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The link between intimate partner violence and spousal resource inequality in lower- and middle-income countries

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ABSTRACT

Objective: There is an increasing need to understand how differential levels of resource inequality between spouses are associated with women's experience of intimate partner violence (IPV) in lower- and middle-income countries across four regions. This study aims to focus on four areas of relative power and resources between couples in a partnership: employment, job skills, earnings, and household making-decision across four lower- and middle-income regions.

Method: Data on 150,623 women was drawn from the most recent, harmonized Demographic and Health Survey (DHS) for 24 countries in West-Central Africa (WCA), East-Southern Africa (ESA), Middle East and North Africa (MENA), and South Asia (SA). Leveraging an event history framework, we fitted mixture cure models to illuminate both the likelihood of never experiencing IPV and the onset of IPV among women in their first union across the four regions.

Results: We found that women who are not in the labor market are less likely to experience violence compared to those who are in all places except MENA. Among couples in which both partners are in the labor market, women with lower job skills than their partner are less likely to experience violence. Inequality in earnings is associated with the onset of intimate partner violence in ESA and SA. Similarly, inequality in household decision-making is associated with the onset of the first spousal violence but only in ESA, MENA, and SA.

Conclusion: This study found vast heterogeneity in the different measures of spousal resource inequality and women's experience of IPV across LMIC settings. This underscores the imperative for interventions focused on enhancing women's economic outcomes to consider and confront the contextual norms associated with women's economic empowerment, in order to mitigate unintended adverse consequences.

1. Introduction

Intimate partner violence (IPV) is a major public health and human rights issue which disproportionately affects women around the world. Approximately 27% of all ever-partnered women aged 15 to 49 have experienced physical or sexual abuse from their intimate partner, with those living in lower-income countries at particularly high risk (Sardinha et al., 2022). The consequences of IPV are innumerable, especially because it is associated with poor mental, sexual, and overall health (Sanz-Barbero et al., 2019), and an increased risk of obstetric complications (Berhanie et al., 2019).

Previous studies have highlighted the importance of examining power dynamics between intimate partners (Coll et al., 2020; Gage and Thomas, 2017; Villarreal, 2007). As a result, improving women's empowerment in rebalancing power dynamics between partners has received much attention in the empirical literature, particularly in the context of low levels of female labor force participation across the Middle East and North Africa (21%) and South Asia (25%) compared to sub-Saharan Africa (63%) and East Asia and the Pacific (66%) (World Bank, 2019). Numerous studies have sought to clarify the relationship between women's economic empowerment and intimate partner violence (IPV), yet the link remains elusive.

Many studies overlook distinctions within employment dimensions like job status, occupation type, and income sources, hindering the identification of the specific triggers for IPV among women. Furthermore, more recent scholarship suggests that women's empowerment

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Table 1
Descriptive profile of women and their partners in 28 LMICs.

	West and Central Africa (n = 26,005)	East and Southern Africa (n = 32,197)	Middle East and North Africa (n = 32663)	South Asia (n = 59,758)
Age at first marriage				
<20 years	16024 (62.62%)	20680 (63.91%)	19146 (59.55%)	35684 (60.18%)
20–24 years	7096 (26.65%)	8904 (27.61%)	10263 (30.68%)	18431 (30.78%)
25–29 years	2217 (8.25%)	2055 (6.66%)	2558 (7.61%)	4585 (7.41%)
30+ years	668 (2.47%)	558 (1.82%)	696 (2.15%)	1058 (1.64%)
Educational attainment gap				
About the same	15621 (60.05%)	19758 (60.96%)	19292 (60.05%)	33256 (55.62%)
She is less educated	7254 (28.01%)	8933 (28.24%)	9693 (28.63%)	19241 (32.45%)
She is more educated	3130 (11.94%)	3506 (10.8%)	3678 (11.32%)	7261 (11.92%)
Partner age gap				
About the same age	4269 (15.92%)	7051 (22.38%)	8839 (26.81%)	17313 (29.32%)
She is Older (2+ years)	306 (1.14%)	436 (1.32%)	554 (1.84%)	899 (1.49%)
She is Younger (3–5 years)	6500 (24.46%)	10421 (32.64%)	10185 (29.63%)	22301 (37.23%)
She is Younger (5+ years)	14930 (58.49%)	14289 (43.65%)	13085 (41.72%)	19245 (31.96%)
Marital status				
Married	22284 (85.99%)	24981 (74.9%)	32663 (100%)	59758 (100%)
Living together	3721 (14.01%)	7216 (25.1%)		
Number of children, median (IQR)	2 (4–0)	2 (4–1)	2 (4–0)	2 (3–1)
Type of union by number of female partners				
No other female partner	21297 (77.43%)	28010 (87.15%)	31430 (95.26%)	58848 (98.41%)
One + other female partner (s)	4708 (22.57%)	4187 (12.85%)	1233 (4.74%)	910 (1.59%)
Parental history of violence				
Father hits mother	5481 (20.41%)	10034 (31.56%)	8428 (26.68%)	10501 (17.19%)
Father doesn't hit mother	19108 (74.06%)	19893 (61.05%)	19493 (59.53%)	46699 (78.77%)
Don't Know	1416 (5.53%)	2270 (7.39%)	4742 (13.79%)	2558 (4.05%)
Household wealth				
Poorest	5065 (18.12%)	7053 (18.26%)	6595 (19.45%)	11106 (16.39%)
Poorer	5293 (20.53%)	6381 (19.08%)	7298 (20.7%)	12340 (19.12%)
Middle	5458 (20.47%)	6147 (19.14%)	6854 (20.71%)	12326 (20.18%)
Richer	5286 (20.45%)	6297 (21.06%)	6513 (20.43%)	12193 (21.16%)
Richest	4903 (20.43%)	6319 (22.45%)	5403 (18.7%)	11793 (23.14%)
Place of residence				
Urban residence	8401 (31.68%)	10063 (34.71%)	13486 (38.75%)	18769 (34.6%)
Rural residence	17604 (68.32%)	22134 (65.29%)	19177 (61.25%)	40989 (65.4%)
[In-] Equality in Couple's Employment Status				
They both work	20401 (79.81%)	21409 (68.16%)	4247 (13.38%)	19813 (31.94%)
Both not working	345 (1.13%)	1542 (4.6%)	1398 (3.73%)	1648 (2.97%)
She works but he doesn't work	393 (1.57%)	712 (2.42%)	185 (0.52%)	465 (0.82%)
She doesn't work but he works	4866 (17.49%)	8534 (24.83%)	26833 (82.38%)	37832 (64.27%)
[In-] Equality in Couple's Employment Type[a]				
Both partners have similar job type	14340 (69.32%)	16930 (77.51%)	2841 (65.92%)	16519 (82.94%)
He is more skilled	1777 (8.66%)	1714 (8.53%)	344 (5.96%)	1820 (9.65%)
She is more skilled	4284 (22.02%)	2765 (13.96%)	1062 (28.13%)	1474 (7.41%)
[In-] Equality in Couple's Earnings[b]				
They earn about the same	1659 (10.74%)	2414 (16.55%)	752 (19.49%)	3502 (23.9%)
She earns less than him	11858 (82.85%)	10015 (72.74%)	1954 (68%)	8418 (58.87%)
She earns more than him	920 (6.41%)	1495 (10.71%)	386 (12.51%)	2405 (17.23%)
[In-] Equality in Household Decision-Making				
They decide together	11166 (41.6%)	17207 (53.94%)	17373 (52.01%)	39388 (65.36%)
She decides alone	2496 (9.73%)	4670 (15.33%)	1534 (4.68%)	5747 (9.41%)
He decides alone	12080 (47.44%)	10209 (30.31%)	12120 (36.99%)	12095 (20.02%)
Someone else decides	263 (1.24%)	111 (0.42%)	1636 (6.32%)	2528 (5.2%)

Note: Frequency distributions are unweighted while percentage distributions are weighted for the complex design of the sampling.

[a] - sample excludes couples in which at least one partner is currently not working.

[b] - sample excludes couples in which at least one partner doesn't earn income from any source.

extends beyond a binary outcome of working or not. Their economic pursuits influence partner-level resources, such as surpassing husbands' earnings and occupational status, complicating the relationship between empowerment and IPV (Hindin and Adair, 2002; Zegenhagen et al., 2019). The relative resource framework highlights that women's employment heightens IPV risk primarily if they outearn their partners or hold superior job positions. The increased risk stems from male violent behavior directed towards females as a strategy to reclaim dominance, particularly in environments where traditional gender roles are being contested.

The discourse on female employment's connection to IPV underscores the importance of scrutinizing gendered work implications, in line with the United Nations' Sustainable Development Goals 2030; United Nations (2022). This study makes two main contributions to the literature on the drivers of intimate partner violence in low- and middle-income countries. First, we extend the interpretation of power imbalance beyond one dimension of employment by incorporating other domains of empowerment such as relative earning and household decision-making. Second, we draw a regional comparative approach emphasizing contexts under which women experience work and family.

We use harmonized international data from the Demographic Health Surveys (DHS) grouping 24 countries into four regions, consistent with the classification of the United Nations Population Fund (UNFPA): West and Central Africa (WCA), East and Southern Africa (ESA), Middle East and North Africa (MENA), and South Asia (SA) (shown in Table A1). We employ a survival framework, specifically, mixture cure models, to uncover the relationship between spousal resource inequality and IPV.

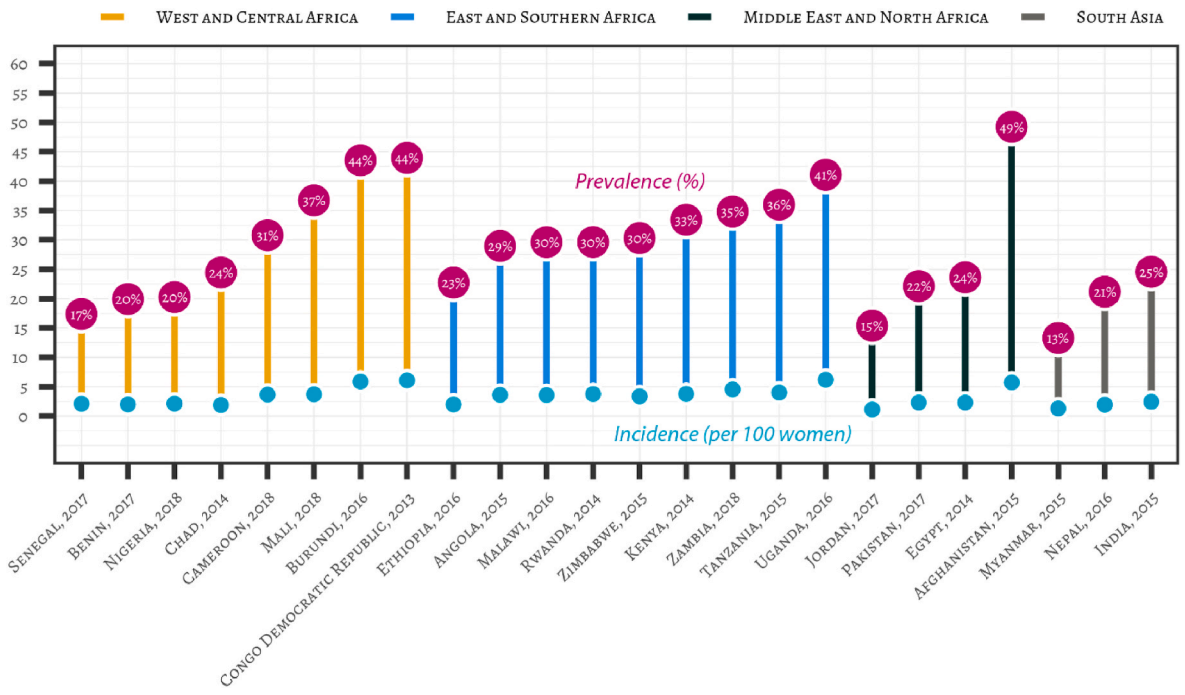

Fig. 1. Incidence and prevalence of IPV by country and region.

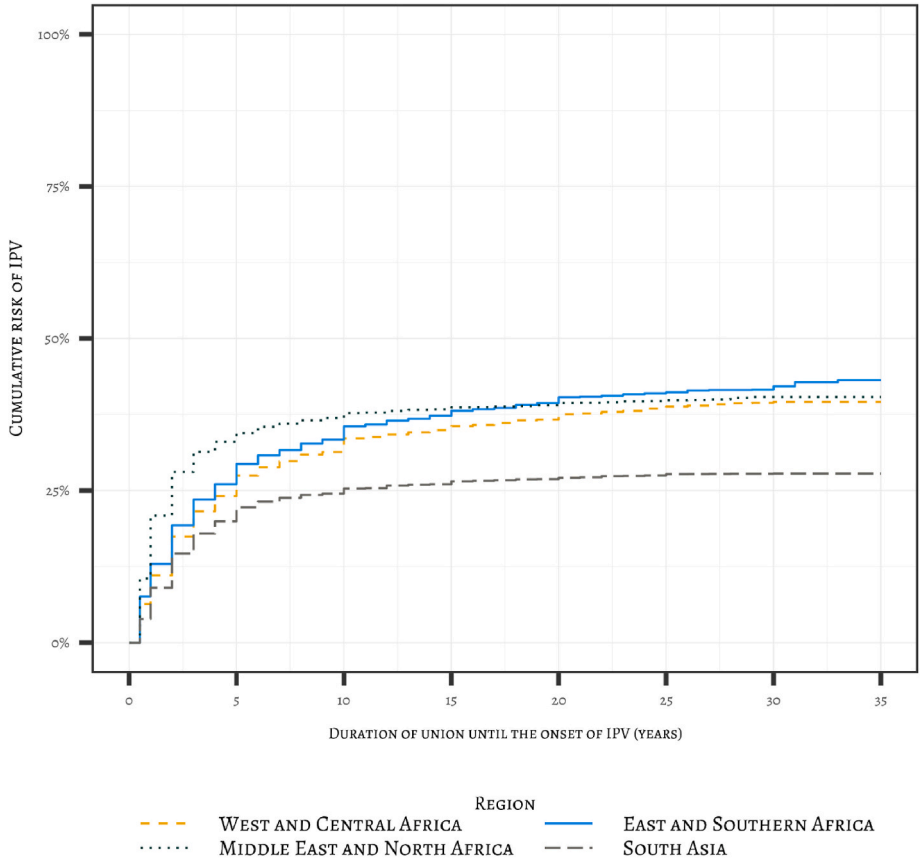

Fig. 2. Cumulative risk of IPV by region.

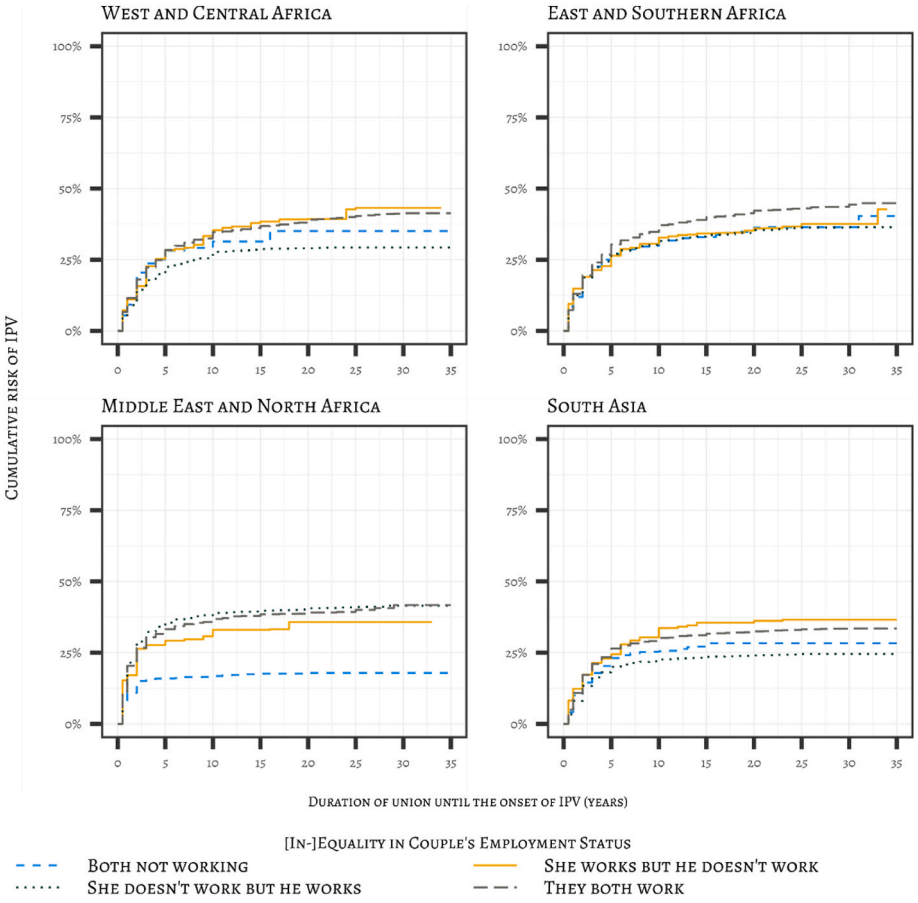

Fig. 3. Cumulative risk of IPV by inequality in couple's employment status across the four regions.

2. Background

2.1. Regional heterogeneity of female employment

Globally, 47% of women participate in the labor market compared to 72% of men (ILO, 2022). Educational expansion and the emancipation of women led to a substantial increase in women's presence in the labor market in the recent decades (World Bank, 2019), but a significant gender gap persists in almost all countries.

The relationship between female labor force participation (FLFP) and development has been described as U-shaped, with the least and the most developed countries seeing higher levels of presence of women in the labor market (Durand, 2015). This phenomenon is often attributed to the nature of macroeconomic conditions such as the prevalence of home-based productions in LMICs, and the more widespread availability of mentally rather than physically intensive jobs in societies of higher economic development, facilitating more women to participate than in other settings.

In higher-income countries, women tend to be equally or similarly likely as men to participate in the labor market prior to union formation. Gender gaps often emerge after family formation, particularly after childbearing (Gutiérrez-Domènech, 2005). In LMICs, however, many women tend to form conjugal unions and bear children at a younger age, bypassing a youthful, single adulthood window in which most human capital accumulation occurs. Under this context, women are more likely to move directly from parental to marital home, thus transitioning from parental dependence to spousal dependence. Different opportunity contexts lead Western to view stay-at-home motherhood as a response to childcare constraints (Gauthier et al., 2016) or negotiation between partners (Kowalewska and Vitali, 2021) while LMIC research emphasize autonomy, economic independence, and the risk of female marginalization (Najeeb et al., 2020).

2.2. Intimate partner violence (IPV)

These gender attitudes and norms extends to other domains in family relationships. Globally, roughly one out of every three women have experienced IPV (World Health Organization, 2022), a human rights emergency that carries deleterious mental and physical consequences for women and children under their care.

Prevalence of IPV varies across regions, with certain subgroups under heightened risks, such as those who are one of several wives, or those who live in rural areas (Tandrayen-Ragoobur, 2020). Younger and higher-educated women tend to be at a lower risk than their older and less educated counterparts (Stöckl et al., 2021). This often leads to the assumption that by raising women's education and income through employment, broadly defined as empowerment, women's risk of experiencing IPV would fall as a result (Kabeer, 1999).

Defining IPV can be challenging. While physical and sexual violence is overt, emotional abuse involving power imbalance and relationship control is less apparent. Moreover, survey-based assessment of IPV relies on self-reporting, which is known to underrepresent actual occurrences (Joseph et al., 2017).

2.3. Relative resource under gender ideologies

The relationship between employment and IPV in the past have yielded mixed results, some of which pointed to women's work leading to higher incidence of IPV (Bulte and Lensink, 2019; Cools and Kotsadam, 2017), some provided evidence of it reducing IPV risk (Bhattacharyya et al., 2011; Schuler and Nazneen, 2018), while others showed that women's employment had no causal influence on their risk of

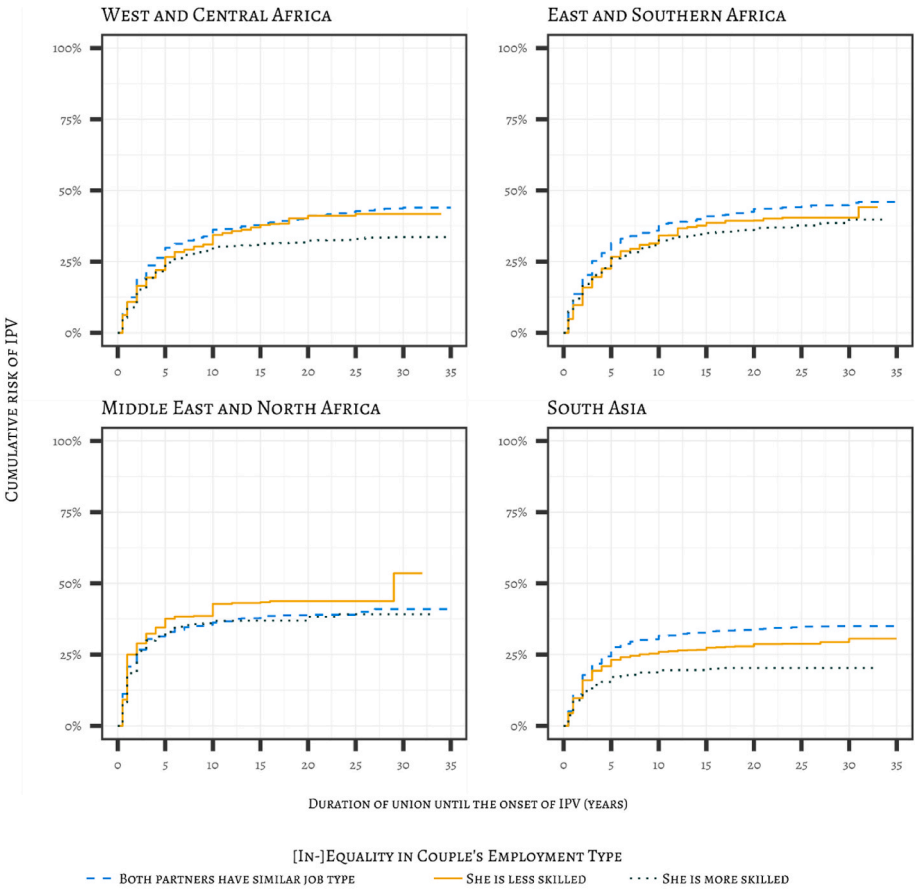

Fig. 4. Cumulative risk of IPV by inequality in couple's skill level among employed partners across the four regions.

experiencing IPV (Abramsky et al., 2019; Lenze and Klasen, 2017). Although many studies explore the concept of income as a source of empowerment for women, which in theory elevates their status within the home and decrease their risk of experiencing violence (Bhattacharyya et al., 2011), other studies find support that women's economic activities may upset gender norms leading to male violence toward female as a mean to reclaim masculinity (Bulte and Lensink, 2019), also known as a "male backlash" (Guarnieri and Rainer, 2021). Economists further extend that this expression of dominance can be *instrumental* or *expressive*, with the former performing the function of male control over female family members, and the latter serving the utility of frustration relief (Bulte and Lensink, 2019).

Violence can be conceptualized as a resource to ensure compliance from household members, similar to material resource, within a family system (Goode, 1971). This is known as the resource theory, supported by evidence of individuals of lower income and social position more likely to engage in spousal abuse (Okun, 1986). Recent studies propose the relative resource theory, focusing on a woman's resources in relationship to her male partner's (Atkinson et al., 2005). However, this assumes a universal male identity. Atkinson et al. (2005) caution against making this assumption, without delving into gender ideologies, or the lens through which partners assess their position and relationship within the household. This calls for a wider examination of the relationship between IPV and relative resource across societies. The imbalance resource theory contends that imbalances in resource distribution contribute to violence, irrespective of which partner holds more resources (Choi and Ting, 2008; Gage, 2005).

Empowerment encompasses the ability for one to exercise choice based on their resources, agency, and achievements (Kabeer, 1999). IPV is plausibly negatively associated with all these domains. Women are also more likely to suffer IPV when men or women alone dominate household decisions, compared to their counterparts who make joint household decisions (Hindin and Adair, 2002). Both partners' employment characteristics, including earnings, job type, and decision-making, play a crucial role in understanding within-couple power dynamics.

2.4. Contributions

We introduce novel perspectives on intimate partner violence (IPV) and empowerment, employing mixture cure models to explore both the imbalance resource and relative resource approaches across diverse life domains and regions. While the relative resource approach accentuates the risk of violence when women possess more resources, the imbalance resource approach underscores that unequal resource and power dynamics, regardless of whether the male or female partner holds more power, may lead to instances of intimate partner violence (Choi and Ting, 2008).

Beyond labor market position, we delve into the influence of within-household decision-making power on the onset of IPV. Our analysis spans four crucial areas—employment, job skills, earnings, and household decision-making—as we examine couple-level inequalities in distinct resource domains across four low- and middle-income regions. Notably, our approach involves testing various domains separately, avoiding direct comparisons between them.

To comprehend the nuanced relationship between female labor force participation (FLFP) and IPV across unique geographic contexts, we conduct separate analyses for West-Central Africa, East-Southern Africa, the Middle East North Africa, and South Asia. Employing mixture cure models within a survival framework, our study unveils insights into both the probability and rate of IPV occurrences. This approach enables a

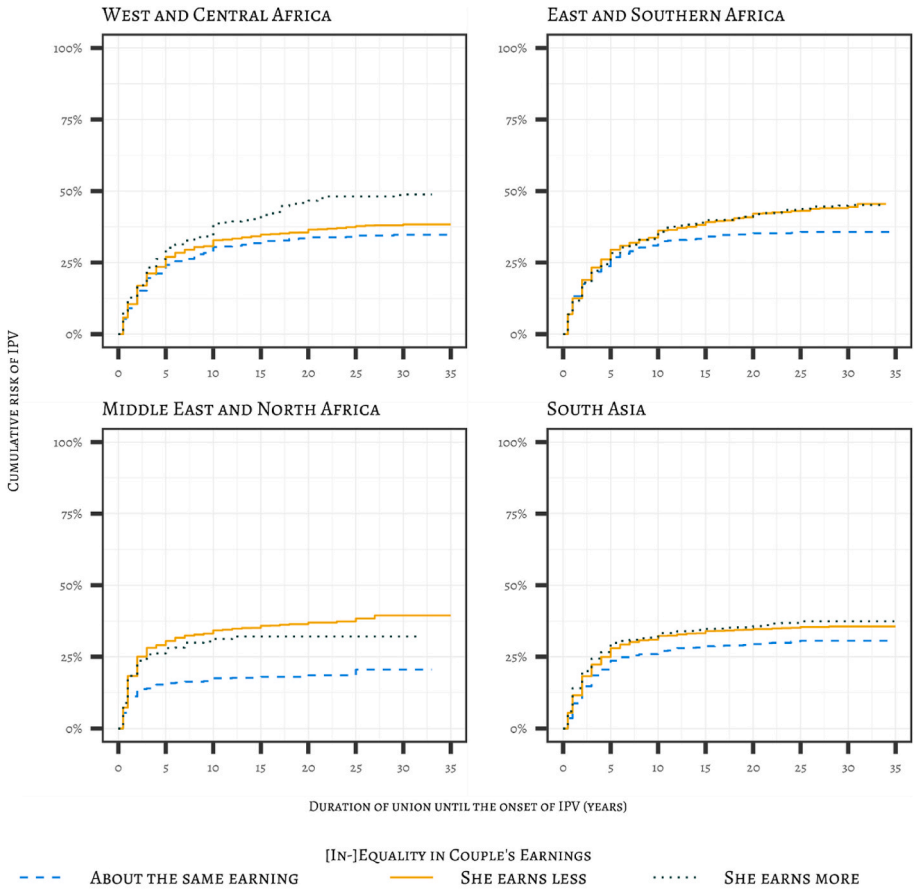

Fig. 5. Cumulative risk of IPV by inequality in couples' earnings among partners who earn across the four regions.

comprehensive understanding of the intricate dynamics surrounding IPV and its correlation with diverse aspects of resource distribution in different global regions.

3. Data and methods

3.1. Demographic and Health Surveys

To test our hypotheses, we utilize data from the Demographic and Health Surveys (DHS) conducted in 24 LMICs across Africa, South Asia, and the Middle East. We included all countries with IPV modules conducted between the years 2014–2018. We accessed the version provided by Integrated Public-Use Microdata Series (IPUMS-DHS), which contains harmonized and consistently coded variables, instrumental for cross-national comparative studies (Boyle et al., 2021). Our outcome of interest, intimate partner violence, is captured in several dimensions in DHS, namely sexual, physical, and emotional violence.

We use the woman's questionnaire which targets women aged between 15 and 49 years and derive information of their male partner from their responses. After excluding non-first unions and individuals who formed unions younger than 14 years old and those who experienced IPV before union formation, our final analytic sample comprised of 150,623 women selected in the domestic violence module in WCA (n = 26,005), ESA (n = 32,197), MENA (n = 32,663) and SA (n = 59,758). Additional information about the sample composition by the countries and years of data collection are presented in supplementary Table A1.

3.2. Outcome variable – onset of IPV

The onset of IPV is our main outcome variable of interest. Women who were in a union and selected to participate in the domestic violence module were asked if their partner had ever slapped, kicked or been violent in other ways with them. For women who reported affirmative to any of the questions, they were asked to report the first time the violence happened, in years. Under the survival analysis framework, we estimated the onset of intimate partner violence as the time from union formation to the first occurrence of intimate partner violence, while those who never experienced intimate partner violence were censored at the time of data collection.

3.3. Main explanatory variables – spousal resource inequality

We operationalize inequality between spouses in different ways: *employment, job type, earnings, and household decision-making.* Economic inequality was assessed in three ways, namely employment status, type of job, and earnings. We used information on women's current employment status as well as their partner's to create an indicator of spousal employment inequality. Among those who were in employment, women were asked about the type of job that they and their partners do. We coded responses to these questions as "blue collar job type" for those who work in the military, agricultural, skilled, and unskilled manual sectors, or self-employed. We also coded responses as "white collar job type" for those who work in sales, professional, managerial, technical, or clerical sectors. We combined responses to these questions to generate couple's employment type pairs. To further evaluate economic inequality, women were first asked if they earn any income and those who answered affirmative to the question were subsequently asked to indicate who earns more between them and their partner.

Inequality in agency and decision-making was measured by using information on decision-making for household purchases. Women were

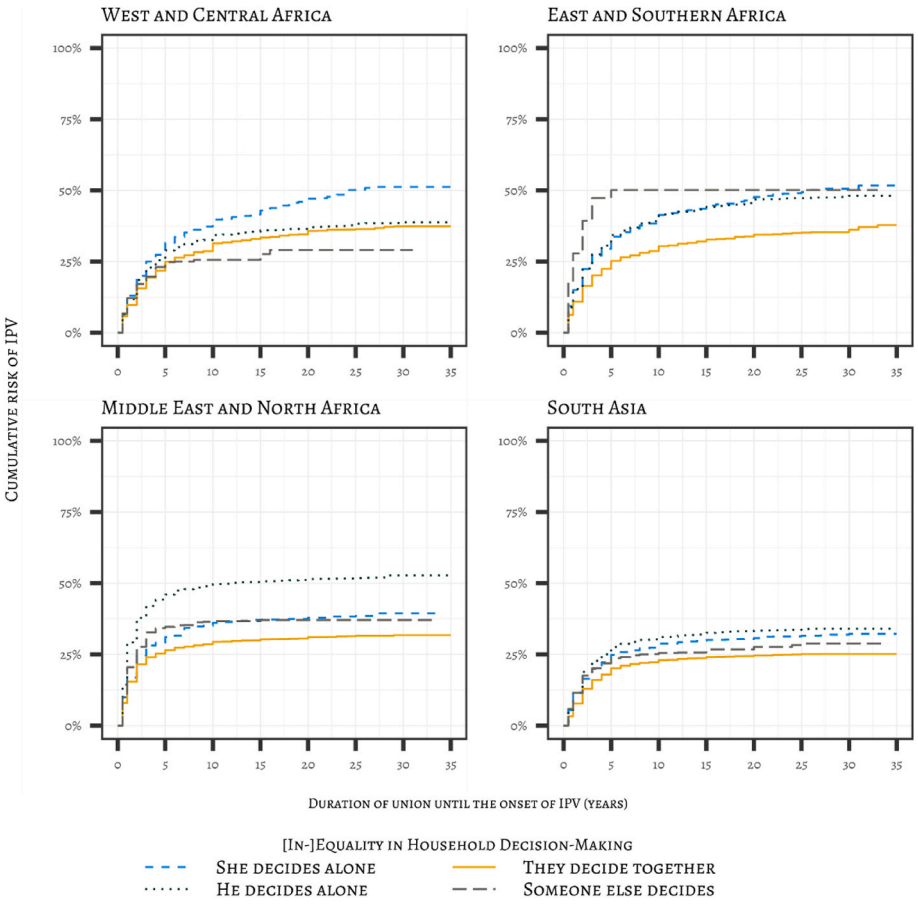

Fig. 6. Cumulative risk of IPV by inequality in household decision-making across the four regions.

asked for information regarding who decides on large household purchases. Responses to this question were coded as "she decides alone", "he partner decides alone", "someone else decides", and "both partners decide together".

3.4. Covariates

In addition to these measures, our analysis includes several covariates, including spousal age and education difference (Adebowale, 2018), marital status, number of children-ever-born, women's parental history of spousal violence (Akinyemi et al., 2020; Hernández and Durán, 2021), place of residence (Gubi et al., 2020), polygyny (Ebrahim and Atteraya, 2021), and household wealth all of which have been shown to be associated with women's experience of intimate partner violence as well as resource inequality. Spousal age difference is coded as "about the same age," "she is older," "he is older (3–5years)," "he is older (5+ years)". The number of children relies on information on the children-ever-born to women as well as the years of birth. For each woman, we considered only births that occurred before the onset of IPV. Values for this variable range from 0 (for women who had no child before the onset of IPV) to 7 (for women who had seven children before the onset of IPV). Women's parental intimate partner violence history is recorded as "yes, father hit mother", "no, father did not hit mother", and "don't know." Place of residence assessed whether women live in rural or urban areas. Polygyny, or type of union by the number of female partners, is coded as "one female partner" and "two or more female partners". Lastly, household wealth tertile measured the relative position of the household in terms of wealth compared to other households in the specific country. We distinguish between marriage and cohabitation in West Central Africa and East Southern Africa. Information on marriage and cohabitation is not available for South Asia and the Middle East and North Africa regions.

3.5. Statistical analysis

We describe the sociodemographic characteristics of women and their partner using frequency and percentage distributions. We also calculate the prevalence of self-reported experience of intimate partner violence using information on the total number of women who experienced intimate partner violence divided by the number of women in the sample. The incidence rate of intimate partner violence among the women in each country is estimated using information on the weighted total person-years at risk of intimate partner violence and the weighted number of women who experienced intimate partner violence during the study period. Kaplan–Meier survival curves were used to illustrate cumulative risks of IPV by the different dimensions of spousal resource inequality across the regions over time. The descriptive analyses were weighted using the domestic violence weights created by the DHS to adjust for the complex design of the sample and the selection probabilities of women in the domestic violence module of the respective DHS. Confidence intervals cannot be computed for the weighted samples due to memory constraints, but we retain the unweighted curves with confidence intervals, in the supplementary material as references.

To elucidate associations between the different dimensions of resource inequality and women's experience of intimate partner violence, we leveraged cure models—a type of survival analysis model that recognizes the presence of long-term survivors who will never experience the event of interest (intimate partner violence). A popular cure model is the mixture cure model, which relies on a model for the cure probability and a model for the survival function of the uncured

Table 2a
Adjusted Odds Ratios (AOR) for probability of being in the cure fraction (women who never experience intimate partner violence) in LMICs by region.

	West-Central Africa	East-Southern Africa	Middle East North Africa	South Asia
	(n = 26,005)	(n = 32,197)	(n = 32,663)	(n = 59,758)
	Adjusted Odds Ratios (95% Confidence Intervals), p-values			
Age at first marriage	*P < .001*	*P < .001*	*P < .001*	*P < .001*
<20	Reference	Reference	Reference	Reference
20-24	**1.24 (1.080–1.429)**	**1.96 (1.726–2.224)**	**1.35 (1.212–1.514)**	**1.85 (1.728–1.972)**
25-29	**2.51 (2.002–3.141)**	**3.95 (3.258–4.795)**	**1.94 (1.626–2.315)**	**2.83 (2.518–3.174)**
30+	**7.20 (5.029–10.30)**	**6.45 (4.743–8.774)**	**3.77 (2.883–4.934)**	**4.98 (3.977–6.244)**
Educational attainment gap	*P = .363*	*P = .002*	*P = .001*	*P < .001*
About the same	Reference	Reference	Reference	Reference
She is less educated	0.93 (0.807–1.078)	**0.83 (0.728–0.943)**	**0.83 (0.735–0.929)**	**0.70 (0.656–0.746)**
She is more educated	0.89 (0.741–1.071)	1.13 (0.950–1.351)	1.09 (0.928–1.269)	**1.11 (1.011–1.212)**
Partner age gap	*P = .099*	*P < .001*	*P = .039*	*P < .001*
About the same age	Reference	Reference	Reference	Reference
She is Older (2+ years)	0.86 (0.500–1.464)	0.95 (0.639–1.414)	0.83 (0.575–1.184)	**0.72 (0.566–0.926)**
She is Younger (3–5yrs)	1.02 (0.828–1.269)	1.01 (0.868–1.175)	**1.15 (1.001–1.314)**	1.02 (0.951–1.102)
She is Younger (5+ yrs)	1.18 (0.975–1.436)	**1.26 (1.092–1.452)**	**1.16 (1.021–1.319)**	**1.40 (1.302–1.514)**
Marital status	*P < .001*	*P = .101*		
Married	Reference	Reference		
Living together	**0.68 (0.541–0.859)**	1.16 (0.973–1.39)		
Children ever born	*P < .001*	*P < .001*	*P < .001*	*P < .001*
	1.30 (1.248–1.364)	**1.57 (1.51–1.636)**	**2.09 (2.007–2.177)**	**3.51 (3.404–3.628)**
Type of union by number of female partners	*P < .001*	*P < .001*	*P = .143*	*P = .005*
No other wife	Reference	Reference	Reference	Reference
One + other wives	**0.73 (0.637–0.842)**	**0.47 (0.388–0.566)**	1.18 (0.947–1.48)	**0.74 (0.601–0.917)**
Parental history of violence	*P < .001*	*P < .001*	*P < .001*	*P < .001*
Father hits mother	Reference	Reference	Reference	Reference
Father doesn't hit mother	**4.86 (3.951–5.969)**	**2.69 (2.378–3.053)**	**5.10 (4.471–5.813)**	**3.94 (3.659–4.234)**
Don't Know	**2.19 (1.637–2.922)**	1.20 (0.941–1.520)	**2.66 (2.202–3.203)**	**2.81 (2.421–3.260)**
Household wealth	*P < .001*	*P < .001*	*P < .001*	*P < .001*
Poorest	0.88 (0.729–1.062)	**0.65 (0.528–0.799)**	0.86 (0.739–1.012)	**0.40 (0.366–0.446)**
Poorer	0.89 (0.743–1.075)	**0.69 (0.565–0.851)**	0.97 (0.833–1.119)	**0.67 (0.617–0.736)**
Middle	Reference	Reference	Reference	Reference
Richer	**1.24 (1.032–1.480)**	**1.54 (1.288–1.837)**	1.08 (0.923–1.261)	**1.32 (1.214–1.445)**
Richest	**1.92 (1.568–2.349)**	**2.58 (2.127–3.133)**	**1.87 (1.557–2.257)**	**2.10 (1.913–2.316)**
Place of residence	*P = .256*	*P = .337*	*P = .603*	*P = .199*
Urban Residence	Reference	Reference	Reference	Reference
Rural residence	1.09 (0.936–1.277)	1.08 (0.925–1.252)	1.04 (0.905–1.187)	1.05 (0.976–1.123)
[In-] Equality in Couple's Employment Status	*P < .001*	*P < .001*	*P = .602*	*P < .001*
They both work	Reference	Reference	Reference	Reference
Both not working	**2.14 (1.509–3.037)**	**1.63 (1.242–2.150)**	0.86 (0.668–1.104)	**1.55 (1.277–1.892)**
She works but he doesn't work	1.45 (0.976–2.157)	1.32 (0.946–1.850)	0.93 (0.545–1.571)	0.94 (0.686–1.289)
She doesn't work but he works	**2.14 (1.833–2.490)**	**1.52 (1.323–1.736)**	1.00 (0.869–1.151)	**1.52 (1.428–1.621)**
[In-] Equality in Household Decision-Making	*P = .027*	*P < .001*	*P < .001*	*P < .001*
Both partner decides	Reference	Reference	Reference	Reference
She decides alone	0.82 (0.661–1.024)	**0.62 (0.533–0.724)**	**0.50 (0.413–0.613)**	**0.68 (0.616–0.751)**
He decides alone	1.07 (0.928–1.226)	**0.65 (0.573–0.749)**	**0.58 (0.516–0.644)**	**0.68 (0.632–0.731)**
Someone else decides	**1.68 (1.014–2.773)**	0.59 (0.122–2.825)	**1.83 (1.430–2.351)**	**1.24 (1.044–1.470)**

Note: Bolded cells depict p < .05 compared to the reference category; P-values shown on variable name and column for each region are derived from likelihood ratio tests comparing models with (full model) and without each covariate.

subjects, conditional on a set of covariates. A benefit of the mixture cure model is that it allows covariates to have different influence on cured patients and on patients who are not cured. With the cured fraction introduced in the underlying model, it allows us to estimate the effect of the covariates on both the hazard function and the cured probability components. The analysis of long-term survivors following treatment has frequently employed such models (Drzymalla et al., 2022; Izadi et al., 2020; Othus et al., 2012). Additional description of the cure models have been published elsewhere (Yu, 2021).

We used the *flexsurvcure* package in R to implement mixture cure model (Amdahl, 2022) which builds upon the comprehensive *flexsurv* package which runs flexible parametric models (Jackson et al., 2023). It is common practice to use a logistic model to show cure probability (or incidence), as this is easy to estimate and often provides a good fit to the data (Farewell, 1986). For the survival function of the uncured subjects, a variety of parametric distributions can be considered, ranging from Weibull, loglogistic, lognormal and (generalized) gamma distribution. Other studies have also shown that the log-logistic distribution provides a useful alternative to the Weibull distribution for parametric modelling of survival data and is capable of modelling survival data with various hazard rate shapes (Muse et al., 2022; Surendran and Tota-Maharaj, 2015).

As a result, we specified a model with the log-logistic distribution for the survival of the uncured and a logistic link function for the cured fraction. Additional analysis examined associations between inequality in employment types and the likelihood of spousal violence among couples who are both employed. We also specified an additional model to examine associations between inequality in earnings and the onset of IPV among women who reported that they and their partner earn income. Models for each of the sub-regions were specified separately to illuminate how the relationship between the different measures of spousal resource inequality and women's experience of intimate partner violence differs across the sub-regions.

The results are interpreted as adjusted odds ratio (AOR) for the cure probability and adjusted time ratio (ATR) for the survival of the uncured. An AOR less than 1 implies a lower likelihood of never experiencing IPV in the specific category. In contrast, an AOR greater than 1 implies a higher likelihood of never experiencing IPV in the specific

Table 2b
Adjusted Odds Ratios (AOR) for probability of being in the cure fraction (women who never experience intimate partner violence) in LMICs by region.

	West-Central Africa	East-Southern Africa	Middle East North Africa	South Asia
	Adjusted Odds Ratios (95% Confidence Intervals), p-values			
Equality in Earnings[a]	*P = .476*	*P = .056*	*P = .052*	*P = .073*
They earn about the same	Reference	Reference	Reference	Reference
She earns less	0.85 (0.645–1.127)	0.84 (0.678–1.042)	0.68 (0.467–1.003)	**0.86 (0.749–0.978)**
She earns more	0.80 (0.547–1.177)	**0.70 (0.516–0.939)**	**0.55 (0.324–0.934)**	0.88 (0.739–1.041)
Equality in skill level [b]	*P = .010*	*P = .176*	*P = .931*	*P < .001*
They have similar job type	Reference	Reference	Reference	Reference
She is less skilled	**1.39 (1.089–1.772)**	1.26 (0.985–1.622)	0.90 (0.519–1.570)	**1.26 (1.065–1.484)**
She is more skilled	**1.19 (1.008–1.400)**	1.07 (0.885–1.305)	0.97 (0.685–1.387)	**1.39 (1.153–1.676)**

Note: Bolded cells depict p < .05 compared to the reference category; P-values shown on variable name and column for each region are derived from likelihood ratio tests comparing models with (full model) and without each covariate.

[a] Models were fitted on a sample of women who reported that they and their partner have earnings either from employment or other sources (e.g. inheritance) and adjusted for education difference between couples, equality in decision making, partner age difference, marital status (for WCA and ESA), woman's age at first marriage, type of union by number of female partners, parental intimate partner violence history, time varying number of children ever born, household wealth and place of residence.

[b] Models were fitted on a sample of women who were currently employed as well as their partner while adjusting for education difference between couples, equality in decision making, partner age difference, marital status (for WCA and ESA), woman's age at first marriage, type of union by number of female partners, parental intimate partner violence history, time varying number of children ever born, household wealth and place of residence.

category, all compared to the reference category. ATR less than 1 means that time-to-IPV is shorter for the specific group compared to the reference group, while an ATR greater than 1 implies a longer time to the onset of the first IPV in the specific group compared to the reference group (Chaou et al., 2017; Wei, 1992). All the data were analyzed using R packages *flexsurvcure* (Amdahl, 2022), *survival* (Therneau et al., 2022), *survey* (Lumley, 2004) and *jskm* (Kim, 2021).

4. Results

4.1. Descriptive characteristics of women in the sample

The descriptive profile of women in the sample across the four regions is presented in Table 1. Women in WCA are more likely to have male partner 5 or more years older (58%), live in polygynous union (23%), and live in rural area (68%) compared to women in other regions. Women in ESA are most likely to have a father who hit the mother (32%), followed by women in MENA (27%). Most women across the regions are similarly educated as their male partner. More women in WCA (80%) and ESA (68%) were jointly in employment with their partner compared to women in MENA (13%) and South Asia (32%). In SA, the highest share of women has similar job type with their partner (83%) and are more likely to have similar earning with their partner (24%) compared to women in other regions. Women in SA are also more likely make household decisions jointly with their partner (65%) compared to women in ESA (54%), MENA (52%), and WCA (42%).

Fig. 1 shows the weighted incidence of IPV per 100 women, shown in blue points, and the prevalence of IPV, shown in red points, by country in the sample. Countries are color-coded in bars by region. The results show almost half of the women in Afghanistan (49%) have experienced IPV since start of their current union, followed by those in Congo Democratic Republic and Burundi (both 44%). Similarly, the incidence rates per 100 women are the highest in these countries.

4.2. Kaplan-meier cumulative risk curve for IPV

The cumulative risks of IPV by region is presented in Fig. 2. The unweighted cumulative risks by region with 95% confidence intervals are presented in Figure A1. The cumulative risk of IPV was estimated to be higher in MENA and ESA compared to WCA and SA. Overall, the cumulative risk of IPV increases rapidly within the first five years, with a marginal increase in the following years. Similarly, more than a quarter of women in their first union across all regions have experienced IPV by the tenth year of the union.

Figs. 3–6 presents weighted cumulative risks of IPV by the different dimensions of spousal resource inequality and regions. The unweighted cumulative risks with 95% confidence intervals are presented in supplementary material Figure A2-A5. Fig. 3 shows that women in SA and WCA who worked while their partner did not have the highest IPV risks. This should be interpreted carefully, as these are rare cases, as shown in Table 1 (0.8% and 1.6% respectively). Women who do not work while their partner works have the lowest risk in these two regions. Fig. 4 shows that less skilled women in MENA are exposed to higher, while more skilled women in SA and WCA are exposed to lower IPV risks. Fig. 5 shows that women who had similar earnings to their partners were at the lowest risks of IPV across the board.

The cumulative risk of IPV by household decision-making dynamics is presented in Fig. 6. In all regions except WCA, women who decide on household purchases with their partners have the lowest cumulative risk of IPV compared to women who decide alone or whose partners decide alone. Similarly, the overall cumulative risk of IPV was higher for women who decide alone on household purchases in WCA, while in MENA and SA, the cumulative risk of IPV is higher among women whose partner decides alone on household purchases.

4.3. Association between multiple dimensions of spousal resource inequality and the likelihood of never experiencing IPV

Belonging in the cured fraction implies that one has never experienced intimate partner violence within the observation window. Tables 2a and 2b presents the adjusted odds ratio (AOR) for the likelihood of belonging in the cured fraction, that is, never experiencing intimate partner violence within the observation window, among women across regions in LMICs. Compared to women who were in employment together with their partner, those where neither partner works had higher odds of being in the cured fraction than couples where both partners work across all regions such as WCA (AOR:2.14, 95% CI:1.509–3.037), ESA (AOR:1.63, 95%CI:1.242–2.150), SA (AOR:1.55, 95%CI:1.277–1.892), except MENA (AOR:0.86, 95%CI:0.668–1.104). Similarly, women who were not in employment while their partner works have higher odds of never experiencing (cure fraction) compared to women who were jointly working with their partner in WCA (AOR:2.14, 95%CI:1.833–2.490), ESA (AOR:1.52, 95%CI:1.323–1.736), SA (AOR:1.52, 95%CI:1.428–1.621) but not MENA (AOR:1.00, 95% CI:0.869–1.151).

In household decision-making, other than WCA, all other regions show that when only one partner, male or female, makes decisions alone, women are far more likely to experience IPV. Interestingly, when

Table 3a
Adjusted time ratios (ATR) for the onset of intimate partner violence among women in LMICs by region.

	West-Central Africa	East-Southern Africa	Middle East North Africa	South Asia
	(n = 26,005)	(n = 32,197)	(n = 32,663)	(n = 59,758)
	Adjusted Time Ratios (95% Confidence Intervals), p-values			
Age at first marriage	*P <.001*	*P < .001*	*P = .021*	*P < .001*
<20	Reference	Reference	Reference	Reference
20-24	**0.95 (0.914–0.990)**	**0.88 (0.840–0.913)**	1.00 (0.972–1.027)	**0.93 (0.909–0.960)**
25-29	**0.89 (0.817–0.962)**	**0.60 (0.547–0.663)**	0.99 (0.932–1.048)	**0.91 (0.859–0.959)**
30+	**0.74 (0.617–0.890)**	**0.32 (0.257–0.393)**	**0.82 (0.725–0.929)**	**0.86 (0.767–0.960)**
Educational attainment gap	*P = .864*	*P = .211*	*P = .007*	*P < .001*
About the same	Reference	Reference	Reference	Reference
She is less educated	0.99 (0.953–1.031)	1.03 (0.996–1.072)	1.01 (0.983–1.037)	**1.05 (1.02–1.071)**
She is more educated	1.01 (0.953–1.062)	1.02 (0.967–1.080)	**1.09 (1.032–1.145)**	**0.94 (0.911–0.98)**
About the same age	Reference	Reference	Reference	Reference
Partner age gap	*P = .975*	*P = .588*	*P = .528*	*P < .001*
She is Older (2+ years)	1.01 (0.877–1.174)	0.97 (0.839–1.130)	1.05 (0.949–1.159)	0.92 (0.830–1.024)
She is Younger (3–5yrs)	1.01 (0.960–1.061)	1.01 (0.966–1.055)	1.01 (0.981–1.042)	**0.96 (0.933–0.987)**
She is Younger (5+ yrs)	1.00 (0.955–1.051)	0.98 (0.942–1.026)	0.99 (0.963–1.024)	**0.92 (0.890–0.945)**
Marital status	*P = .094*	*P = .960*		
Married	Reference	Reference		
Living together	0.96 (0.920–1.007)	1.00 (0.956–1.049)		
Children ever born	*P < .001*	*P < .001*	*P < .001*	*P < .001*
	2.14 (2.103–2.168)	**2.09 (2.060–2.128)**	**2.15 (2.117–2.182)**	**2.12 (2.094–2.152)**
Type of union by number of female partners	*P = .113*	*P = .001*	*P = .786*	*P = .322*
No other wife	Reference	Reference	Reference	Reference
One + other wives	0.96 (0.920–1.009)	**0.93 (0.890–0.972)**	0.99 (0.936–1.051)	0.96 (0.892–1.038)
Parental history of violence	*P < .001*	*P < .001*	*P < .001*	*P < .001*
Father hits mother	Reference	Reference	Reference	Reference
Father doesn't hit mother	**1.14 (1.099–1.184)**	**1.10 (1.062–1.138)**	**1.12 (1.089–1.152)**	**1.08 (1.054–1.106)**
Don't Know	1.01 (0.938–1.089)	1.04 (0.977–1.108)	**1.10 (1.067–1.144)**	1.03 (0.978–1.093)
Household wealth	*P = .040*	*P < .001*	*P = .003*	*P = .154*
Poorest	1.03 (0.978–1.083)	1.03 (0.977–1.08)	1.01 (0.977–1.05)	1.02 (0.987–1.057)
Poorer	1.00 (0.955–1.057)	1.03 (0.982–1.086)	**0.96 (0.93–0.997)**	1.00 (0.963–1.030)
Middle	Reference	Reference	Reference	Reference
Richer	1.02 (0.969–1.079)	1.00 (0.943–1.054)	1.02 (0.983–1.059)	0.99 (0.950–1.024)
Richest	**1.11 (1.035–1.185)**	**1.18 (1.103–1.261)**	**1.06 (1.001–1.114)**	1.03 (0.986–1.077)
Place of residence	*P = .111*	*P = .921*	*P = .336*	*P < .001*
Urban Residence	Reference	Reference	Reference	Reference
Rural residence	1.04 (0.991–1.094)	0.99 (0.947–1.044)	0.98 (0.945–1.02)	**1.06 (1.032–1.095)**
[In-] Equality in Couple's Employment Status	*P = .049*	*P = .037*	*P < .001*	*P < .001*
They both work	Reference	Reference	Reference	Reference
Both not working	0.92 (0.784–1.074)	1.06 (0.970–1.154)	1.04 (0.944–1.155)	**1.13 (1.048–1.218)**
She works but he doesn't work	0.92 (0.803–1.050)	1.00 (0.893–1.118)	0.89 (0.713–1.107)	0.97 (0.860–1.084)
She doesn't work but he works	**1.07 (1.006–1.129)**	**1.06 (1.018–1.111)**	**1.09 (1.052–1.127)**	**1.05 (1.023–1.074)**
[In-] Equality in Household Decision-Making	*P < .001*	*P < .001*	*P < .001*	*P = .013*
Both partner decides	Reference	Reference	Reference	Reference
She decides alone	**0.87 (0.825–0.925)**	**0.92 (0.875–0.963)**	1.02 (0.960–1.084)	**0.95 (0.916–0.991)**
He decides alone	**0.95 (0.914–0.987)**	**0.94 (0.908–0.977)**	**0.95 (0.922–0.971)**	**0.97 (0.940–0.992)**
Someone else decides	0.92 (0.732–1.148)	0.95 (0.723–1.243)	**1.11 (1.047–1.179)**	1.01 (0.946–1.077)

Note: Bolded cells depict p < .05 compared to the reference category; P-values shown on variable name and column for each region are derived from likelihood ratio tests comparing models with (full model) and without each covariate.

someone else makes big household decisions, women are less likely to experience IPV. Women who earn more than their partner in ESA (AOR:0.70, 95%CI:0.516–0.939) and MENA (AOR:0.55, 95% CI:0.324–0.934), and women who earn less than their partner in SA (AOR: 0.86, 95% CL: 0.749–0.978) are more likely to experience violence compared to women who earn about the same as their partner. Women who are similarly skilled as their partner are at a heightened risk of experiencing IPV, compared to those who are less skilled or more skilled than their partner, in WCA and SA.

4.4. Association between multiple dimensions of spousal resource inequality and the onset of intimate partner violence

Tables 3a and 3b presents the adjusted time ratio (ATR) for the hazard of experiencing intimate partner violence. In all the regions, women who are not participating in the labor force while their partner works have a prolonged time to the onset of first IPV, signified by an ATR higher than 1 (ATR: 1.07, 95% CI: 1.006–1.129 for WCA; ATR: 1.06, 95% CI: 1.018–1.111 for ESA; ATR: 1.09, 95% CI: 1.052–1.127 for MENA; ATR: 1.05, 95% CI: 1.023–1.074 for SA), compared to women who were working and whose partner also works. Women whose partner decides alone on household purchases have an accelerated time until the onset of IPV compared to women who make joint decisions with their partner across all the regions. Similarly, women who decide alone on household purchases have an accelerated time (ATR <1) until the onset of IPV compared to women who made decisions together with their partner across all the regions except in MENA (ATR:1.02, 95% CI:0.960–1.084). Among couples who both have earnings (Table 3b), the results show that women who earn more than their partner in WCA (ATR:0.85, 95% CI:0.761–0.946) and SA (ATR:0.92, 95% CI:0.861–0.984) have a shorter time until the onset of the first spousal violence compared to women who earn about the same as their partner. Lastly, the results show that among couples who were both employed, women who were less skilled than their partner had a delayed onset of spousal violence compared to women who had the same skill as their partner in ESA (ATR:1.10, 95%CI:1.018–1.189). Similarly, women who were more skilled than their partner in MENA (ATR:1.15, 95% CI:1.066–1.236) have a delayed onset of spousal violence, while those in

Table 3b
Adjusted time ratios (ATR) for the onset of intimate partner violence among women in LMICs by region.

	West-Central Africa	East-Southern Africa	Middle East North Africa	South Asia
	Adjusted Time Ratios (95% Confidence Intervals), p-values			
Equality in Earnings[a]	*P = .001*	*P = .576*	*P = .104*	*P = .047*
They earn about the same	Reference	Reference	Reference	Reference
She earns less	1.00 (0.926–1.077)	0.97 (0.911–1.042)	**1.15 (1.011–1.308)**	0.97 (0.921–1.024)
She earns more	**0.85 (0.761–0.946)**	1.01 (0.916–1.108)	1.09 (0.919–1.284)	**0.92 (0.861–0.984)**
Equality in skill level [b]	*P = .099*	*P = .051*	*P < .001*	*P = .971*
They have similar job type	Reference	Reference	Reference	Reference
She is less skilled	1.01 (0.941–1.080)	**1.10 (1.018–1.189)**	0.92 (0.828–1.029)	1.00 (0.927–1.071)
She is more skilled	**0.94 (0.895–0.997)**	1.00 (0.934–1.066)	**1.15 (1.066–1.236)**	0.99 (0.905–1.082)

Note: Bolded cells depict p < .05 compared to the reference category; P-values shown on variable name and column for each region are derived from likelihood ratio tests comparing models with (full model) and without each covariate.

[a] Models were fitted on a sample of women who reported that they and their partner have earnings either from employment or other sources (e.g. inheritance) and adjusted for education difference between couples, equality in decision making, partner age difference, marital status (for WCA and ESA), woman's age at first marriage, type of union by number of female partners, parental intimate partner violence history, time varying number of children ever born, household wealth and place of residence.

[b] Models were fitted on a sample of women who were currently employed as well as their partner while adjusting for education difference between couples, equality in decision making, partner age difference, marital status (for WCA and ESA), woman's age at first marriage, type of union by number of female partners, parental intimate partner violence history, time varying number of children ever born, household wealth and place of residence.

WCA (ATR:0.94, 95%CI:0.895–0.997) have an accelerated onset of first spousal violence compared to women who have the same skill as their partner.

5. Discussion of findings

The prevalence of IPV, particularly in lower-resource settings, has been high, with little signs of abating. Violence against women, in the forms of sexual, physical, and emotional abuse, is a major public health and human rights concern with its effects devastating and long-lasting. The World Health Organization and the United Nations outlined specific strategies to deracinate IPV, one of the biggest health and safety concerns for women around the globe, including providing services, reducing poverty, transforming attitudes and beliefs, and empowering women (World Health Organization, 2022).

This study employs mixture cure models to investigate intimate partner violence (IPV) and empowerment, exploring both imbalance resource and relative resource approaches across diverse life domains and regions. While the relative resource approach emphasizes the increased risk of violence when women possess more resources, the imbalance resource approach highlights that unequal resource and power dynamics, regardless of the partner's gender, may contribute to IPV. The analysis focuses on employment, job skills, earnings, and household decision-making, examining couple-level inequalities in distinct resource domains across four low- and middle-income regions. We individually tested various resource and geographic domains, to reveal insights into the probability and rate of IPV occurrences, contributing to a comprehensive understanding of the complex dynamics surrounding IPV and its correlation with resource distribution.

Out of the four dimensions, relative skills and earnings between male and female partners yielded mixed or insignificant results. Conversely, relative employment and household decision-making power presented a much clearer picture. Our findings revealed that women not being employed when their male partners are employed is associated with a lower risk of ever experiencing IPV. This corroborates with findings from other studies that point for women's lower relative position compared to their male partner is linked to a lower likelihood of gender violence, consistent with the relative resource theory (Chung et al., 2008; Gage and Thomas, 2017). This is additionally supported by positive associations between higher female relative earnings and the likelihood of IPV occurring in ESA and MENA. Moreover, the analysis of household decision-making power indicates that equality is closely associated with a reduced risk of intimate partner violence (IPV). Whether decisions are made solely by men or women, both scenarios are linked to higher risks in most regions, both in terms of the probability and rate of occurrence of IPV, aligning with findings from previous studies. (Cools and Kotsadam, 2017; Hindin and Adair, 2002; Zegenhagen et al., 2019).

Across geographies, MENA, a low FLFP setting, does not show significant results for relative employment between the partners. Relative household decision-making also shows limited ties to IPV in WCA. The heterogeneous outcomes in different settings may stem from a multitude of factors, including but not limited to variations in gender attitudes and divergent family norms.

Taken together, these insights contribute to a nuanced understanding of the intricate dynamics surrounding intimate partner violence and underscore the significance of addressing gender-related factors in the formulation of effective preventive measures. In scenarios where the imbalanced resource theory is supported, a higher risk of violence may be linked to both women's higher position (transgression) or lower position (submission). In cases where the relative resource theory is supported, women's higher position triggers a mechanism described as a "male backlash" or men using violence as a mean to reclaim dominance in other domains of the relationship (Bulte and Lensink, 2019; Fakir et al., 2016; Guarnieri and Rainer, 2021). The risk of IPV is also lower when household decisions are made by someone else, possibly by a coresident kin, consistent with findings on lower IPV in extended family residential settings (Koenig et al., 2003).

This study extends beyond the current state-of-the-art by examining couple's power dynamics across multiple domains of resources in different geographic regions. The regions exhibit variations in the prevalence of female employment, with WCA and ESA having higher rates, while the MENA and SA have lower rates. Regardless of the regional norm for female employment, women who were not working while their partner works faced the lowest risk of intimate partner violence (IPV) compared to women in similar situations in other regions. This suggests that violating the male-breadwinner model is widely linked to a heightened risk of IPV.

Beyond resources, many other factors within a couple's lives can influence the risk of IPV. The ecological model suggests that the risk of violence stems from relationships with one's partner (Akhter and Wilson, 2016) and the community (Smith Slep et al., 2014), as well as socially constructed values such as gender roles (Naved and Persson, 2005), the normalization of violence (Solanke, 2018), and female autonomy (Koenig et al., 2003), among others. These frameworks are beyond the scope of this study.

While our study provides valuable insights, it comes with limitations. We focused on women in their first union and currently married because

information about marriage and partner characteristics is only available for the current union. Nonetheless, the exclusion of women who have experienced multiple marital transitions introduces survival bias. Similarly, focusing only on women who were in their first union limits the generalisability of our results, especially in settings where re-partnering after death or dissolution is common. All measures rely on self-reports, making them susceptible to recall and social desirability biases. Our capture of employment characteristics at a single point in time hinders establishing the temporal relationship between employment changes and IPV onset. Testing multiple hypotheses on the associations between household resource (in-)equality and a woman's likelihood of experiencing IPV introduces important heterogeneity across measures and regions. Therefore, we advocate for a nuanced interpretation, emphasizing the overall pattern and the broader context rather than relying solely on individual comparisons across domains or geographies. This approach aims to contribute to a comprehensive understanding of the complex relationship between resource inequality and women's experiences of IPV in low- and middle-income regions.

Empowering women entails intricate dynamics of agency both within and beyond the household, shaped by cultural and institutional influences. Although advancements in women's autonomy are important, the occurrence of adverse effects, such as IPV, persists in the absence of fundamental transformations in gender culture. This study contributes to the understanding of intimate partner violence by delving into multiple dimensions of gender power dynamics across various lower- and middle-income settings.

CRediT authorship contribution statement

Chia Liu: Writing – review & editing, Writing – original draft, Investigation, Conceptualization. **Emmanuel Olamijuwon:** Writing – review & editing, Visualization, Methodology, Formal analysis.

Data availability

The authors do not have permission to share data.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.socscimed.2024.116688.

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