

# THE COVID-19 PANDEMIC AND GENDER INEQUALITY ON THE LABOUR MARKET: A SYSTEMATIC REVIEW AND FUTURE DIRECTIONS

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## *Abstract*

*The COVID-19 pandemic has been universally disruptive. Drastic governmental measures have led to substantial changes on the labour market, with many workers being laid off or working from home. This article investigates whether the pandemic has differentially affected women and men on the labour market, systematically synthesising 37 quantitative and qualitative articles published in peer-reviewed journals in 2020 and 2021. The results did not conclusively indicate a gendered effect on employment and earnings. The evidence was highly mixed and depended on the outcome of study, the method, and the sample. On the other hand, the results suggest that the pandemic has disproportionately impacted the emotional, psychological, and social wellbeing of women over men. This resulted in a greater negative effect on women's work performance, particularly for working mothers.*

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## Introduction

Natural disasters affect various social groups differently. In her book “Women confronting natural disaster: From vulnerability to resilience” the sociologist Elaine Enarson (2012) identifies gender matters in disasters as fundamental and transversal factors of social vulnerability that push gender inequality to the extreme. Gender expectations, together with limited access to economic and material resources, make women more vulnerable to the negative impacts of a disaster like a world crisis.

The COVID-19 pandemic has been rapidly spreading worldwide. The drastic governmental measures such as lockdowns lead not only to a modification of social lives but resounding economic shock which has predominantly affected services, an area commonly occupied by women (Blundell, et al. 2020). Many countries have closed schools and care homes. This is problematic as mothers often perform a higher proportion of home duties than fathers. Thus, women tend to leave the labour market due to responsibilities of care: it is estimated that women who later return to the labour market will receive an offer of 7 percent less than a candidate who is currently employed (Miller 2020).

Many sociologists argue that challenges which arise from disasters amplify social inequalities. For example, the 1918 influenza outbreak disproportionately harmed the poor (Reid 2013). On the other hand, many would argue that disasters and pandemics are able to reduce inequalities (Rubery and Rafferty 2013). Namely, the Black Death put an end to feudal obligations and boosted the ability of those in the poorest strata to negotiate better conditions. More recently, New York Governor Andrew Cuomo called the coronavirus "The Great Equalizer" (Cuomo 2020). These words echo the book “The Great Leveller” by economic historian Walter Scheidel (2017) who argued that pandemics can flatten economic inequality. This notwithstanding, it must be considered that in the case of gendered results, this effect may not only have a negative impact on the lives of individual women, but on society as a whole.

Madgavkar et al. (2020) estimate that in a gender-regressive COVID-19 scenario in which no effort is taken by policymakers to tackle the gendered effects of the pandemic, the global GDP growth would be 1 trillion USD lower in 2030 than it would be if there were no gendered effects. It is therefore essential, from a policy perspective, to study the gendered effects of COVID-19 in the labour market future.

The review was primarily incentivised by the fact that despite the growing number of articles reporting the challenges for working women during the pandemic (Blundell, et al. 2020, Mooi-Reci and Risman 2021, Sarker 2021, Yavorsky, Qian and Sargent 2021), the findings of these works remain inconclusive and not reviewed systematically. This study seeks to highlight the effect of the COVID-19 on the gender gap, proposing ideas that allow decision-makers, governmental and organisational policies to establish plans capable of responding to gender challenges. Furthermore, the aim of the study goes beyond a mere compilation of literature but employs findings to envision a future research agenda for gender inequality and aim to fill the gap by exploring the existing literature on the impact of outbreaks on working women. The specific research question that the review focuses on is: Did the COVID-19 pandemic affect working women and men differently (the so-called gender pandemic hypothesis)? In consideration of this question, the article critically appraises the methodological rigor with which the studies were conducted and provides conceptual and methodological suggestions that can guide future academic work on the gender pandemic hypothesis, additionally offering timely evidence on a topic of high relevance to public policy.

## Conceptual Framework

The gender gap persists despite the growing educational attainment and participation of women in the labour force (Cha and Weeden 2014). In the EU, 67.3% of women were employed in 2019, compared to 79% of men (European Commission 2020). Moreover, women earn 14.1% less per hour than men. This review hypothesises that COVID-19 has exacerbated the gender gap based on three interrelated mechanisms: (1) women tend to be employed in sectors that were hit the hardest by the pandemic, (2) women are often discriminated against in the labour market, and (3) women mostly bear the burden of household chores and care giving.

To curb the infection rate of the coronavirus, occupations deemed “non-essential” were closed and employees were either laid off or furloughed. The hardest hit sectors were low-paid service sectors that are mostly women-dominated. For instance, based on the recent data from Washington, D.C., 54.4% of retail salespersons, 69.8% of waiters, 89.5% of hostesses, and 94.9% of hairdressers are women (Mulcahy, West and Baker 2020). This is in sharp contrast to the previous crises in which the hardest-hit sectors were traditionally the goods-producing, housing, and financial sectors in which men hold the majority of jobs. Most female workers whose jobs were deemed non-essential could not continue to work from home (e.g., a hairdresser or a waitress) and either lost their jobs or were suspended. Women also tend to be more vulnerable to loss of income (Queisser, Adema and Clarke 2020), given that typically their incomes are lower, their poverty rates are higher, and they have more difficulty finding employment after redundancy. This is especially the case for single women as they rely on a sole income and tend to be worse-off than single men. Nonetheless, a minority of occupations traditionally dominated by women were deemed essential, including social and health care work, a profession in which women have the highest risk of contracting the virus, hindering them from working and receiving full pay.

Discrimination theory suggests another potential mechanism through which one can expect a gendered effect of the COVID-19. It is well documented that gender discrimination occurs in the workplace, either through taste-based discrimination which stems from animosity towards women, or through more prevalent statistical discrimination (Tilcsik 2021). Statistical discrimination theory posits that, in the absence of information on worker productivity, employers rely on observable characteristics such as gender, race or education to infer productivity (Altonji and Pierret 2001). However, gender stereotypes are pervasive in the labour market: women are often considered to be less productive than men as they lack what are perceived as essential masculine traits (Bobbitt-Zeher 2011, Gorman 2005). It is therefore expected that, as a result of gender discrimination, a higher proportion of redundant workers were women as they were stereotypically deemed less productive. The current literature regarding gender discrimination and work dismissal indicates that women are generally at a higher risk of discrimination and termination than men, especially if pregnant (Byron and Roscigno 2014, Hirsh, Treleven and Fuller 2020).

Another mechanism through which women may be more affected by the pandemic is provided by the gender role theory (Gutek, Searle and Klepa 1991) which posits the family as a central component of woman's social identity, but not of men's; women are societally expected to bear the brunt of household chores and childcare. In practice, women indeed do most of the housework and childcare, despite an increase in labour force participation (Dunatchik, et al. 2021, Chung, et al. 2021, Shockley and Shen 2016, Yildirim and Eslen-Ziya 2021).

Before the pandemic, women relied on additional help such as childcare facilities and work-life policies to mitigate the impact of home responsibilities on their labour market performance (Van der Lippe, Van Breeschoten and Van Hek 2019). However, as a result of the COVID-19 measures, childcare facilities and schools were closed, leading to a sudden increase

in childcare and housework. The gender role theory predicts that most of this increase in childcare and housework would fall on women. This is confirmed by the marital power theory (Rollins and Bahr 1976), stating that the person with more power in the marriage prevails in conflicting goals. In the case of the pandemic, the person in power would be the man as the higher earner, the conflicting goal would be the sacrifice of work for childcare.

The situation is exacerbated for single parents. As the child often resides with the mother after parental separation rather than with the father, single mothers are particularly at risk of struggling to balance housework and childcare with paid employment. Women have been found to not only take responsibility for cleaning, cooking, and childcare more than men but also take more pride and enjoyment in it. West and Zimmerman (2009) argue that due to gender role internalisation, women view domestic labour as an act that affirms femininity. Thus, as a result of the ingrained social norms on the household division of labour, one expects that women are more likely to withdraw from the labour force to deal with housework and childcare.

## Method

The Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) guidelines (Moher, et al. 2009) were followed as displayed in **Figure 1**. The literature search was performed by the two authors separately. The databases used were Google Scholar, Econlit, Emerald, JSTOR, NBER, ProQuest, ScienceDirect, Scopus, WebOfScience, Wiley, and RePEc. We searched the terms “COVID”, “corona”, “pandemic”, and “lockdown” in combination with “labour/labor market” for each of the databases separately. Terms such as “gender” were excluded because studies may use other terms (e.g., “sex”) or only refer to “women” instead of using overall terminology. Given that the pandemic is a recent phenomenon, this approach is more inclusive without making the systematic review infeasible.

The article focuses solely on peer-reviewed full-text journal articles in English. As the reliability of the systematic review hinges on the trustworthiness of the underlying studies, it is imperative that studies have undergone peer review. Given that one of the search terms is “pandemic” and several other pandemics have been studied in the past, e.g., the influenza pandemic, we restricted the period of publishing to 2020 until March 2021.

A total of 219 articles were identified. Exclusion criteria considered articles that did not study the COVID-19 pandemic and labour market outcomes. This resulted in a reduction of the number of articles to 83. The full text of each article was further analysed with two inclusion criteria in mind: (1) the article presents a quantitative or qualitative study with original data, and (2) the article compares labour market outcomes of males and females. Accordingly, studies that did not include original data such as research notes, commentaries and opinions were excluded. Moreover, given that the goal of this review is to synthesize the literature on the gendered effects of the pandemic, articles that do not compare labour market outcomes of both women and men have also been omitted. Many articles focused on the labour market

outcomes of women only. Most of these articles were qualitative and analysed the experiences of women only during the pandemic through interviews. Although these articles are captivating, it is difficult to make inferences about the gender gap if men are not included. Therefore, the review solely focused on articles that compared outcomes of both men and women, either qualitatively or quantitatively.

After applying the inclusion criteria, the final analysis includes 37 articles, out of which 36 were quantitative and 1 was qualitative. The distinction between a quantitative and a qualitative article is disputed; an article was only considered as qualitative if no statistical inference was made using well-established tests and econometric models. For instance, an article was considered qualitative if the authors used an ethnographic study. Unsurprisingly, **Table 1** shows that articles tend to be concentrated in gender-focused and social stratification journals.

[FIGURE 1 HERE]

[TABLE 1 HERE]



## Results

Based on the systematic review, the article answers the research question: *Did the COVID-19 pandemic differentially affect working women and men?*

The employed method in the qualitative study was an autoethnography of two Ph.D. students. Quantitative studies have mostly employed either simple descriptive statistics or correlational methods such as regression analysis or logistic regression. Two studies have attempted to go beyond correlations and obtain causal effects by using either individual fixed effects (Collins, Landivar, et al. 2021) or by using a difference-in-differences approach (Lemieux, et al. 2020). Interestingly, only two studies have employed a formal decomposition method such as the Oaxaca-Blinder decomposition that is customary in the gender gap literature (Dang and Nguyen 2021, Kowalik and Lewandowski 2021).

No studies employed register data and almost half of the studies used a random representative sample of respondents. The respondents were mostly either working adults or working parents, regardless of whether the sample was random or not. Geographically, the reviewed studies are almost exclusively situated in Western countries, with the United States and the United Kingdom being the two most widely analysed countries. Thus, the current literature review mostly applies to the Western world, and much less to other countries, especially developing countries.

[TABLE 2 HERE]

## *Employment*

**Table 2** shows that a range of labour market outcomes have been investigated, among which employment is most common. The findings from studies that have used non-probability sampling are highly mixed and depend on the outcome of study, the method, and the sample. Adams-Prassl et al. (2020) compared the rate of job loss between men and women in Germany. Using a real-time survey of individuals aged 18 and older who reported engaging in paid work during the previous 12 months, the authors found no significant difference in job loss rates by gender. This is in contrast to analogous data for the United States and the United Kingdom, where women experienced 6.5 and 4.8 percentage points more job loss than men, especially women without a college degree. Hupkau and Petrongolo (2020) also found no differential influence in job loss by gender in the United Kingdom, although women were more likely to work less hours. These results, however, were not confirmed in the studies by Sevilla and Smith (2020) and Witteveen (2020), who suggest that men rather than women were more likely to experience job loss. Seck et al. (2021) further show that whether women or men are disproportionately affected by the pandemic is highly dependent on the country of analysis.

The findings are also mixed for the United States. Analysing a large sample of scientists, Myers et al. (2020) found that female scientists, especially those with young dependents, were more likely to reduce their work hours than their male counterparts. Female scientists with one small child experienced a 17% larger decline in research time while those with multiple children experienced a further 3% reduction in research time. Thus, the authors found that the reduction in working hours was mostly attributed to an increase in childcare. Similar findings have been obtained by Shockley et al. (2021) who analysed a sample of working parents. Analysing a natural experiment of top tennis players, Kowalik and Lewandowski (2021) found that female players were significantly more likely to voluntarily withdraw from the 2020 US Open because of COVID-19 than male players. Although the findings may not be generalizable

to the rest of the population, it should be noted that this study used a Shapley decomposition method, which is more suited for analysing the gender gap than standard regression models. However, these conclusions were not replicated by Petts, Carlson, and Pepin (2021). The pandemic did not seem to differentially influence the employment rates of women and men when using logistic regression.

Findings from Canada and Israel suggest that COVID-19 had a bigger influence on the employment of women than men. Specifically, women were less likely to be employed and more likely to reduce their working hours than men in Canada, and the gender gap was largest for parents with young children (Fuller and Qian 2021). Women were 11 percentage points less likely to be employed in Israel (Kristal and Yaish 2020) and their reduction in hours worked almost doubled that of men (Yaish, Mandel and Kristal 2021). In Australia, on the other hand, men were more affected than women (Craig and Churchill 2021a). After the pandemic, 11 percentage points fewer fathers and 2 percentage points fewer mothers were employed full-time. This large discrepancy was mostly a result of the low pre-pandemic full-time employment rate of mothers (48.91%) compared to fathers (84.29%). The authors further found that fathers moved to part-time work and increased their time spent on housework and childcare, although these were still predominantly done by the mothers. Men were also more affected by the pandemic than women in Turkey (İlkkaracan and Memiş 2021) and in India (Desai, Deshmukh and Pramanik 2021).

Although studies that used non-probability samples offer mixed conclusions, studies that used random samples generally appear to point in the same direction. Apart from Heggeness (2020); Moen, Pedtke, and Flood (2020), and Kim et al. (2021) who found no gendered effect of the pandemic, most studies suggest that women were less likely to be employed, more likely to lose their job, to take a leave of absence, and to reduce their working hours and labour force participation (Casale and Posel 2021, Churchill 2021, Collins, Landivar, et al. 2021, Collins,

Ruppanner, et al. 2021, Dang and Nguyen 2021, Fuller and Qian 2021, Ham 2021, Landivar, Ruppanner and Scarborough 2020, Lemieux, et al. 2020, Reichelt, Makovi and Sargsyan 2021) (Yueping, et al. 2021). This is regardless of the country of analysis, the sample, and the method. Thus, most studies using random representative samples show that the pandemic disproportionately reduced women's employment over men's.

However, these results mostly do not hold for unemployment as an outcome. Most studies suggest no gendered effect of the pandemic on the unemployment rates (Moen and Pedtke 2020, Reichelt, Makovi and Sargsyan 2021), and Churchill (2021) even found that the pandemic has affected the unemployment rates of men more than women in Australia, although the findings are highly dependent on the age group under study. Similarly, using non-probability samples Sevilla and Smith (2020) and Witteveen (2020), suggest that men were more likely to experience job loss as a result of the pandemic. Nonetheless, it should be noted that only Ham (2021) used an Oaxaca-Blinder decomposition method, which is a more suitable method to analyse the gender gap than standard regression models. The author found that women experienced more unemployment than men in South Korea, and women's concentration in paid and unpaid care duties were the major explanation for this gender gap.

Many employees have been made redundant, while other employees have been furloughed because of the pandemic. Thus, it is possible that employment outcomes used in most studies hide considerable heterogeneity in furloughing between men and women. The findings of the studies are highly inconclusive. In the United Kingdom for instance, Adams-Prassl et al. (2020) found that men were more likely to be furloughed, Sevilla and Smith (2020) achieved opposite findings and Yet, Hupkau and Petrongolo (2020) highlighted that the pandemic affected furloughing rates of men and women equally. In the United States, Raile et al. (2021) observed that women were more likely to be furloughed. Similarly, Heggeness (2020) found that mothers in areas with early COVID-19 restrictions were more likely to be employed but not working,

whereas no effect was found for fathers. No gender gap was found in Germany (Adams-Prassl, et al. 2020). It should be noted, however, that all studies apart from Heggeness (2020) that investigated furloughing as an outcome used non-probability samples. Given that the sample is not representative, and each study may include respondents that, on average, differ on a wide range of characteristics; non-probability samples often lead to highly erratic results that cannot be generalized to the entire population. Therefore, the results obtained from random representative samples are preferred.

### *Earnings*

Previous literature on the effect of natural disasters and economic crises on earnings offered mixed conclusions that were dependent on the specific crisis and country under consideration (Hoynes, Miller and Schaller 2012). The findings in our review are in line with this literature. Once employed, whether women are more likely to experience a job and earnings loss than men is dependent on the idiosyncratic system of each country. Hossain (2021) found that men were 0.179 percentage points more likely to experience economic hardship than women in Ethiopia, and 0.167 percentage points in India. Men were also more likely to experience earnings loss in Australia (Craig and Churchill 2021a). No differential influence by gender has been found in Peru, Vietnam, and Germany (Adams-Prassl, et al. 2020, Hossain 2021). On the other hand, earnings losses were more pronounced among women employed in the service industry in China, South Korea, Japan, Italy, and Israel (Dang and Nguyen 2021, Kristal and Yaish 2020).

The results for the United Kingdom and the United States are inconclusive. Adams-Prassl et al. (2020) and Heggeness (2020) suggest that the pandemic has led to a similar earnings loss for both men and women. On the other hand, Dang and Nguyen (2021) found that women incurred more losses as their participation rate in the service industry was higher and as a result reduced their current consumption and increased their savings. It should be noted, however,

that only Heggeness (2020) and Dang and Nguyen (2021) analysed a random sample. As previously mentioned, random samples tend to be representative of the entire population and are necessary for valid statistical inference. By contrast, non-probability samples are highly dependent on the respondents who were selected into the sample and tend to be more erratic and less representative of the population of interest. Although Dang and Nguyen (2021) used a very suitable method for gender gap research, namely the Oaxaca-Blinder decomposition, no attempt was made to correct for selection bias. Heggeness (2020), on the other hand, used a difference-in-differences and a triple difference analysis in which labour market outcomes were compared between areas with early school closures and stay-in-place orders and areas with delayed or no pandemic closures providing a more causal interpretation of the findings. Therefore, the results in Heggeness (2020) are likely to provide more reliable conclusions.

### *Work-Life Balance and Wellbeing*

As women are expected to be more responsible for housework and childcare than men, it is possible that their work-life balance and wellbeing may have been disproportionately affected. It appears from our systematic review that the pandemic has had a larger impact on the work-life balance of women than that of men. These findings were obtained in India (Bhumika 2020), Australia (Craig and Churchill 2021a, Craig and Churchill 2021c), and the United States (Raile, et al. 2021). Women with children and women who lost their jobs were particularly impacted (Raile, et al. 2021). Women were also more likely than men to feel worried, stressed and emotionally exhausted as a result of the pandemic (Abdellatif and Gatto 2020, Bhumika 2020, Raile, et al. 2021) especially women working from home (Meyer, et al. 2021). Men, on the other hand, are hardly affected and men without children who do not have to work from home report the lowest levels of exhaustion. Similarly, Zamarro and Prados (2021) observed that especially mothers of children primary or younger are likely to experience higher levels of

psychological distress, anxiety, and depression. Overall, it appears that women have disproportionately been affected by the pandemic when it comes to their emotional, psychological, and social wellbeing.

### *Performance*

Given the gendered impact of the pandemic on work-life balance and wellbeing, it is unsurprising that the COVID-19 differentially influenced employees' on-the-job performance. Using cross-sectional survey data from the United States, Feng and Savani (2020) found that women perceived themselves much less productive than men, although they did not appear to be less satisfied with their job. These conclusions were confirmed by Shockley et al. (2021) using a different cross-sectional sample of employees. They found that especially in households in which the woman worked remotely and was entirely responsible for housework and childcare, women had the lowest job performance compared to men. Nonetheless, men were not unaffected. Although their work situations were not significantly altered, their job performance was impacted (yet remained higher than that of their partners). The authors explain these results by observing higher relationship tension and lower family cohesion in these households. Abdellatif and Gatto (2020) provided a unique perspective on the gendered effect of the pandemic on productivity through an autoethnographic study. By presenting a glimpse into the lives of two PhD students, one male and the other female, they highlighted that mothers found it more difficult to maintain productivity than fathers because of childcare. Although the above studies suggest that women's, and especially mothers' productivity, disproportionately suffered during the pandemic, these results could not be replicated in the Netherlands. Using multinomial logistic regression and linear probability model on cross-sectional survey data, Yerkes et al. (2020) found no difference in the work-life balance by gender. A potential reason for this is that the authors also did not find a gendered difference in work pressure.

## **Conclusion and Future Directions**

The review draws three important conclusions. First, the pandemic did not have a clear gendered effect on employment and earnings as the findings are highly mixed and depend on the outcome of study, method, and sample. Second, women have disproportionately been affected by the pandemic in terms of emotional, psychological, and social wellbeing. Third, women's work performance appears to be more affected by the pandemic than that of men.

As hypothesized, the pandemic may have disproportionately affected women's outcomes for three primary reasons: non-essential occupations that were suspended tend to be mostly occupied by women, women are often discriminated against in the labour market, and women characteristically perform most of the housework and childcare. Virtually all reviewed studies suggest that the pandemic placed most of the burden of housework and childcare on women and that this may also explain why women experienced more emotional exhaustion, lower psychological and social wellbeing, and felt that their on-the-job performance deteriorated. Although most reviewed studies speculate regarding the mechanisms driving their obtained effects, very few have used data to examine the mechanisms through which potential gendered effects occurred; those that did so primarily focused on the distinction between paid and unpaid labour. Unfortunately, they have not analysed whether their results can be explained by sector differences in women's employment and by discrimination. Using established methods such as mediation analysis, future research should focus on opening the black box of the gendered pandemic hypothesis and thoroughly investigate which mechanisms are driving the effects.

From a related conceptual viewpoint, future studies should incorporate other intersectional dimensions of social inequality into the study of gendered effects of the pandemic (Pirtle and Wright 2021, O'Hagan 2018). The reviewed studies predominantly focus on the intersectionality between gender and parental status, concluding that mothers appear to be more



affected than single women, and to a greater extent than fathers and single men. However, we know little about how gender interacts with other dimensions of inequality such as ethnicity, social class or age to create unique challenges for certain populations. Previous research on disasters has shown that inequalities tend to accumulate leading to worse outcomes for most vulnerable populations (Reid 2013). In this review, Casale and Poser (2021) found that job losses were highest for African women and women with low earnings and low education. Nonetheless, more research is necessary to investigate the gendered effect through an intersectional lens. Moreover, policy changes have enabled same-sex couples to raise children (Mazrekaj, De Witte and Cabus 2020). This poses an interesting avenue for future research as it is unclear whether the pandemic has differentially affected same-sex couples, and in particular same-sex couples with children (Craig and Churchill 2021b).

Another important limitation is that most of the studies are situated in Western countries, especially the United States and the United Kingdom. Future research should diversify, particularly including developing countries, where gender dynamics within the household and the labour market differ.

Finally, future research should explore the gendered occupational consequences of leaving the labour market because of the pandemic. Anecdotal evidence suggests that women may have a harder time returning to wage work and subsequently be more likely to become entrepreneurs (Murray 2021). It would be useful to investigate this hypothesis with well-established quantitative and qualitative methods.

Several methodological limitations of the reviewed studies also leave room for improvement. First, only those studies that included both men and women were used for this review and since most qualitative studies only included women, we only incorporated one qualitative article. This is unfortunate as qualitative studies are very useful for investigating mechanisms through which gendered effects of the pandemic may occur. Thus, future

qualitative research should attempt to recruit both women and men in the analysis to investigate the potential gender differences and to highlight where these gender differences may originate.

Another potential methodological improvement refers to the fact that the preponderance of reviewed studies have employed either simple descriptive statistics or correlational methods such as regression analysis or logistic regression. Although these methods are useful to initially characterise the differential influence of the pandemic on labour market outcomes, causal inference is more suited for policy guidance. Future research should focus on using more quasi-experimental methods such as difference-in-differences, regression discontinuity design, and instrumental variables to distinguish the causal effect of the pandemic from other unobserved factors. Another possible venue to explore is factorial experiments (Auspurg, Hinz and Sauer 2017) in which fictitious resumes are sent to companies with the only difference in resumes being the gender of the applicant. Alternatively, in the absence of suitable data, the correlational methods used could be significantly improved, for instance, decomposition methods such as Blinder-Oaxaca decomposition (Blinder 1973, Oaxaca 1973) have proven useful in economic research on the gender gap (Elder, Goddeeris and Haider 2010) and should become the norm when investigating gender inequalities from a correlational perspective.

Finally, almost all of the reviewed studies used survey data that are prone to potential reporting and sampling bias (Agarwal 2021). It is unsurprising that administrative register data has not yet been used given that administrative labour market information mostly originates from tax authorities and is dependent on tax years. As the COVID-19 outbreak was proclaimed a pandemic in the first quarter of 2020, the earliest that administrative labour market information can be used is 2021. We recommend that future studies utilise administrative data for the entire populations to increase sample size and reduce measurement error.

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## Figures and Tables

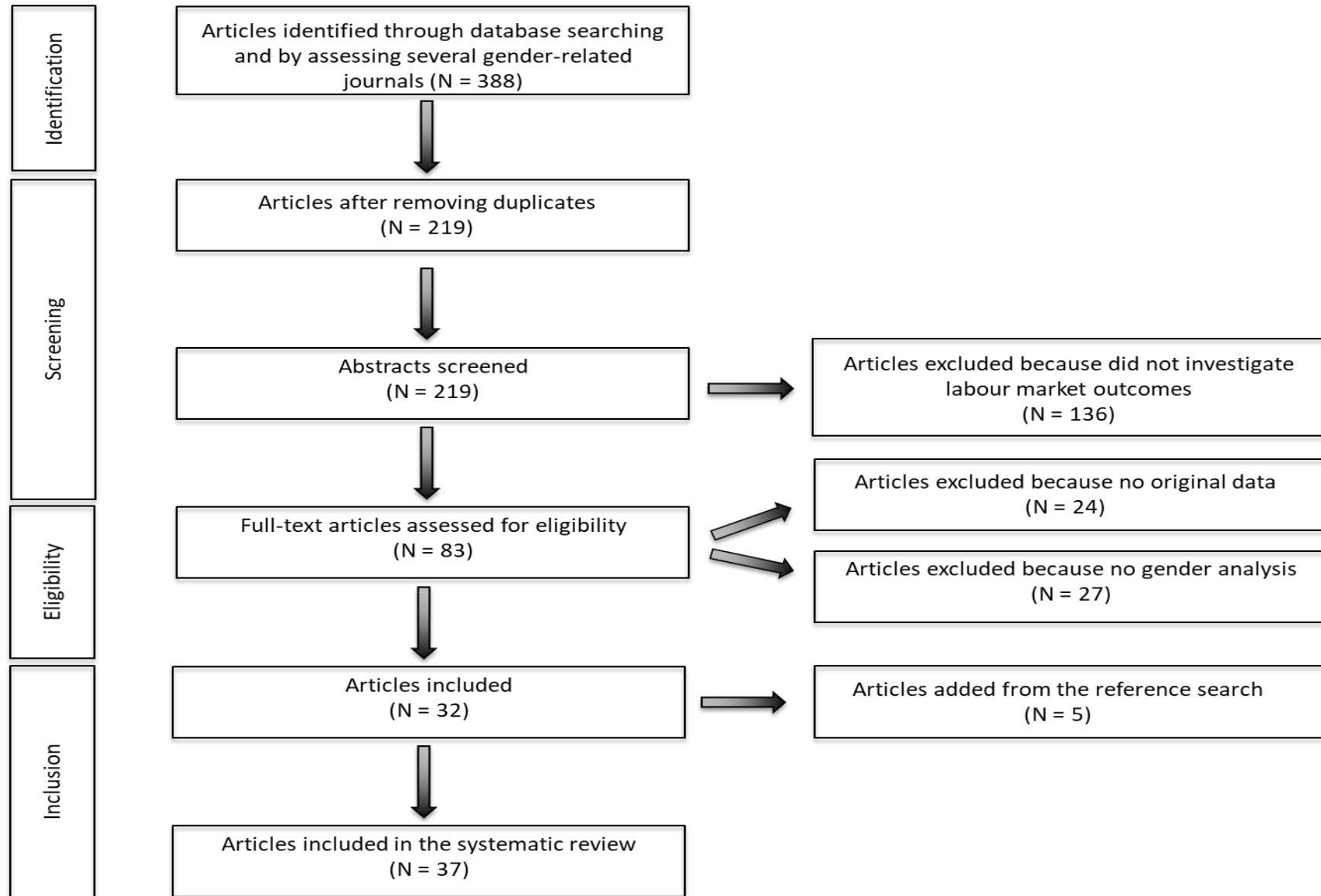


FIGURE 1: PRISMA FLOW DIAGRAM DESCRIBING THE PROCESS OF ARTICLE IDENTIFICATION, SCREENING, ELIGIBILITY, AND INCLUSION

TABLE 1: JOURNALS PUBLISHING RESEARCH ON THE GENDERED EFFECT OF THE COVID-19

Journals	Number of articles	2019 Impact factor
Gender, Work and Organization	7	3.101
Feminist Economics	5	1.406
Research in Social Stratification and Mobility	5	1.257
Gender & Society	3	2.742
PLoS One	2	2.740
Review of Economics of the Household	2	1.179
Gender in Management	2	1.056
Canadian Public Policy	1	0.776
Nature Human Behaviour	1	12.282
Journal of Applied Psychology	1	5.818
World Development	1	3.869
Oxford Review of Economic Policy	1	3.438
Work, Aging and Retirement	1	2.281
Journal of Public Economics	1	2.218
International Journal of Psychology	1	1.255
Fiscal studies	1	1.149
European societies	1	1.051
Socius: Sociological Research for a Dynamic World	1	No impact factor

TABLE 2: THE COVID-19 PANDEMIC AND LABOUR MARKET OUTCOMES FOR WOMEN AND MEN

#	Study	Country	Research design	Sample	Random sample	Method	Gendered pandemic effect
1	Abdellatif and Gatto (2020)	UK	Qualitative	PhD students (N=2)	No	Autoethnography	Productivity loss: + Emotional exhaustion: +
2	Adams-Prassl et al. (2020)	USA, UK, Germany	Quantitative	Working adults (N = 20,910)	No	Linear probability model	Job loss: + (US and UK) 0 (Germany) Earnings loss: 0 (all countries) Furloughed: - (US, UK) 0 (Germany)
3	Bhumika (2020)	India	Quantitative	Full-time employees working from home (N = 180)	No	Exploratory factor analysis, partial correlations	Work-life imbalance: + Emotional exhaustion: +
4	Casale and Posel (2021)	South Africa	Quantitative	Adults (N = 7,074)	Yes	Descriptive statistics	Not employed: + Reduced hours worked: +
5	Churchill (2021)	Australia	Quantitative	Individuals aged 15-64 (N = Unknown, but large)	Yes	Descriptive statistics	Reduced labour force participation: + Unemployment: - Underemployment: -
6	Collins, Landivar et al. (2021)	USA	Quantitative	Working parents (N = 4,864)	Yes	Individual level fixed effects models	Reduced hours worked: +
7	Collins, Ruppanner et al. (2021)	USA	Quantitative	Parents with children (N = 39,696)	Yes	Logistic regression	Reduced labour force participation: +
8	Craig and Churchill (2021a)	Australia	Quantitative	Employed partnered parents (N = 1,536)	No	Descriptive statistics	Not employed: - Earnings: - Work-life imbalance: +
9	Craig and Churchill (2021c)	Australia	Quantitative	Adults (N = 2,722)	No	OLS regression	Not employed: - Work-life imbalance: +

Notes: + (-) indicates that the pandemic has significantly affected women more (less) than men on the outcome. 0 Indicates that the pandemic has affected both genders equally.

TABLE 2 (CONTINUED): THE COVID-19 PANDEMIC AND LABOUR MARKET OUTCOMES FOR WOMEN AND MEN

#	Study	Country	Research design	Sample	Random sample	Method	Gendered pandemic effect
10	Dang and Nguyen (2021)	China, South Korea, Japan, Italy, UK, US	Quantitative	Adults (N = 6,089)	Yes	OLS regression, Oaxaca-Blinder decomposition	Job loss: + Earnings loss: + Consumption: - Savings: + Not employed: -
11	Desai, Deshmukh, and Pramanik (2021)	India	Quantitative	Individuals aged 20-60 (N = 2,226)	Yes	Random-effects logistic regression	Not employed: -
12	Feng and Savani (2020)	USA	Quantitative	Full-time partnered employees (N = 286)	No	ANCOVA	Productivity loss: + Job satisfaction: 0
13	Fuller and Qian (2021)	Canada	Quantitative	Working adults aged 25-54 with children aged 12 or younger (117,720)	Yes	Logistic regression	Not employed: + Reduced hours worked: +
14	Ham (2021)	South Korea	Quantitative	Working individuals aged 15-65 (N = 90,248)	Yes	Logistic regression, Oaxaca-Blinder decomposition	Leave of absence: + Unemployment: +
15	Heggeness (2020)	USA	Quantitative	Individuals aged 15 and older (N = 118,471)	Yes	Difference-in-Differences, Triple Difference	Reduced labor force participation: 0 Unemployed: 0 Employed but not working: + Reduced hours worked: - Earnings loss: 0
16	Hossain (2021)	Ethiopia, India, Peru and Vietnam	Quantitative	Working adults (N = 21,047)	No	Logistic regression	Losing job or earnings: + (Ethiopia and India) 0 (Peru and Vietnam)
17	Hupkau and Petrongolo (2020)	UK	Quantitative	Individuals aged 16 and older (N = 8,073)	No	Linear probability model	Job loss: 0 Furloughed: 0 Reduced hours worked: + Earnings loss: -

Notes: + (-) indicates that the pandemic has significantly affected women more (less) than men on the outcome. 0 Indicates that the pandemic has affected both genders equally.

TABLE 2 (CONTINUED): THE COVID-19 PANDEMIC AND LABOUR MARKET OUTCOMES FOR WOMEN AND MEN

#	Study	Country	Research design	Sample	Random sample	Method	Gendered pandemic effect
18	İlkkaracan and Memiş (2021)	Turkey	Quantitative	Individuals aged 15 and older (N = 8,200)	No	Tobit regression	Reduced hours worked: - Not employed: -
19	Kim et al. (2021)	USA	Quantitative	Individuals aged 18-59 (N = 19,891)	Yes	Multinomial logistic regression	Not employed: 0
20	Kowalik and Lewandowski (2021)	48 Countries	Quantitative	Top tennis players (N = 189)	No	OLS regression, Linear Probability Model, Shapley decomposition	Reduced labour force participation: +
21	Kristal and Yaish (2020)	Israel	Quantitative	Native Jewish employed adults (N = 1,542)	No	Descriptive statistics	Job loss: + Earnings loss: + Reduced hours worked: +
22	Landivar et al. (2020)	USA	Quantitative	Adults (N = Unknown, but large)	Yes	Descriptive statistics	Reduced labour force participation: + Unemployment: + Reduced hours worked: -
23	Lemieux et al. (2020)	Canada	Quantitative	Adults aged 20-64 (N = Unknown, but large)	Yes	Difference-in-Differences	Reduced hours worked: + Not employed: +
24	Meyer et al. (2021)	Germany	Quantitative	Working adults (N = 789)	No	Multilevel models	Exhaustion: +
25	Moen, Pedtke, and Flood (2020)	USA	Quantitative	Adults aged 20 and older (336,869)	Yes	Descriptive statistics	Unemployed: 0 Not employed: 0
26	Myers et al. (2020)	USA and Europe	Quantitative	Scientists (N = 4,535)	No	Descriptive statistics	Reduced hours worked: +
27	Petts, Carlson, and Pepin (2021)	USA	Quantitative	Working parents (N = 989)	No	Descriptive statistics	Not employed: 0

Notes: + (-) indicates that the pandemic has significantly affected women more (less) than men on the outcome. 0 Indicates that the pandemic has affected both genders equally.



TABLE 2 (CONTINUED): THE COVID-19 PANDEMIC AND LABOUR MARKET OUTCOMES FOR WOMEN AND MEN

#	Study	Country	Research design	Sample	Random sample	Method	Gendered pandemic effect
28	Raile et al. (2021)	USA	Quantitative	Adults (N = 2,220)	No	Descriptive statistics	Job loss: + Furloughed: + Earnings loss: + Unemployed: + Life disruption: + Stress and worry: +
29	Reichelt, Makovi, and Sargsyan (2021)	USA, Germany, and Singapore	Quantitative	Working adults (N = 1961)	Yes	Linear probability model	Reduced hours worked: + Unemployed: 0
30	Seck et al. (2021)	Afghanistan, Bangladesh, Cambodia, Indonesia, Maldives, Nepal, Philippines, Thailand	Quantitative	Cellphone users (Less than 10,000, depends on country)	No	Descriptive statistics	Reduced hours worked: + (Bangladesh, Indonesia, Maldives, Nepal, Philippines, Thailand) - (Afghanistan, Cambodia) Job loss: + (Afghanistan, Cambodia, Indonesia, Thailand) - (Bangladesh, Cambodia, Maldives, Nepal, Philippines)
31	Sevilla and Smith (2020)	UK	Quantitative	Employed adults (N = 2,782)	No	Multinomial logistic regression	Job loss: + Furloughed: +
32	Shockley et al. (2021)	USA	Quantitative	Working parents (N = 274)	No	Latent class analysis	Reduced hours worked: +
33	Witteveen (2020)	UK	Quantitative	Working adults (5,155)	No	Logistic regression	Furloughed or laid off or Reduced hours worked: -
34	Yaish, Mandel, and Kristal (2021)	Israel	Quantitative	Native Jewish employed adults (N = 1,328)	No	OLS regression	Reduced hours worked: +

Notes: + (-) indicates that the pandemic has significantly affected women more (less) than men on the outcome. 0 Indicates that the pandemic has affected both genders equally.

TABLE 2 (CONTINUED): THE COVID-19 PANDEMIC AND LABOUR MARKET OUTCOMES FOR WOMEN AND MEN

#	Study	Country	Research design	Sample	Random sample	Method	Gendered pandemic effect
35	Yerkes et al. (2020)	The Netherlands	Quantitative	Working parents (N = 852)	Yes	Multinomial logistic regression, Linear Probability Model	Work-life imbalance: 0 Work pressure: 0
36	Yueping et al. (2021)	China	Quantitative	Migrants aged 16-59 (N = 1,775)	Yes	Probit, sequential logistic regression	Not employed: +
37	Zamarro and Prados (2021)	USA	Quantitative	Married or cohabiting working adults aged 18-65 (N = 3,980)	Yes	Multinomial logistic regression, logistic regression	Reduced hours worked: + Not employed: + Psychological distress: + Anxiety: + Depression: +

Notes: + (-) indicates that the pandemic has significantly affected women more (less) than men on the outcome. 0 Indicates that the pandemic has affected both genders equally.