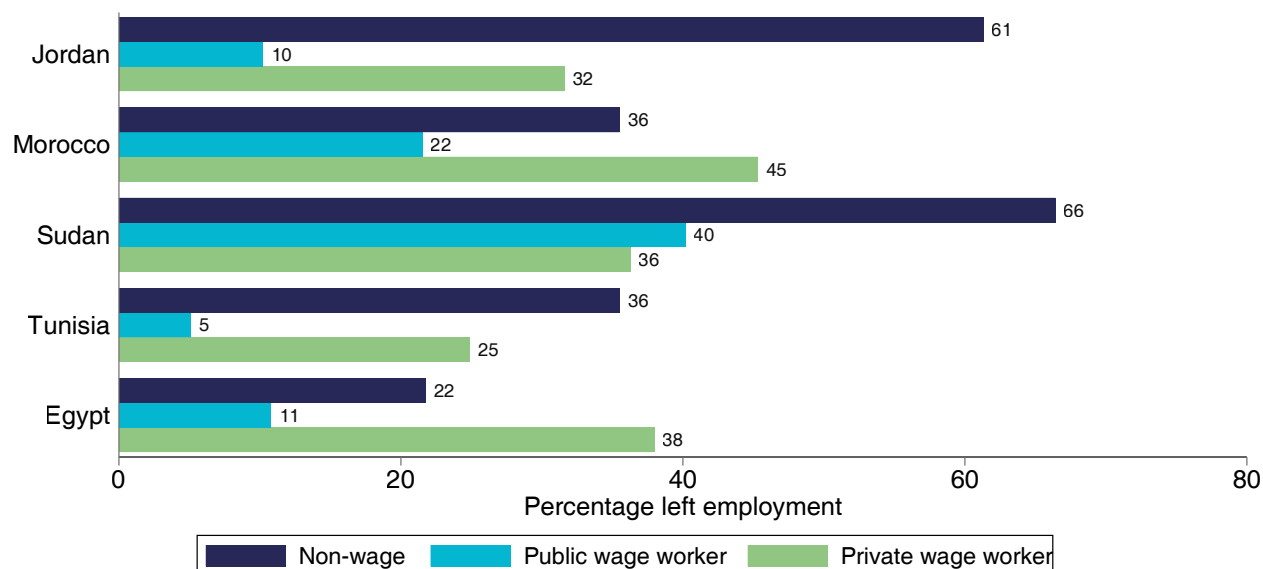


Source: Authors’ calculations based on all the COVID-19 MENA Monitor Surveys waves.

Other research has demonstrated that women in MENA tend to leave private sector work at marriage, continue in public sector work, and even (depending on the country context) increase non-wage work (Assaad, Krafft, and Selwaness 2022). Our results are consistent with this past research and also underscore that the selection out of private sector wage work (persisting primarily in public sector employment or non-wage work) may help explain differences in exit across countries. Women in public sector work have shorter hours and a generally easier time reconciling care responsibilities with employment (Assaad, Krafft, and Selwaness 2022). They also, as discussed above, were more likely to have employment protections during the pandemic. Women in non-wage work likewise may be more able to reconcile care work with employment, particularly if both can be done at home (Assaad, Krafft, and Selwaness 2022). Non-wage workers may, however, be much more marginally attached to employment, switching in and out of employment based on labour market conditions (Assaad and Krafft 2015; Krafft, Assaad, and Keo 2022).

The intersection between sector of employment and care responsibilities thus helps explain the patterns of exits across countries. Figure 8 shows the percentage of women exiting employment for women who were employed in February 2020, by type of employment in February 2020. Particularly for women who were non-wage workers, rates of exit were very high, ranging from 22 per cent in Egypt to over 60 per cent in Jordan and Sudan. This may be related to the seasonality of non-wage work, marginal attachment to the labour force among women engaged in non-wage employment, or the well-known challenges of measuring such work (Langsten and Salem 2008). Women in the public sector were the least likely to exit employment; only in Sudan (40 per cent) and Morocco (22 per cent) did exit rates substantially exceed 10 per cent. Exits from private sector work were higher (25 - 45 per cent) across all countries except Sudan.

Figure 8. Percentage of women who were employed in February 2020 who had left employment at the time of the survey, by February 2020 employment status



Source: Authors' calculations based on all the COVID-19 MENA Monitor waves.

The larger role of public sector employment for married women, particularly those with children under age 18, can help explain the differential patterns of exit by household composition, particularly in Egypt, Jordan, and Tunisia. Women with children have often selected out of the types of employment (particularly private sector work) that are difficult to reconcile with family responsibilities. Married women with children who were employed at the start of the pandemic may thus have had an easier time retaining their jobs in Egypt, Jordan, and Tunisia. In Sudan and Morocco, where non-wage work is dominant and particularly frequent for married women, high rates of exit from this type of work may explain why married women exited employment more often in these countries during the pandemic. Overall, the descriptive patterns support H3, that pandemic impacts on women's employment depended on the type of employment pre-pandemic.

We now turn to our multivariate models to test H2, whether employment is related to care responsibilities. We test this in a model with employment as the outcome and having school-aged or younger children as the key covariate (specification 1). In some models we also include initial labour market status (H3, specification 2). Because having school-aged or younger children is time invariant in our data,¹⁷ we estimate logit models but cannot estimate fixed effects models. Table 4 presents our results, alternating models without and then with initial labour market status for the pooled model and each country.

¹⁷ These questions were only asked at baseline given limited time and patience for phone surveys and would change little over the less-than-a-year period of the survey.

In the pooled model and all the country-specific models, being a married woman in a household with children is associated with a lower chance of employment. This result is only significant in the pooled model (0.722 odds ratio) and Egypt (0.612 odds ratio), but the coefficients are in the expected direction in all countries. However, after controlling for pre-pandemic labour market status (status in February 2020, in specification 2), odds ratios become or get closer to one and are all statistically insignificant. This result is counter to H2 (that the pandemic has caused women with school-age or younger children to exit employment). Instead, married women with care responsibilities had often already selected out of employment entirely or selected into types of employment (public sector employment and non-wage work) that were easier to reconcile with care responsibilities.

Results do support H3, that pre-pandemic type of employment matters for whether women remain in employment during the pandemic (see specification 2). Compared to the reference public sector employment status pre-pandemic, women in all other pre-pandemic labour market statuses were less likely to be employed at the time of the survey, usually significantly so (all differences are significant except for non-wage and private wage in Morocco and Tunisia and non-wage in Sudan). Differences tend to be substantial; for instance, in the pooled model, compared to public sector work those in non-wage work had an odds ratio of 0.229 and those in private sector work had an odds ratio of 0.285. These patterns may, however, be a continuation of existing pre-pandemic dynamics, as women persisted more in public sector work pre-pandemic as well (Assaad, AlSharawy, and Salemi 2022; Assaad and Salemi 2019).

Table 4. Logit models for employment (odds ratios), women

	Feb. 2020 labour mkt. status (public omit.)																	
	Pooled			Jordan			Morocco			Sudan			Tunisia			Egypt		
	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2		
Married with children	0.722** (0.080)	0.722** (0.080)	0.722** (0.080)	0.722** (0.080)	0.722** (0.080)	0.722** (0.080)	0.722** (0.080)	0.722** (0.080)	0.722** (0.080)	0.722** (0.080)	0.722** (0.080)	0.722** (0.080)	0.722** (0.080)	0.722** (0.080)	0.722** (0.080)	0.722** (0.080)		
Non-wage		0.229*** (0.074)		0.060*** (0.031)		0.568 (0.287)		0.567 (0.478)				0.106** (0.080)				0.448 (0.254)		
Private wage worker		0.285*** (0.065)		0.163*** (0.061)		0.416 (0.200)		0.962 (0.679)				0.139** (0.093)				0.096*** (0.041)		
Unemployed		0.032*** (0.008)		0.019*** (0.009)		0.079*** (0.043)		0.296* (0.154)				0.011*** (0.008)				0.001*** (0.001)		
Out of labour force		0.015*** (0.003)		0.005*** (0.002)		0.020*** (0.010)		0.284* (0.143)				0.006*** (0.004)				0.005*** (0.002)		
Age group (20-24 omit.)																		
18-19	0.534* (0.144)	0.528* (0.162)	0.025*** (0.021)	0.028*** (0.023)	0.042*** (0.036)	0.057** (0.060)	0.724 (0.351)	0.722 (0.351)	0.724 (0.351)	0.722 (0.351)	1.250 (0.761)	1.086 (0.717)	1.546 (0.758)	1.086 (0.717)	1.546 (0.758)	1.530 (0.883)		
25-29	1.214 (0.220)	0.756 (0.143)	0.816 (0.236)	0.371** (0.120)	1.287 (0.576)	0.607 (0.283)	0.984 (0.347)	0.959 (0.341)	0.984 (0.347)	2.292* (0.947)	1.657 (0.617)	1.657 (0.617)	0.909 (0.328)	1.657 (0.617)	0.909 (0.328)	0.473 (0.220)		
30-34	1.385 (0.248)	0.816 (0.157)	1.405 (0.433)	0.650 (0.214)	1.034 (0.508)	0.562 (0.284)	0.990 (0.381)	0.850 (0.324)	0.990 (0.381)	2.471* (1.015)	1.860 (0.736)	1.860 (0.736)	1.411 (0.497)	1.860 (0.736)	1.411 (0.497)	0.832 (0.330)		
35-39	1.830** (0.366)	0.908 (0.216)	1.553 (0.504)	0.489* (0.173)	4.200** (2.159)	2.101 (1.038)	0.862 (0.434)	0.670 (0.355)	0.862 (0.434)	2.671* (1.165)	1.721 (0.822)	1.721 (0.822)	1.179 (0.457)	1.721 (0.822)	1.179 (0.457)	0.570 (0.277)		
40-44	1.817** (0.344)	0.775 (0.165)	1.607 (0.537)	0.348** (0.130)	1.653 (0.792)	1.086 (0.618)	1.301 (0.603)	0.955 (0.421)	1.301 (0.603)	2.531* (1.134)	1.626 (0.689)	1.626 (0.689)	2.765* (1.114)	1.626 (0.689)	2.765* (1.114)	0.496 (0.235)		
45-49	1.823** (0.402)	0.780 (0.190)	1.221 (0.455)	0.520 (0.244)	2.497 (1.386)	1.538 (0.766)	0.879 (0.575)	0.584 (0.418)	0.879 (0.575)	3.274* (1.543)	1.512 (0.743)	1.512 (0.743)	1.907 (0.754)	1.512 (0.743)	1.907 (0.754)	0.185** (0.097)		
50-54	1.103 (0.242)	0.462** (0.114)	0.269*** (0.101)	0.111*** (0.055)	2.129 (1.078)	0.805 (0.468)	0.363 (0.191)	0.211** (0.115)	0.363 (0.191)	1.347 (0.620)	0.859 (0.358)	0.859 (0.358)	2.422* (1.061)	0.859 (0.358)	2.422* (1.061)	0.434 (0.218)		
55-59	1.114 (0.289)	0.472** (0.124)	0.071*** (0.049)	0.061*** (0.047)	1.138 (0.604)	0.521 (0.282)	7.534* (6.736)	3.654 (2.753)	7.534* (6.736)	1.632 (0.868)	0.986 (0.533)	0.986 (0.533)	2.892* (1.546)	0.986 (0.533)	2.892* (1.546)	0.305* (0.172)		
60-64	0.358*** (0.102)	0.381** (0.127)	0.186** (0.121)	0.235 (0.174)	0.861 (0.469)	1.562 (1.044)	0.458 (0.374)	0.439 (0.363)	0.458 (0.374)	0.499 (0.257)	0.578 (0.332)	0.578 (0.332)	0.247* (0.175)	0.578 (0.332)	0.247* (0.175)	0.048** (0.048)		

	Pooled		Jordan		Morocco		Sudan		Tunisia		Egypt	
	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2
Education level (less than basic omit.)												
Basic	1.274 (0.197)	0.889 (0.157)	0.802 (0.272)	0.749 (0.292)	2.008* (0.554)	1.126 (0.361)	1.199 (0.575)	1.276 (0.660)	1.117 (0.306)	0.739 (0.221)	0.939 (0.398)	0.491 (0.212)
Secondary	1.774*** (0.266)	1.275 (0.212)	1.041 (0.331)	0.841 (0.324)	2.490* (0.902)	1.210 (0.462)	2.109 (1.005)	1.995 (1.074)	1.736* (0.458)	1.719* (0.457)	1.698 (0.516)	0.693 (0.239)
Higher education	3.995*** (0.604)	1.454* (0.246)	3.770*** (1.132)	0.811 (0.289)	8.529*** (3.387)	3.628*** (1.288)	3.079* (1.486)	2.748 (1.474)	2.669*** (0.733)	0.978 (0.296)	5.407*** (1.744)	0.826 (0.337)
Location (urban omit.)												
Rural	1.048 (0.131)	1.157 (0.165)	0.733 (0.197)	0.652 (0.219)	0.786 (0.273)	1.115 (0.376)	0.899 (0.266)	0.909 (0.277)	1.383 (0.316)	1.655* (0.425)	1.559 (0.371)	1.283 (0.375)
Camp	0.750 (0.520)	1.161 (0.864)	0.765 (0.527)	0.966 (0.945)								
Wave (first wave omit.)												
Feb. 2021	1.333 (0.288)	1.178 (0.318)			1.532 (0.366)	1.971* (0.596)			1.094 (0.165)	1.054 (0.212)		
April 2021	1.080 (0.170)	0.967 (0.182)			2.669*** (0.654)	3.350*** (0.950)			1.082 (0.164)	0.973 (0.193)		
June 2021	1.488* (0.251)	1.473 (0.303)	1.130 (0.162)	1.327 (0.268)	1.836* (0.497)	2.000* (0.613)			1.476* (0.239)	1.523 (0.331)	1.153 (0.182)	1.356 (0.300)
Aug. 2021	1.737* (0.376)	1.859* (0.523)	1.363* (0.212)	1.743** (0.375)			1.394 (0.332)	1.366 (0.335)				
Wave and country int.												
Feb. 2021 # Morocco	1.149)0.360(1.743)0.697(
Feb. 2021 # Tunisia	0.812)0.170(0.865)0.223(
Feb. 2021 # Egypt	0.951)0.197(0.998)0.259(

	Pooled		Jordan		Morocco		Sudan		Tunisia		Egypt	
	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2
April 2021 # Morocco	2.376** (0.679)	3.355*** (1.175)										
April 2021 # Sudan	1.270 (0.408)	1.619 (0.684)										
June 2021 # Morocco	1.233 (0.382)	1.328 (0.511)										
Admin. 1 included	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
p-value (model)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N (obs.)	13427	13427	3617	3617	2916	2916	2111	2111	3322	3322	1461	1461

Source: Authors' calculations based on the COVID-19 MENA Monitor, all waves.

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Standard errors (clustered by individual) in parentheses

5.3 Sensitivity analyses for employment outcomes

We undertook a number of additional sensitivity analyses for our models with employment in the past week as an outcome. We tested whether there were different results if we restricted to women who were employed in February 2020 (Table 5, in the appendix). There were not any statistically significant relationships between care responsibilities and employment among women who were employed pre-pandemic in the pooled or country models, with or without specific initial labour market statuses. This corroborates our interpretation that, after accounting for selection into employment, women with and without care responsibilities had similar employment outcomes during the pandemic.

There could be interactions between type of employment and care responsibilities in determining exit. We therefore test (Table 6, in the appendix) whether, among women who were employed pre-pandemic, there were significant interactions between type of employment and household structure (or a significant main effect for public sector workers). Only in Tunisia were there significant relationships; women with care responsibilities were significantly more likely to stay employed than those without, but only in the public sector.

We also tested whether (among those with children) school closures had a significant effect on employment. We do this in Table 7 in the appendix for both the pooled models and country-specific models, both with and without controlling for February 2020 labour market status. Closures did not significantly affect employment for women with young children. This is consistent with our finding in the main specification that women with children have already selected into forms of employment that are more compatible with care; thus, while school closures did increase women's care burden, this did not lead to subsequent impacts on employment for those who were employed. While this may be positive in terms of women's economic outcomes, it has worrying implications for time poverty and women's overall wellbeing. Other research has demonstrated that increased care burdens during the pandemic are associated with lower levels of mental health and wellbeing among women in the region and elsewhere (Barsoum and Majbouri 2021; Etheridge and Spantig 2020; Siflinger et al. 2021).

6. Discussion and conclusions

The pandemic has disproportionately hurt women's employment, but the evidence for this relationship is primarily from high-income countries (e.g., Alon et al. 2021; Collins, Landivar, et al. 2021; Hipp and Bünning 2021; Hupkau and Petrongolo 2020). Gender inequity, particularly around care work, may make women in low- and middle-income countries particularly vulnerable to exiting employment (Kenny and Yang 2021). Evidence from other low- and middle-income countries similarly suggests women were particularly likely to exit employment (Miguel and Mobarak 2021; Viollaz et al. 2022). Indeed, in MENA descriptive evidence corroborates this pattern as well (Assaad et al. 2022; Barsoum and Majbouri 2021; Krafft et al. 2022; Marouani et al. 2022). Yet since women exit employment more frequently in non-pandemic times as well (Assaad, Krafft, and Selwaness 2022; Selwaness and Krafft 2021), the role of the pandemic in creating additional care work and driving labour market exits had previously been unclear.

School closures were frequent in MENA; we show that total school closures were associated with increases in care work for women with children under age 18 (H1). Yet online school decreased

care work, which may relate to the nature or intensity of online teaching. The finding that women performed less care work when children in their households were engaged in online schooling suggest that this school modality was more akin to school being not in session than to school effectively acted like child care, but with a lighter workload (e.g., no homework) that on the net reduced care work. Results from a youth survey in Jordan corroborate a lighter workload for online schooling (Assaad et al. 2021). The global literature has underscored the unequal access to remote schooling as well as the learning loss associated with school closures (Conto et al. 2021; Hossain 2021; Khan and Ahmed 2021; Reuge et al. 2021). Unlike in higher-income countries, where online instruction increased care work and reduced female labour force participation (Collins, Landivar, et al. 2021), in MENA online learning does not seem to have increased care work – but this may have come at the cost of further learning loss.

Women with care responsibilities had the same or lower employment rates than other women, but we demonstrate that there are no significant effects of care responsibilities on exit after controlling for pre-pandemic labour market status (or limiting to women employed pre-pandemic, or directly estimating the impact of closures; refuting H2). Exits for married women with children during the pandemic were actually lower in Egypt, Jordan, and Tunisia and higher in Morocco and Sudan, compared to other groups. This is in part because of the types of employment women undertake in each country and compositional differences in employment by care responsibilities (consistent with H3). Married women are more likely to be in public sector work (Egypt, Jordan, and Tunisia) or non-wage work (Morocco and Sudan) and less likely to be in private sector work. Married women with children who were employed pre-pandemic may have already selected out of employment that would have been difficult to reconcile with care work. Married women were also more likely to be in sectors where pandemic-related employment protections were implemented (for example, Egypt implemented work from home measures for married women with children in the public sector).

Unfortunately, there is not an exact basis for comparison of the rates of exits we estimate to pre-pandemic data or research, as studies use different time frames for transitions and universes. As a point of comparison, using panel data in Egypt, between 40-74% of women in private sector wage employment and especially non-wage roles exited employment between 2006 and 2012 (Assaad and Krafft 2015). A paper using retrospective data (where transitions are likely under-estimated for many statuses (Assaad, Krafft, and Yassin 2018)) found that for Tunisian women who started in private wage employment, the hazard of exit (probability of exit if still working) each year after marriage was around 20%, although hazards in Jordan and Egypt were lower (Assaad, Krafft, and Selwaness 2022). These high rates of exit for women pre-pandemic underscore the difficulties they face reconciling private sector employment with care work. Although selection out of work appears acute and to affect married women across the board in MENA, there are parallels among women with younger than school age children in high-income countries; these women have lower rates of labour force participation, are particularly selected, and ended up being relatively less affected by the pandemic (Alon et al. 2021).

6.1 Limitations

Our results may not estimate causal impact for a variety of reasons. The estimates of the relationship between school closures and care work and employment are very unlikely to suffer from reverse causality (care work does not cause school closures, and employment outcomes during the pandemic cannot cause care responsibilities). The fixed effects models for more than usual care work account for any time-invariant woman level unobservables, but there may be time varying unobservables, such as other types of closures (e.g., transport, employment) or other factors driving the relationships we observe between closures and care responsibilities.

We demonstrated that accounting for pre-pandemic labour market status was critically important for understanding the employment outcomes of married women with children during the pandemic. Women with children had often already selected out of the labour market or into particular labour market statuses that might be more reconcilable with care work (public sector and non-wage work) or easier to exit and re-enter (non-wage work, particularly in agriculture in Morocco and Sudan). Given this selection, as well as the potential for omitted variables, our results comparing married women with children to unmarried women should be interpreted with some caution. We do, however, note that in the MENA literature there are significant differences in exit in anticipation of and at marriage, but not for married versus unmarried women (estimates from Egypt, Jordan, and Tunisia) (Selwaness and Krafft 2021). Estimates of the endogeneity of marriage also show that marriage is nearly universal for women and not necessarily endogenous (Assaad, Krafft, and Selwaness 2022).

Measurement error may also be an issue in our data, particularly with phone surveys (Heath et al. 2021). Unfortunately, there is generally limited labour market microdata available in the region (Ekhatior-Mobayode and Hoogeveen 2021) an issue only exacerbated by the pandemic. Detailed time use diaries were not possible to collect over the phone, and such data was rare in the region even pre-pandemic (Economic Research Forum and UN Women 2020), a particular challenge for assessing changes in care work. Estimates from in-person panel surveys pre-pandemic show high rates of exit from employment among women in both panel and retrospective data (Assaad, AlSharawy, and Salemi 2022; Assaad, Krafft, and Selwaness 2022; Assaad and Salemi 2019; Selwaness and Krafft 2021), consistent with what we observe.

Although the phone surveys were weighted to represent the universe of mobile phone owners pre-pandemic in terms of observable characteristics, there may be unobservable selection related to key covariates and relationships (such as care and employment) that could bias our results or preclude them from being generalizable. Phone owners are also a selected segment of the population overall, with less-educated women being particularly under-represented and variation across countries in mobile phone ownership rates (Assaad et al. 2022; Krafft et al. 2022; Marouani et al. 2022).

6.2 Policy implications

The COVID-19 pandemic and school closures created additional care work responsibilities for married women with children. These challenges underscore the fundamental and persistent gender inequity in care work in MENA, with, for example, women doing nineteen times the care work that men do in Jordan (Economic Research Forum and UN Women 2020). In Egypt, 98 per cent of men agree that “Changing diapers, giving baths to children, and feeding children should

The pandemic offers a potential opportunity to increase men's involvement in unpaid care work. In Turkey (İlkkaracan and Memiş 2021) and the Asia Pacific (Seck et al. 2021), men's participation in unpaid care work – while still much lower than women's – did increase during the pandemic, a dynamic also seen in some high-income contexts. If this greater involvement of men persists after the pandemic recedes, it may have the potential to change patterns of care work over the longer-term.

The pandemic appears to have neither helped nor hurt women's employment, which remains persistently low in the region (Assaad et al. 2020; Verick 2018). Promoting women's employment is an ongoing challenge, and one where care responsibilities may constrain women's employment, leading them to frequently leave employment, particularly in the private sector, at and in anticipation of marriage (Assaad, Krafft, and Selwaness 2022). Weak labour demand overall and in sectors disproportionately employing women is a further challenge (Assaad et al. 2019). Tackling the barriers to job creation broadly, including crony capitalism (Chekir and Diwan 2015; Rijkers, Baghdadi, and Raballand 2017; Diwan, Malik, and Atiyas 2019), could be important to supporting women's employment.

Fundamental to both unequal care work and low women's employment are social norms that emphasize a male breadwinner/female homemaker paradigm in MENA (Hoodfar 1997; El-Feki, Heilman, and Barker 2017). Norms as well as care responsibilities restrict what jobs are socially acceptable for women (Barsoum and Abdalla 2022). Outright employer discrimination against women is also a problem (Osman, Speer, and Weaver 2021). Shifting gender norms – which have remained persistently inequitable across generations in MENA (El-Feki, Heilman, and Barker 2017) – is a challenging task. Schools may provide particularly important opportunities to create norms change across generations (Dhar, Jain, and Jayachandran 2022). Substantial norms change across generations is difficult, but possible – the regional shift from gender inequity to equity in education is an important illustration of the potential for change (Assaad, Krafft, and Keo 2019; Krafft, Assaad, and Keo 2022).

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Appendix: Additional Tables

Table 5. Logit models for employment (odds ratios), women who were employed in February 2020

	Pooled		Jordan		Morocco		Sudan		Tunisia		Egypt	
	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2
Married with children	0.823 (0.164)	0.757 (0.153)	1.325 (0.464)	0.943 (0.333)	0.751 (0.277)	0.767 (0.284)	0.557 (0.469)	0.619 (0.556)	1.037 (0.443)	0.944 (0.426)	1.336 (0.559)	0.957 (0.434)
Feb. 2020 labour mkt. status (public omit.)												
Non-wage		0.351*** (0.112)		0.102*** (0.047)		0.612 (0.279)		1.469 (1.221)		0.133** (0.100)		0.462 (0.277)
Private wage worker		0.373*** (0.093)		0.249*** (0.088)		0.527 (0.251)		0.747 (0.457)		0.162** (0.103)		0.154*** (0.069)
Admin. 1 included	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
p-value (model)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N (obs.)	3174	3174	682	682	729	729	228	228	1206	1206	326	326
pseudo R-sq.	0.187	0.202	0.135	0.179	0.223	0.228	0.612	0.614	0.178	0.207	0.207	0.257

Source: Authors' calculations based on the COVID-19 MENA Monitor, all waves.

Notes: *p<0.05; **p<0.01; ***p<0.001. Standard errors (clustered by individual) in parentheses

Table 6. Logit models including interactions for employment (odds ratios), women who were employed in February 2020

	Pooled	Jordan	Morocco	Sudan	Tunisia	Egypt
Employment						
Married with children	1.369 (0.598)	0.385 (0.345)	2.107 (1.870)	0.849 (0.753)	18.310** (19.461)	1.108 (0.706)
Feb. 2020 labour mkt. status (public omit.)						
Non-wage	0.694 (0.370)	0.019*** (0.021)	1.161 (0.840)	2.322 (1.883)	0.715 (0.700)	0.489 (0.509)
Private wage worker	0.531 (0.210)	0.099* (0.090)	0.825 (0.551)	0.380 (0.350)	0.677 (0.503)	0.183* (0.129)
Feb. 2020 labour mkt. status and married with children int.						
Married with children # Non-wage	0.300 (0.196)	9.115 (11.218)	0.243 (0.256)	0.035 (0.064)	0.022** (0.029)	0.923 (1.170)
Married with children # Private wage worker	0.563 (0.269)	3.088 (3.000)	0.337 (0.337)	2.063 (2.919)	0.036** (0.039)	0.759 (0.659)
Controls included	Yes	Yes	Yes	Yes	Yes	Yes
P-value (model)	0.000	0.000	0.000	0.000	0.000	0.000
N (obs.)	3174	682	729	228	1206	326
N (ind.)	0.206	0.184	0.232	0.634	0.235	0.257

Source: Authors' calculations based on the COVID-19 MENA Monitor, all waves.

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Standard errors (clustered by individual) in parentheses

Table 7. Logit models for employment including school and nursery closures (odds ratios), married women in households with children aged 18 or younger

	Pooled		Jordan		Morocco		Sudan		Tunisia		Egypt	
	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2	Spec. 1	Spec. 2
	School closures (open in person omit.)											
Totally closed	0.988 (0.320)	0.711 (0.269)							0.976 (0.387)	0.660 (0.354)		
Online only	0.956 (0.368)	1.346 (0.614)	0.875 (0.420)	1.349 (0.967)							3.323 (2.612)	1.867 (1.451)
Partially open	0.929 (0.344)	1.024 (0.378)	0.816 (0.291)	0.489 (0.263)	1.079 (0.460)	0.908 (0.411)			0.970 (0.550)	1.000 (0.801)		
Not in session	1.118 (0.277)	1.081 (0.322)	1.066 (0.386)	0.916 (0.498)	1.812 (0.644)	1.586 (0.637)	0.408 (0.309)	0.445 (0.336)	0.793 (0.435)	0.856 (0.675)		
Feb. 2020 labour mkt. status (public omit.)												
Non-wage		0.152*** (0.065)		0.091*** (0.058)		0.427 (0.402)		0.794 (0.901)		0.020*** (0.019)		0.588 (0.394)
Private wage worker		0.247*** (0.072)		0.193*** (0.083)		0.402 (0.367)		1.748 (1.827)		0.022*** (0.019)		0.174*** (0.089)
Unemployed		0.048*** (0.017)		0.011*** (0.009)		0.732 (0.692)		0.847 (0.660)		0.003*** (0.003)		0.003*** (0.003)
Out of labour force		0.012*** (0.003)		0.004*** (0.001)		0.013*** (0.013)		0.637 (0.428)		0.001*** (0.001)		0.006*** (0.003)
Controls included	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
p-value (model)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N (obs.)	7304	7304	2412	2412	1512	1512	705	705	1662	1662	1013	1013
Pseudo R-sq.	0.126	0.355	0.139	0.500	0.149	0.439	0.145	0.161	0.423	0.161	0.509	0.509

Source: Authors' calculations based on the COVID-19 MENA Monitor, all waves.
Notes: *p<0.05; **p<0.01; ***p<0.001. Standard errors (clustered by individual) in parentheses



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