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# COVID-19 and gender differences in mental health in low- and middle-income countries: Young working women are more vulnerable



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## ABSTRACT

This study examines gender differences in the relationship between COVID-19-triggered economic hardship and mental health complaints, defined by self-reported anxiety/depression, of young people (17–29) in four low- and middle-income countries (LMICs). To do this, we use two waves of the Young Lives (YL) phone survey. Logistic regression results show that young women, on average, were more likely to report anxiety than men in Peru and Vietnam in the first survey wave (June–July 2020). However, this disparity continued to persist in all four countries in the second wave (August–October 2020) as the pandemic prolonged. Notably, we find that young women that faced economic hardship by losing job or income were more likely to report anxiety than their male counterparts. As COVID-19 cases remain consistently high in many LMICs, which limit economic activities, the vulnerability of young women may likely increase. This issue requires urgent policy attention by awareness-raising campaigns, more hotline services for emergency help, social security programs for women, and available women's sexual and reproductive health services at a specific section in hospitals.

## 1. Introduction

Economic hardship in terms of job and income loss during COVID-19 has reached a new global high. This has resulted in deteriorating mental health in both high- and low-income countries (Porter, Favara, Hittmeyer, et al., 2021; Salameh et al., 2020; Witteveen & Velthorst, 2020). While a global issue, research from different platforms has warned that young women in vulnerable communities in the developing world are at a greater risk of suffering from anxiety and mental stress due to rising financial hardship (Plan International, 2020; UN, 2020).

In addition to hardship, the greater mental health risk for women can be driven by, *first*, the possibility of increasing existing gender-based violence (Egger et al., 2021). During the pre-pandemic era, 18 percent of ever-partnered women and girls aged 15 to 49 experienced physical and sexual violence by their partners. Helpline calls related to domestic violence have drastically increased during the pandemic in some places (UN Women, 2020a). Women could also be totally isolated by their abusers, which may reduce hotline calls (UN Women, 2020b). Reports also suggest a spike in online harassment of women since social distancing started (UN Women, 2020a). *Second*, the burden of unpaid care may increase as women spend 3 times as many hours as men in unpaid care and domestic work while outnumbering men living in extreme poverty (UN, 2020). Moreover, men's job loss in low- and

middle-income countries (LMICs) like India increases women's care burden and violence (Agarwal, 2021). Hence, although recent evidence suggests that men have encountered more COVID-19-induced economic hardship in some LMICs (Hossain, 2021), it may, in turn, affect women's mental health. *Third*, the freedom of girls may be further curtailed in line with patriarchal norms as the pandemic pulls them out of work and educational institutions (Kola et al., 2021; Plan International, 2020; UNFPA, 2020). *Fourth*, girls and young women will find it more challenging now to access sexual and reproductive health services due to economic hardship and containment measures, which affect their mental health as recent evidence suggests (Basu et al., 2021).

All these factors are likely to intensify mental stress more for young women that are active in the labor market and have experienced job and/or income loss. The economic hardship puts an extra burden on top of the challenges embedded in social norms. In this study, mental health complaint is defined by self-reported anxiety as also used by previous research (Witteveen & Velthorst, 2020).

Despite the caution about the negative consequences of economic hardship particularly for young vulnerable women in low-income settings, there is limited research investigating this link. This study sheds light on this issue by examining two questions. First, are young women (17–29) more likely to experience anxiety than their male counterparts during the COVID-19? Second, if there are any gender differences in

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facing anxiety, does this differ between those that faced economic hardship and those that did not?

To answer these questions, we analyze two waves<sup>1</sup> of Young Lives phone survey carried out during the pandemic from Ethiopia, two states of India (Andhra Pradesh [AP] and Telangana State [TS]), Peru and Vietnam. (Revathi et al., 2021). Surveys from two different time points help understand the changes in mental health conditions during the pandemic.

The selected countries are from low- and middle-income groups, categorized by the World Bank (World Bank, n.d.). Violence against women in these countries has notably increased during the pandemic (Agarwal, 2021; Gebrewahd et al., 2020; Porter, Favara, Sánchez, & Scott, 2021), which also used to be frequently reported before COVID-19 (Bulte & Lensink, 2019; Cullen, 2020). Women are also engaged in more unpaid household activities and informal jobs in these countries (Hossain, 2021). As argued, because of these gender disparities and social norms, working women's mental health may have been more negatively affected due to the pandemic. This is opposite to what research finds in a high-income setting, the United States (US), that men's mental health has worsened during the pandemic (Ellison et al., 2021). We argue that this is because of different gendered expectations in some high-income contexts.

## 2. Methods

### 2.1. Data

We use two waves of YL COVID-19 phone survey data collected between 8 June and 12 July and between week 3 in August and week 3 in October in 2020 from Ethiopia, India (AP and TS), Peru and Vietnam (Revathi et al., 2021). YL is part of a longitudinal survey involving 12,000 young people carried out since 2002 from these four countries. The respondents were selected using a sentinel-site sampling design. A total of 20 sites were selected from each country with a 'pro-poor' bias, which means a higher proportion of poor children is represented in the sample. However, non-poor households were also added to the sample with whom poor children's experiences could be compared. Despite having this pro-poor bias in the survey, previous YL analyses demonstrate that the wealth distribution in the data closely resembles nationally representative household surveys such as the Demographic and Health Survey (DHS) (Escobal & Flores, 2008; Kumra, 2008; Nguyen, 2008; Outes-Leon & Sanchez, 2008).

The YL COVID-19 survey includes all household members of YL cohort participants (aged 17–29 in the study sample) to observe the impact of the pandemic on them and their families. However, young people, in this study, refer to the YL participants, instead of any 'young' member in the households. This is because the dependent variable on mental health complaints in terms of anxiety was only collected from YL children.

The study includes young people aged 17 to 29 that were active in the labor market partially or fully as the study mainly focuses on how economic hardship by job and wage loss affects mental health. Hence, we select participants that worked at least for an hour in the labor market during the past year from the point of the YL second wave COVID-19 survey. We acknowledge that such variable might have limitations in capturing the length of labor market participation, and the types of contract (i.e. part-time or full time). The resulting observations in the first and second waves respectively include: 1029 and 1459 from Ethiopia, 829 and 1759 from India, 745 and 1401 from Peru, and 1581 and 2015 from Vietnam.<sup>2</sup>

<sup>1</sup> We use 'wave' to refer to the two surveys while 'phase' indicates two different time-points of the pandemic. This is to clearly signify two different issues.

<sup>2</sup> Statistical software STATA was used to carry out all the analyses.

### 2.2. Variables

**Mental health complaint/anxiety.** We use a self-rated mental health complaint indicator about the level of anxiety among young people. Nervousness and anxiety were used in research to study the effect of economic hardship on well-being (Ahnquist & Wamala, 2011). So was perceived mental health (Clark et al., 2019). However, anxiety is measured differently in the two waves. To address such bias, we carry out the analysis of the two survey waves separately. To elaborate, the YL phone survey from the first wave measured anxiety asking to what extent participants are 'nervous' about the current circumstances in five Likert scales— (1) neither applies nor does not apply, (2) somewhat does not apply, (3) does not apply at all, (4) strongly applies, and (5) somewhat applies. We divide the categories into two for two reasons: (a) to align with the measure in wave two and (b) some categories have few or no observations in some countries. We code 'strongly applies' and 'somewhat applies' as 1 denoting anxiety and the first three as 0 meaning 'no anxiety' (see Table A1 in the appendix for the questionnaire).

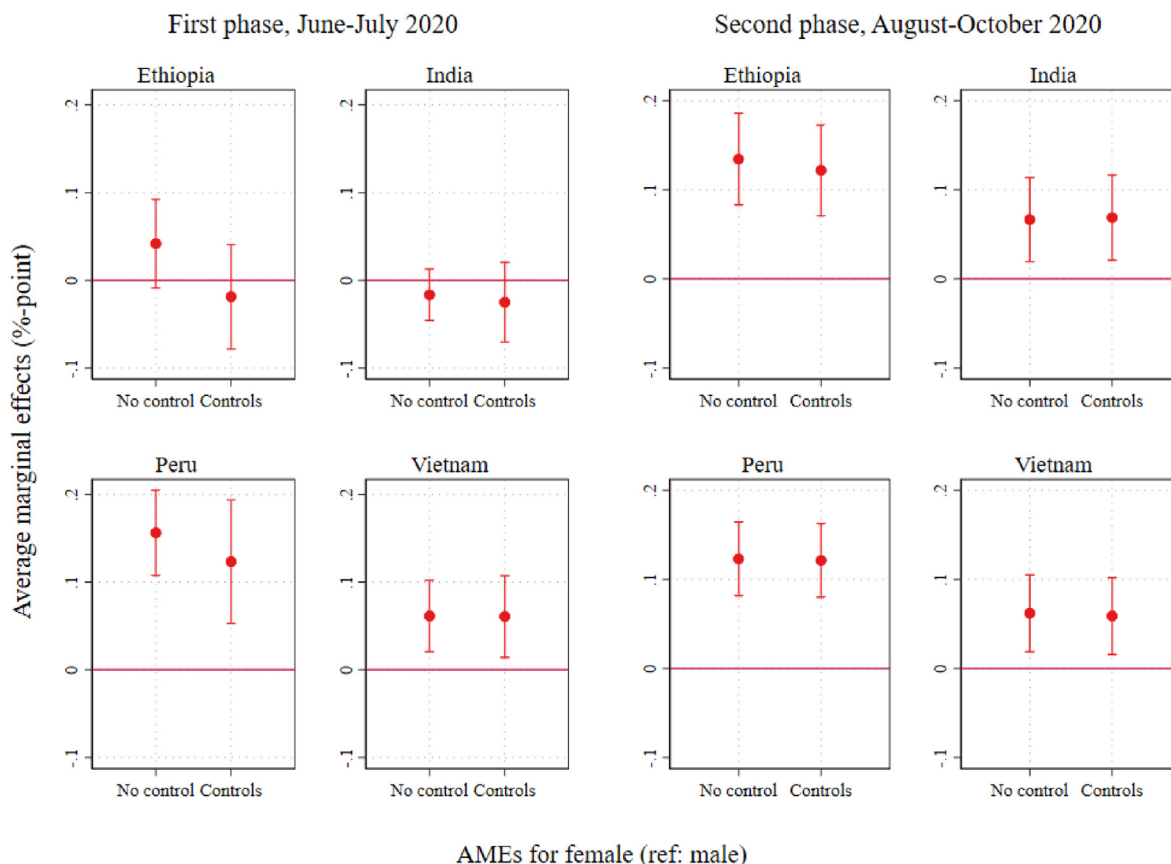
In the second wave, the questions were asked somewhat differently. Participants were given seven options to indicate their type of anxiety whether these apply to them or not (Table A1 in the appendix). In this case, we code 1 when participants answered 'yes' meaning anxiety and 0 when they indicated 'no'. The seven options in the second wave were validated using the Generalized Anxiety Disorder-7 (GAD-7) scale and the Patient Health Questionnaire depression scale-8 (PHQ-8) (Porter, Favara, Hittmeyer, et al., 2021). However, the question in the first wave was not clinically validated. Thus, the mental health complaint measure— specifically, anxiety— in both waves cannot be fully compared. This is the main limitation of the study, which future studies can focus on by comparing our results with other possible measures. Nonetheless, we observe a highly consistent pattern in the outcome variable when compared by gender, wealth and location of participants in both waves (see both panels in Table A2 in the appendix).

**Economic Hardship.** As we have briefly indicated, we construct the economic hardship variable combining two indicators—whether someone lost (a) her/his job or (b) income. When either of the situations occurred to someone, we code it as 1 indicating economic hardship and 0 otherwise. However, the income loss indicator was measured slightly differently in two waves. In the first wave, income loss indicates when the participants were suspended without payment and/or faced a wage cut due to the COVID-19 crisis. In the second wave, income loss was measured by whether monthly income went down during the past month (compared to the date of survey) due to the pandemic. While the indicator is not strictly comparable in two waves it captures the same phenomenon— job and income loss.

It is notable to mention that many participants in the first wave indicated either job or income loss as 'not applicable' (NA) consisting of around 29 percent in Ethiopia, 53 percent in India, 48 percent in Peru and 22 percent in Vietnam when compared with the study sample (see Table A3 in the appendix to compare with the left panel in Table A2 in the appendix). As explained in the robustness section, we run models both with and without NA and find that NA values are not biasing our findings.

**Wealth.** 'Wealth' is a binary variable indicating whether someone is from a relatively poor or rich household. The YL team measured the variable using six proxy indicators including household possessions such as (1) the internet, a phone, radio, or television; (2) people-to-room ratio; (3) water source; (4) walls and roof quality; (5) a toilet; and (6) sanitization facilities. The variable in both waves is coded as Home Protective Environment (HEP) from COVID-19 in both datasets to indicate someone's wealth level (Scott et al., 2020). The dataset contains this indicator as a binary measure, which the YL team derived from the HEP score.<sup>3</sup>

<sup>3</sup> The second wave survey contains a continuous indicator of HEP as well, although with only up to 7 cut-off points. We re-divide this continuous indicator into binary for Peru and Vietnam only since the dummy variable provided with the dataset is very imbalanced between two categories.



**Fig. 1.** The probability of reporting anxiety by women compared to men in two different phases of the pandemic (AMEs in %-point). Notes: (a) Robust standard errors are used. (b) 95 percent confidence intervals are shown. (c) ref., reference; AMEs, average marginal effects. (d) The results can be explained as being women is associated with the likelihood of being anxious in percentage points. (e) In the ‘no control’ model for India, a state dummy is added. (f) ‘Controls’ models include economic hardship, wealth, urban/rural location, age, and a state dummy only for India. Source: Own calculations based on Young Lives data.

**Other variables.** Other variables used in the study include gender (female/male), urban-rural location, age, and a state dummy only for India. The lower bound of age is 17 as the legal age to work starts around this time in the selected countries. The upper age range of 29 is restricted by the dataset.

2.3. Modelling

Since the outcome variable is a binary variable, we fit equation (1) and run logit regression models on each country and wave separately. Our decision for cross-sectional analysis is that mental health and economic hardship variables are not completely comparable in both waves, as explained. Here,

$$\text{logit}(\text{Pr}(M_i = 1)) = \gamma + \beta G_i + \phi Z_i + r_i \tag{1}$$

$M$  is the binary outcome variable indicating whether someone  $i$  reported anxiety or not. The expected outcome in the logit model is the probability of observing  $M = 1$ .  $\gamma$  is an intercept,  $\beta$  is the coefficient on gender  $G_i$ , and  $\phi$  is a vector of coefficients on other variables  $Z_i$ — economic hardship, location, wealth, age, and a state dummy for India.  $r_i$  is an error term. Equation (1) examines gender differences in experiencing anxiety. To investigate whether gender differences vary by economic hardship we fit equation (2), where

$$\text{logit}(\text{Pr}(M_i = 1)) = \gamma + \beta G_i + \pi H_i + \alpha G_i H_i + \phi Z_i + r_i \tag{2}$$

we add a parameter of the interaction between gender  $G_i$  and economic hardship  $H_i$  in which  $\alpha$  is the corresponding coefficient.

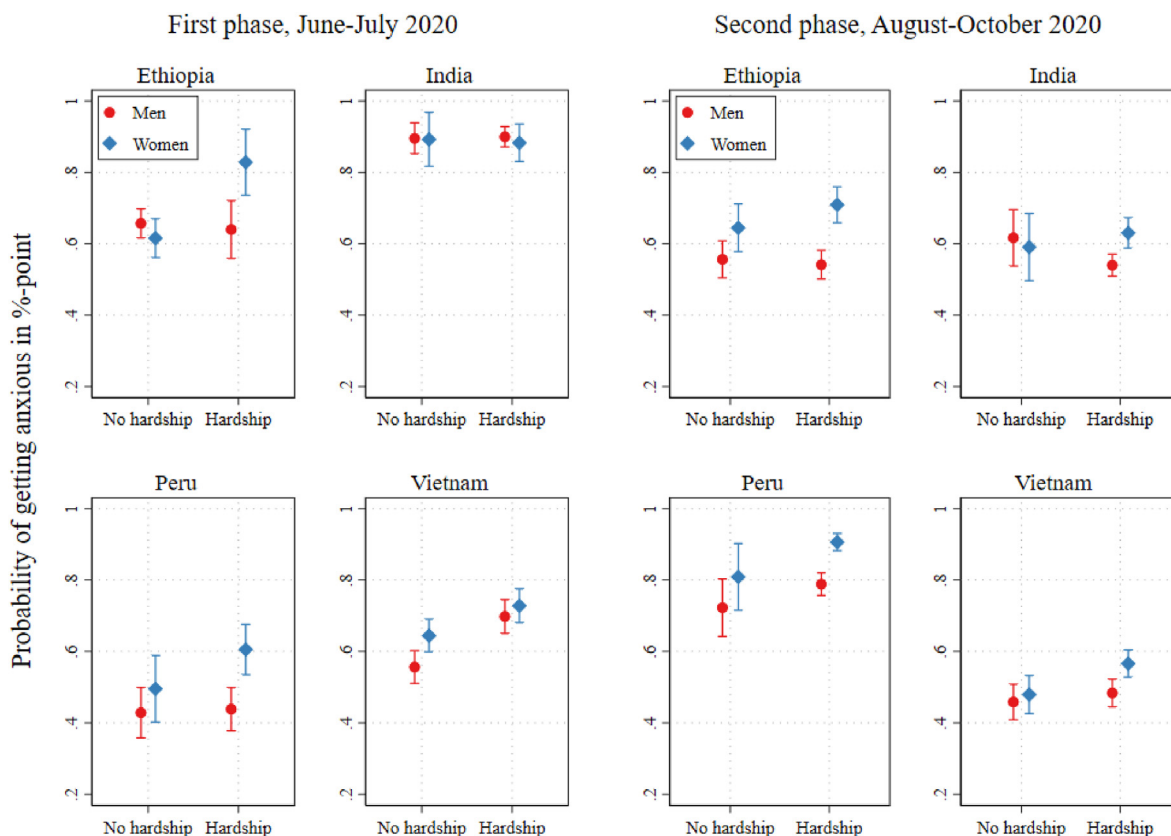
3. Results

3.1. Gender differences in experiencing anxiety

Findings overall suggest that young women are more likely to suffer from COVID-19-related anxiety than men. As presented in Fig. 1, young women, active in the labor market, were 12.3 percentage points ( $p < 0.001$ ) more likely to be anxious at the first phase between June and July 2020 of the pandemic than men in Peru and 6 percentage points ( $p < 0.05$ ) in Vietnam after controlling for economic hardship, wealth, location, age and the states for India. The effects are quite similar in the ‘no controls’ models. However, as the pandemic continued, young women reported significantly more anxiety between August and October 2020 than men in all countries, including Ethiopia and India, after controlling for relevant variables. The differences are in Ethiopia by 12.1 percentage points ( $p < 0.001$ ), in India by 7 percentage points ( $p < 0.01$ ), in Peru by 12.1 percentage points ( $p < 0.001$ ), and in Vietnam by 6 percentage points ( $p < 0.01$ ). Particularly, Peru and Vietnam show consistency in results across waves. These results conform to our expectation that the pandemic has had a more negative impact on young women in the labor market than men while the effect has continued and escalated in two countries.

3.2. Gender differences in economic hardship and mental health

We observe that in the first phase of the pandemic, women that faced economic hardship were 19 percentage points more likely to experience



**Fig. 2.** Gender differences in the relationship between facing economic hardship and having anxiety. Notes: (a) Robust standard errors are used. (b) 95 percent confidence intervals are shown. (c) The results represent marginal effects of the interaction between gender and economic hardship on the probability of being anxious using logit regression. The results can be explained as being men/women in the ‘no hardship’/‘hardship’ group is associated with the likelihood of being anxious in percentage points. (d) The models control for wealth, urban/rural location, age, and a state dummy only for India. Source. Own calculations based on Young Lives data.

anxiety than their male counterparts in Ethiopia and by 17 percentage points in Peru ( $p < 0.05$ ) as shown in the left panel of Fig. 2. Gender differences by hardship groups are not statistically significant in India and Vietnam.

However, this picture changed in a matter of few months. As shown in the right panel of Fig. 2, between August and October, young women that faced hardship were significantly more likely to report being anxious than men in all countries after controlling for background characteristics. The differences were 17 percentage points in Ethiopia, 9 percentage points in India, 12 percentage points in Peru, and 8.2 percentage points in Vietnam. Although the gap in Peru appears to be lower compared to the first phase, as Fig. 2 shows, the overall anxiety level in the country was greater at the second phase.

Nonetheless, the notable factor in both panels of Fig. 2 is that regardless of whether gender differences in the ‘hardship’ and ‘no hardship’ groups are significant, with a few exceptions, women were more anxious in most cases, particularly the ones that faced hardship. Besides, as the pandemic prolonged the well-being of young women also continued to be negatively affected.

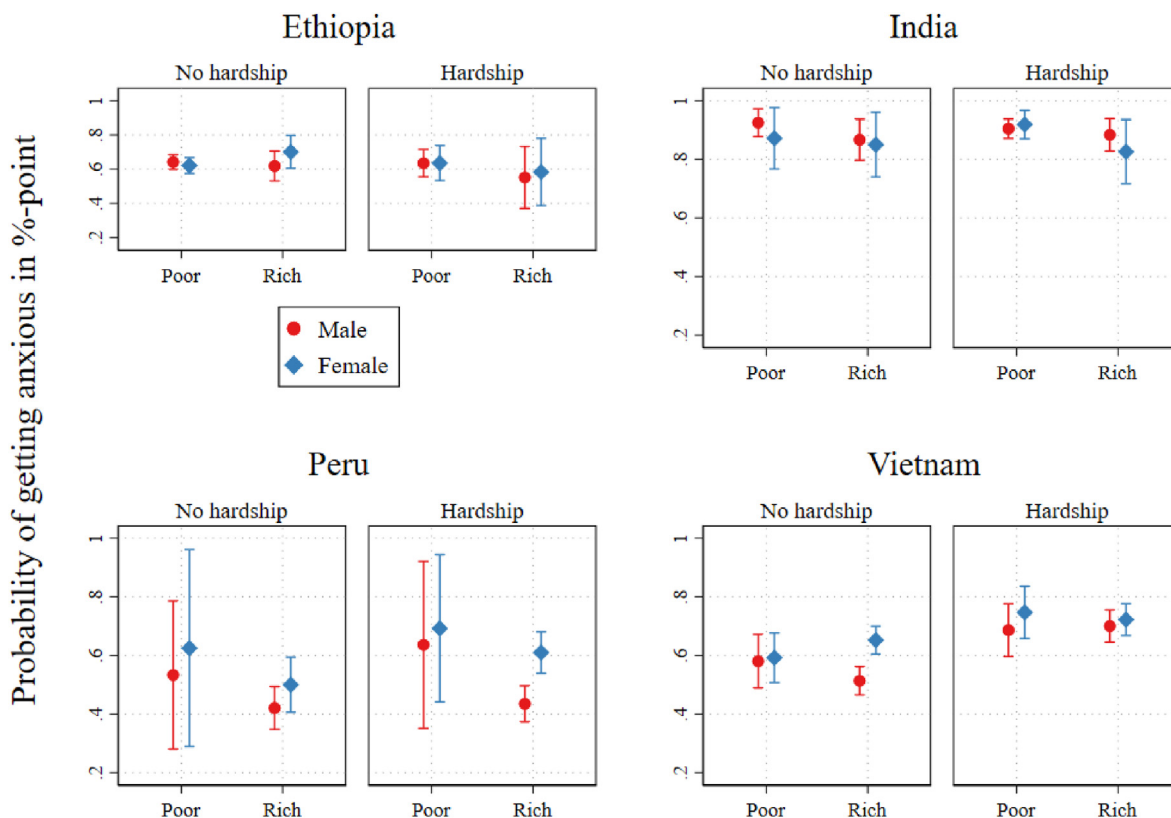
### 3.3. Gender differences by ‘wealth’ level

We find mixed evidence about gender disparities by ‘wealth’, defined by certain household possessions. As Fig. 3 illustrates, in the first phase of the pandemic, only in Peru, young women with hardship in both relatively rich and poor groups were more likely to report anxiety than men by around 15 percentage points. Besides, in the non-hardship group, poor young women were 8.12 percentage points more likely to report anxiety than men.

In the later phase, gender differences appeared significant in more countries. In Ethiopia, young women that faced hardship in both rich and poor groups were around 17 percentage points more likely to report anxiety. In India, unlike the first phase, relatively rich women with hardship were 11 percentage points more likely to report anxiety at the second phase. But the difference in the poor group is not statistically significant. In Peru, we also observe a similar trend to India where relatively young rich women were 13 percentage points more likely to report anxiety compared to men. Gender differences by wealth were not, however, significant in Vietnam in either of the survey waves. But, as Fig. 4 demonstrates, women were still slightly more likely to report anxiety in all groups in the country.

### 3.4. Robustness

We run a number of robustness checks to determine that our results are not sensitive to some other alternative specification tests. First, as shown in Table A2 in the appendix, in the first phase of the pandemic, the number of participants reporting economic hardship is much lower than that of the second phase. This is because many participants reported that hardship is ‘not applicable’ (NA) for them, which ranges from 53 percent in India to 22 percent in Vietnam when compared with the descriptive statistics including NA in Table A3 in the appendix. This indicates losing a significant number of observations. To address this potential source of bias in the first wave data, we incorporate NA in our analysis into the ‘no hardship’ group. As presented in Table A4 in the appendix, we find very similar results for all coefficients including overall gender differences in experiencing anxiety both in terms of effect size and significance level when compared with the results from the left panel in Table A5 in the



**Fig. 3.** Gender differences in the relationship between facing economic hardship and having anxiety by wealth background, first phase (June–July 2020). Notes: (a) Robust standard errors are used. (b) 95 percent confidence intervals are shown. (c) The results represent marginal effects of the three-way-interaction among gender, economic hardship and wealth on the probability of being anxious using logit regression. The results can be explained as being rich or poor men/women in the 'no hardship'/'hardship' group is associated with the likelihood of being anxious in percentage points. (d) The models control for urban/rural location, age, and a state dummy only for India. Source: Own calculations based on Young Lives data.

appendix. Additionally, we also see substantially similar results for gender differences by economic hardship (see Fig. A1 in the appendix compared with the left panel of Fig. 2) and the effect of gender and wealth interaction on economic hardship (see Fig. A2 in the appendix compared with Fig. 3). Eventually, we find a similar pattern when examining gender differences by urban-rural location. That is, when gender differences are significant, women's anxiety level is higher than that of men, more so in the second phase (see Fig. A3 and Fig. A4 in the appendix).

#### 4. Discussion

Findings in this study suggest that women, in general, were more likely to report anxiety than men in two out of four countries between June and July 2020 but in the later phase of the COVID-19 between August and October 2020, this trend can be observed in all countries. Furthermore, we notice that women that faced economic hardship were more likely to report anxiety than their male counterparts, which was more widespread in the later phase of the pandemic.

We also find that women had a higher propensity of reporting anxiety than their male counterparts in different wealth categories. These results remain similar when we add controls and in different specifications as reported in the robustness section.

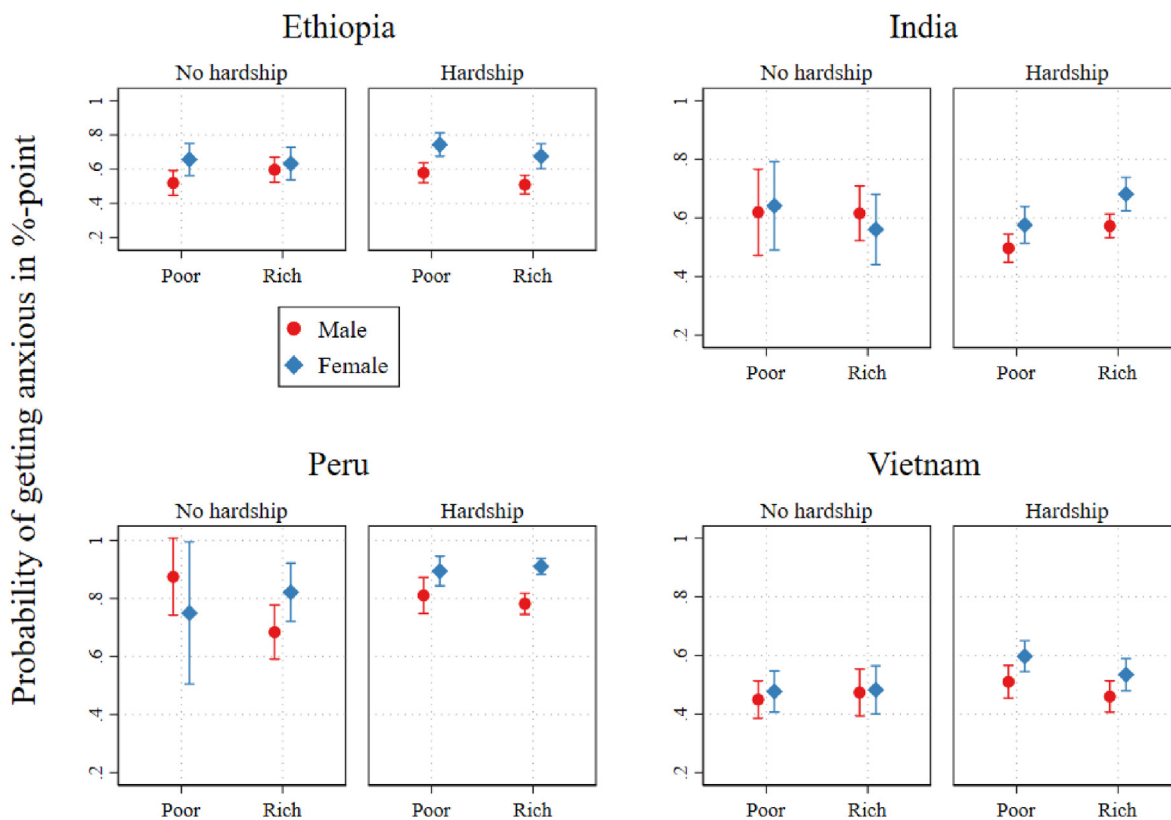
The results overall suggest a strong gender disparity in experiencing anxiety, particularly for young working women that faced economic hardship. The findings are alarming as the number of COVID-19 cases is sharply climbing in many LMICs, which may further worsen young women's mental health. Indeed, this is because women do not get only affected by their increased financial hardship but also men's job loss. The latter in LMICs like India leads to more care burden for women, women

facing job overcrowding in local areas or villages, food shortage, and domestic violence (Agarwal, 2021). Furthermore, because of the containment measures, women have faced difficulties accessing medical care affecting their mental health (Basu et al., 2021).

COVID-19-induced challenges closely resemble the pattern of gender disparities that emerged from similar crises in the past. For instance, during the Ebola crisis in West Africa including Sierra Leon, men were responsible for security, but women were burdened with caregiving and household responsibilities which left little room for them to abide by Ebola prevention advice. They could not also get health care facilities because of excessively increased household responsibilities (Diggins & Mills, 2015; Minor, 2017).

Our study has several implications for future research and policy. Our findings from four LMICs go against evidence from the US that men's mental health is worsening (Ellison et al., 2021). More cross-country evidence is needed to assess to what extent women's mental health has been affected by the pandemic from all age groups, especially in relation to their economic hardship.

Based on the findings, we suggest that young women's mental health requires immediate policy attention from national and international platforms including the government, non-government and private sectors. For instance, more support should be provided for women victims which may include awareness-raising campaigns at the local level, available hotline services for emergency help, and closer monitoring through local networks by local governments. Moreover, social security programs should particularly emphasize gender dimensions to support marginalized women to recover from economic hardship. Furthermore, women's sexual and reproductive health services should be available at a specific section in hospitals. Finally, girls' education should be prioritized as part of the sustainable solution to reduce risks in similar future events.



**Fig. 4.** Gender differences in the relationship between facing economic hardship and having anxiety by wealth background, second phase (August–October 2020). Notes: (a) Robust standard errors are used. (b) 95 percent confidence intervals are shown. (c) The results represent marginal effects of the three-way-interaction among gender, economic hardship and wealth on the probability of being anxious using logit regression. The results can be explained as being rich or poor men/women in the ‘no hardship’/‘hardship’ group is associated with the likelihood of being anxious in percentage points. (d) The models control for urban/rural location, age, and a state dummy only for India. Source. Own calculations based on Young Lives data.

**5. Limitations**

We highlight the following limitations in the study. First, the outcome variable mental health complaint or anxiety in both waves is not strictly comparable. Although the measures indicate consistency in terms of distribution across different characteristics as shown in Table A2 in the appendix, one may still argue that the state of mental health would be expected to deepen more during the second phase. In addition to data limitations, we suspect that the small difference in mental health complaints between the two waves might also be because of a limited time lapse between surveys, which is around 2–3 months. The difference could probably be bigger compared to the initial phase of the pandemic, for instance, in March 2020.

Second, because of the comparability issue, we did not carry out longitudinal analysis, which future research can focus on whether continuing pandemic also prolongs anxiety and depression of young people.

Third, our sample is limited to a specific age group of young people (17–29). This issue can also be addressed by investigating whether gender differences in mental health by economic hardship are also prevalent in other age groups. Fourth, our study is limited in terms of exploring mechanisms through which young women's mental health is particularly vulnerable to the pandemic. The ‘why’ and ‘how’ questions could be better addressed through a qualitative research design, which we could not incorporate in the study.

**6. Conclusion**

The COVID-19 crisis has led to unprecedented challenges in terms of job and income loss worldwide. This has evidently led to deteriorating mental health in many countries. In this paper, we show evidence from four LMICs that anxiety and depression in terms of mental health complaints are more prevalent among women that faced economic hardship than men. Our findings contradict previous evidence from the US that men tend to suffer more from COVID-19-induced anxiety than women (Ellison et al., 2021), although previous research does not explore the interaction of gender and economic hardship to influence mental health. We argue that women's mental health in LMICs during the pandemic could be affected more because of gendered expectations of spending more time in household activities, care burden, and a possible increase in gender-based violence. Hence, if women faced job or income loss it would add further stress and worries. Additionally, due to lockdown measures and the pressure of COVID-19 patients in hospitals, access to health services for women may get hindered. This may also contribute to an increase in anxiety and depression. These issues require urgent policy attention as we suggest in the discussion section.

**Declaration of competing interest**

The author declares no conflict of interest.

**Appendix**

**Table A1**

Questionnaire for measuring anxiety.

*Questionnaire about anxiety in the first wave*

Question: “I am nervous when I think about current circumstances” can you tell me does that apply to you at all?

Original coding	Re-coded for the study
1. Does not apply at all	0 (no anxiety)
2. Somewhat does not apply	0 (no anxiety)
3. Neither applies nor does not apply	0 (no anxiety)
4. Somewhat applies	1 (anxiety)
5. Strongly applies	1 (anxiety)

*Questionnaire about anxiety in the second wave*

Question: In the last two weeks, have you been...?

1. Feeling nervous, anxious or on edge (No, not at all / Yes, even if a little bit)
2. Not being able to stop or control worrying (No, not at all / Yes, even if a little bit)
3. Worrying too much about different things (No, not at all / Yes, even if a little bit)
4. Trouble relaxing/ Can't relax (No, not at all / Yes, even if a little bit)
5. Being so restless that it's hard to sit still (No, not at all / Yes, even if a little bit)
6. Becoming easily annoyed or irritable (No, not at all / Yes, even if a little bit)
7. Feeling afraid as if something awful might happen (No, not at all / Yes, even if a little bit)

**Table A2**

Anxiety level by different sociodemographic characteristics in %-point in two phases of the pandemic

	First phase, June–July 2020				Second phase, August–October 2020			
	Anxious -yes (ref: No)							
	Ethiopia	India	Peru	Vietnam	Ethiopia	India	Peru	Vietnam
Gender								
Male	0.64	0.75	0.60	0.52	0.65	0.66	0.55	0.51
Female	0.36	0.25	0.40	0.48	0.35	0.34	0.45	0.49
Hardship								
No hardship	0.81	0.31	0.40	0.55	0.39	0.14	0.13	0.36
Hardship	0.19	0.69	0.60	0.45	0.62	0.86	0.87	0.64
Wealth								

(continued on next column)



**Table A2** (continued)

	First phase, June–July 2020				Second phase, August–October 2020			
	Anxious -yes (ref: No)							
	Ethiopia	India	Peru	Vietnam	Ethiopia	India	Peru	Vietnam
Poor	0.83	0.67	0.06	0.25	0.81	0.68	0.07	0.26
Rich	0.17	0.33	0.94	0.75	0.19	0.32	0.94	0.74
Location								
Rural	0.60	0.77	0.18	0.57	0.58	0.82	0.19	0.55
Urban	0.40	0.23	0.82	0.44	0.42	0.19	0.81	0.45
Mean age	20.48	22.48	21	21.94	20.23	21.36	20.06	21.35
N	1029	829	745	1581	1459	1759	1401	2015

Notes: (a) ref, reference. (b) India's sample includes two states (AP, Andhra Pradesh and TS, Telangana State). (c) Mean age refers to the overall age of the sample, not just those faced hardship.

Source. Own calculations based on Young Lives phone surveys.

**Table A3**

Anxiety level by different sociodemographic characteristics in %-point, first phases for robustness check

	First phase, June–July 2020			
	Anxious -yes (ref: No)			
	Ethiopia	India	Peru	Vietnam
Gender				
Male	0.65	0.66	0.55	0.51
Female	0.35	0.34	0.45	0.49
Hardship				
No hardship	0.86	0.68	0.69	0.65
Hardship	0.14	0.32	0.31	0.35
Wealth				
Poor	0.81	0.68	0.07	0.26
Rich	0.19	0.33	0.93	0.74
Location				
Rural	0.58	0.81	0.19	0.55
Urban	0.42	0.19	0.81	0.46
Mean age	20.2	21.36	20.07	21.35
N	1461	1764	1432	2036

Notes: (a) ref, reference. (b) The data are from the ‘first wave’ survey and include sample reporting that ‘economic hardship’ is not applicable (NA) for them. (c) India's sample includes two states (AP, Andhra Pradesh and TS, Telangana State). (d) Mean age refers to the overall age of the sample, not just those faced hardship.

Source. Own calculations based on Young Lives phone surveys.

**Table A4**

Probability of being anxious, AMEs from logit regression models in %-point

	First phase, June–July 2020			
	Probability of being anxious (AMEs)			
	Ethiopia	India	Peru	Vietnam
Female (ref: male)	0.017 (0.026)	-0.022 (0.015)	0.16*** (0.025)	0.061** (0.021)
Economic hardship (ref: no hardship)	-0.0075 (0.036)	-0.017 (0.017)	0.040 (0.028)	0.089*** (0.022)
Rich (ref: poor)	-0.013 (0.034)	0.0048 (0.016)	-0.077 (0.053)	-0.021 (0.025)
Urban (ref: rural)	0.14*** (0.026)	-0.031 (0.020)	-0.050 (0.034)	0.00086 (0.022)
Age	0.021*** (0.0041)	0.0072** (0.0024)	0.000063 (0.0043)	-0.0045 (0.0030)
State- AP (ref: TS)		0.12*** (0.016)		
N	1461	1764	1432	2036

Notes: (a) AMEs, average marginal effects; ref, reference; AP, Andhra Pradesh and TS, Telangana State. (b) The models are based on the ‘first wave’ data and include sample reporting that ‘economic hardship’ is not applicable (NA) for them. (c) The coefficients represent AMEs from logit regression. The results can be explained as a change in the independent variables is associated with the percentage points of changes in the dependent variable, anxiety. (d) \*p < 0.05 \*\*p < 0.01 \*\*\*p < 0.001.

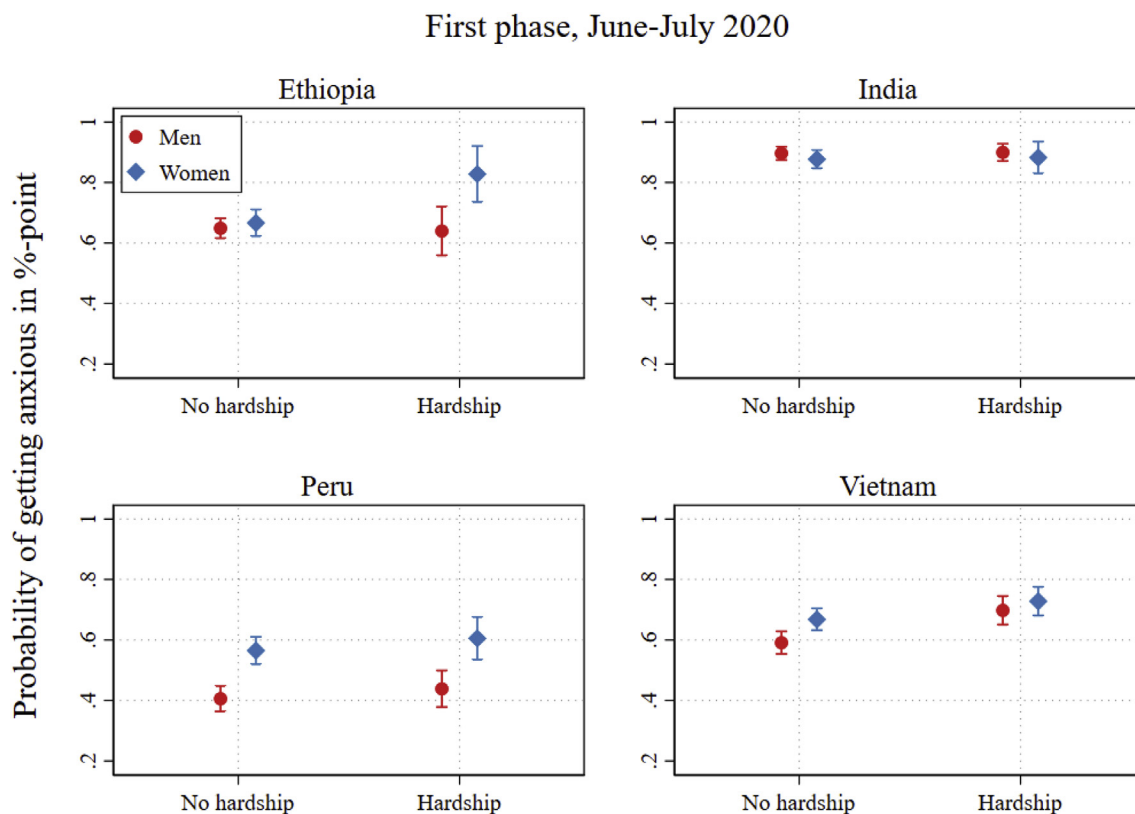
Source. Own calculations based on Young Lives phone surveys.

**Table A5**  
Probability of being anxious, AMEs from logit regression models in %-point

	First phase, June–July 2020				Second phase, August–October 2020			
	Probability of being anxious (AMEs)				Probability of being anxious (AMEs)			
	Ethiopia	India	Peru	Vietnam	Ethiopia	India	Peru	Vietnam
Female (ref: male)	−0.019 (0.030)	−0.025 (0.023)	0.12*** (0.036)	0.061* (0.024)	0.12*** (0.026)	0.069** (0.024)	0.12*** (0.021)	0.059** (0.022)
Economic hardship (ref: no hardship)	0.0068 (0.038)	−0.034 (0.023)	0.052 (0.037)	0.11*** (0.024)	−0.0035 (0.026)	0.048 (0.034)	0.070** (0.026)	0.057* (0.023)
Rich (ref: poor)	−0.043 (0.042)	−0.017 (0.023)	−0.14 (0.076)	−0.010 (0.028)	−0.085*** (0.026)	0.042 (0.024)	−0.024 (0.024)	−0.025 (0.022)
Urban (ref: rural)	0.14*** (0.033)	−0.037 (0.024)	0.020 (0.049)	0.031 (0.025)	0.054* (0.027)	−0.036 (0.030)	0.067** (0.024)	0.021 (0.022)
Age	0.019*** (0.0047)	0.0067* (0.0031)	0.0024 (0.0054)	−0.0042 (0.0034)	0.031*** (0.0040)	−0.0043 (0.0034)	0.0023 (0.0032)	−0.014*** (0.0031)
State- AP (ref: TS)		0.11*** (0.024)				−0.22*** (0.024)		
N	1029	829	745	1581	1459	1759	1401	2015

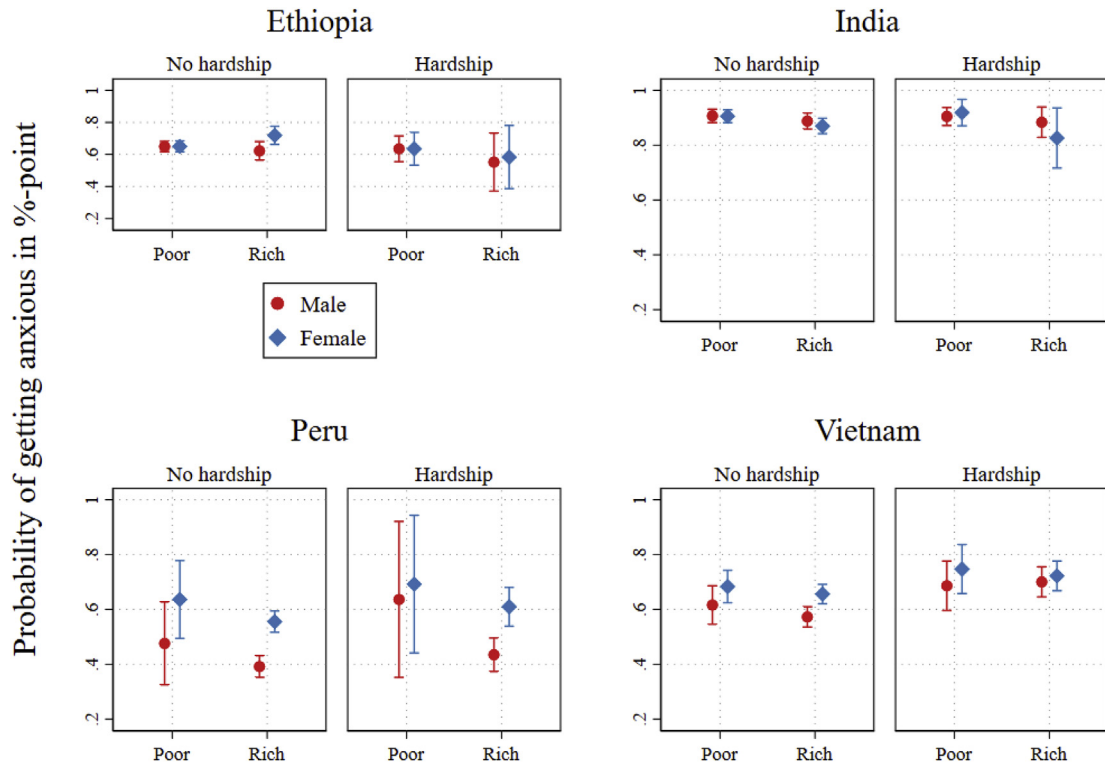
Notes: (a) AMEs, average marginal effects; ref, reference; AP, Andhra Pradesh and TS, Telangana State. (b) The coefficients represent AMEs from logit regression. The results can be explained as changes in the independent variables is associated with the percentage points of changes in the dependent variable, anxiety. (c) \*p < 0.05 \*\*p < 0.01 \*\*\*p < 0.001.

Source. Own calculations based on Young Lives phone surveys.

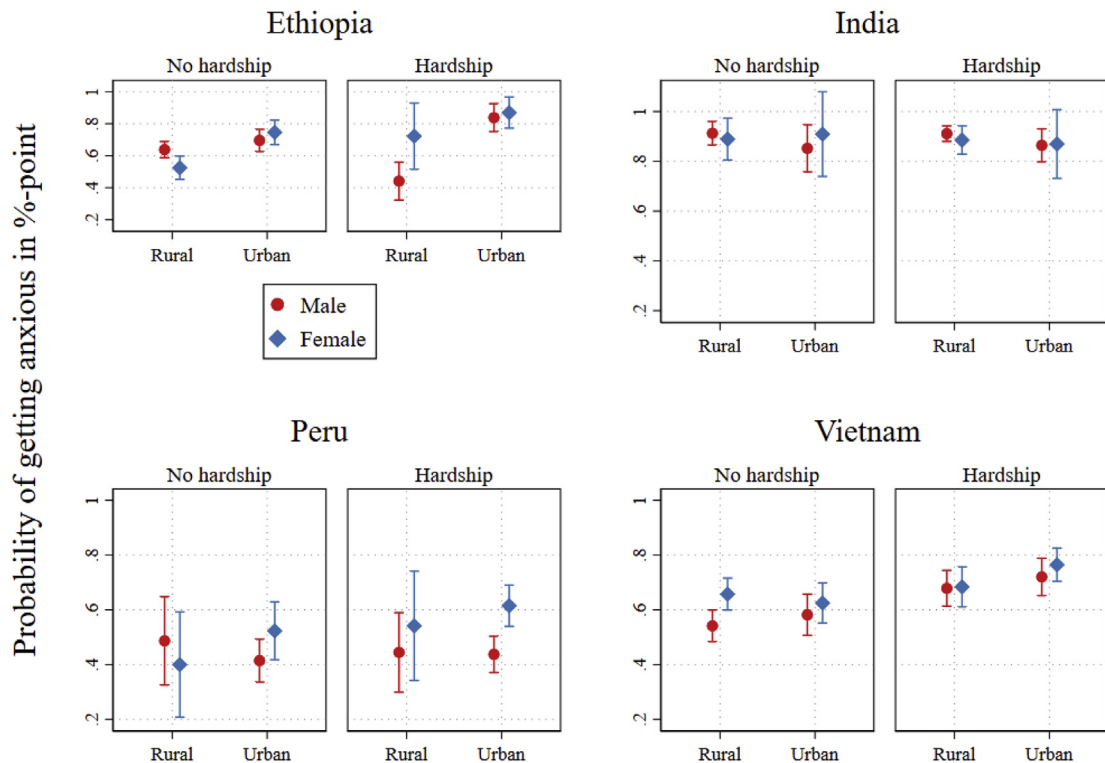


**Fig. A1.** Gender differences in the relationship between facing economic hardship and having anxiety, first phase for robustness check.

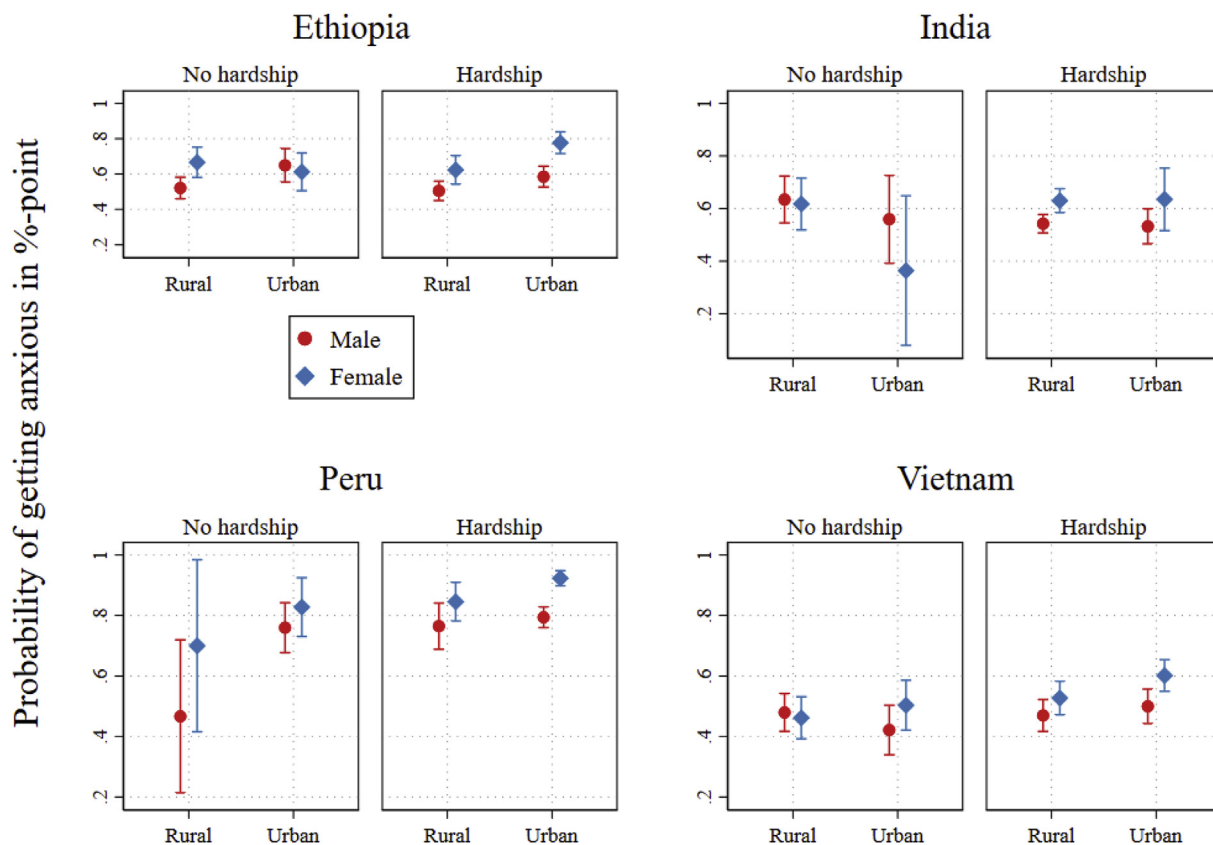
Notes: (a) Robust standard errors are used. (b) 95 percent confidence intervals are shown. (c) The models are based on the 'first wave' data and include sample reporting that 'economic hardship' is not applicable (NA) for them. (d) The results represent marginal effects of the interaction between gender and economic hardship on the probability of being anxious using logit regression. The results can be explained as being men/women in the 'no hardship'/'hardship' group is associated with the likelihood of being anxious in percentage points. (e) The models control for wealth, urban/rural location, age, and a state dummy only for India. Source. Own calculations based on Young Lives data.



**Fig. A2.** Gender differences in the relationship between facing economic hardship and having anxiety by wealth, first phase for robustness check. Notes: (a) Robust standard errors are used. (b) 95 percent confidence intervals are shown. (c) The models are based on the 'first wave' data and include sample reporting that 'economic hardship' is not applicable (NA) for them. (d) The results represent marginal effects of the three-way-interaction among gender, economic hardship and wealth on the probability of being anxious using logit regression. The results can be explained as being rich or poor men/women in the 'no hardship'/'hardship' group is associated with the likelihood of being anxious in percentage points. (e) The models control for urban/rural location, age, and a state dummy only for India. *Source.* Own calculations based on Young Lives data.



**Fig. A3.** Gender differences in the relationship between facing economic hardship and having anxiety by location, first phase (June–July 2020). Notes: (a) Robust standard errors are used. (b) 95 percent confidence intervals are shown. (c) The results represent marginal effects of the three-way-interaction among gender, economic hardship and urban/rural location on the probability of being anxious using logit regression. The results can be explained as being rich or poor men/women in the 'no hardship'/'hardship' group is associated with the likelihood of being anxious in percentage points. (d) The models control for wealth, age, and a state dummy only for India. *Source.* Own calculations based on Young Lives data.



**Fig. A4.** Gender differences in the relationship between facing economic hardship and having anxiety by location, second phase (August–October 2020). Notes: (a) Robust standard errors are used. (b) 95 percent confidence intervals are shown. (c) The results represent marginal effects of the three-way-interaction among gender, economic hardship and urban/rural location on the probability of being anxious using logit regression. The results can be explained as being rich or poor men/women in the ‘no hardship’/‘hardship’ group is associated with the likelihood of being anxious in percentage points. (d) The models control for wealth, age, and a state dummy only for India. *Source.* Own calculations based on Young Lives data.

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