





**Artículo de revista:**

Batyra, Ewa ; Pesando, Luca Maria ; Castro Torres, Andrés F. ; Furstenberg, Frank F. ; Kohler, Hans-Peter (2023) «Union formation, within-couple dynamics, and child well-being: a global macrolevel perspective». *Population, Space and Place*, e61. (ISSN 1544-8452) doi: [10.1002/psp.2661](https://doi.org/10.1002/psp.2661).

# Union formation, within-couple dynamics, and child well-being: A global macrolevel perspective

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## Funding information

National Institutes of Health; McGill University; National Science Foundation; Ministerio de Ciencia e Innovación; Jacobs Foundation; Division of Social Science at New York University (AD)

## Abstract

Studies on global changes in families have greatly increased over the past decade, adopting both a country-specific and, more recently, a cross-national comparative perspective. While most studies are focused on the drivers of global changes in families, little comparative research has explored the implications of family processes for the health and well-being of children. This study aims to fill this gap and launch a new research agenda exploring the intergenerational implications of union-formation and within-couple dynamics for children's health and well-being across low- and middle-income countries (LMICs), both globally, regionally, and by the stage of fertility transition. We do so by adopting a macrolevel perspective and a *multi-axis* conceptualization of children's outcomes—health at birth, health in later life, and schooling—and leveraging Demographic and Health Survey and World Bank data across 75 LMICs. Our results show that in societies where partnerships are characterized by more equal status between spouses—that is, where the age range between spouses and differences in years of schooling between partners are narrower—children fare better on several outcomes. These associations are particularly strong in mid- and high-fertility settings. Despite a series of regularities, our results also highlight a set of findings whereby, at a macrolevel, the prevalence of marriage and divorce/separation are not invariably associated with children's outcomes, especially in LMICs where fertility is comparatively lower. We document little cross-regional heterogeneity, primarily highlighting the centrality of demographic factors such as age vis-à-vis, for instance, region-specific characteristics that are more tied to the social fabric of specific societies.

## KEYWORDS

child outcomes, family change, gender dynamics, LMICs, macrolevel analyses, union formation

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## 1 | INTRODUCTION

Studies on global changes in families have greatly increased over the past decade, adopting a country-specific and, more recently, a cross-national comparative perspective (Bongaarts et al., 2017; Bongaarts, 2001; Castro Torres et al., 2022; Cherlin, 2016; Clark & Brauner-Otto, 2015; Clark et al., 2017; Davis et al., 2015; Esteve et al., 2016; Koski et al., 2017; Liu et al., 2017; Pesando & GFC-team, 2019; Raymo, Carlson, et al., 2015; Ruggles & Heggeness, 2008). A growing literature has examined cross-nationally some of the determinants of why families are changing in low- and middle-income countries (LMICs). For instance, scholars have examined such driving forces as educational change, urbanization, socioeconomic development, or economic inequality (Castro Torres, Batyra, et al., 2022; Esteve & Florez-Paredes, 2018; Garenne, 2004; Lerch, 2019; Lesthaeghe, 2020; Stoebenau et al., 2021).

Less attention has been devoted to the consequences of family processes for the health and well-being of young generations, a contribution we intend to make with the current study. Studies on the topic have focused on a single predictor and/or outcome such as divorce and child mortality (Smith-Greenaway & Clark, 2017) or children's schooling (Chae, 2016; Crespín-Boucaud & Hotte, 2021), single parenthood and child mortality (Clark & Hamplová, 2013), or women's empowerment within a family and child development (Bliznashka et al., 2021), and so forth. Similarly, existing studies typically delve into the specifics of one country at a time, as it is for instance the case of Malawi (Chae, 2016), Senegal (Crespín-Boucaud & Hotte, 2021), Chile (Torche & Abufhele, 2021), South Africa (Case & Ardington, 2006), Bangladesh (Bhuiya & Chowdhury, 1997), and so forth. As such, there is a noticeable scarcity of cross-national studies providing an assessment of how specific and often intertwined aspects of the family may be related to a range of children's outcomes across LMICs, thus limiting our understanding of the potential meso- and macrolevel factors that may underlie heterogeneous findings. We capture these family domains through multiple dimensions and indicators developed and tested in previous studies (such as, for instance, Bras & Smits, 2022; Castro Torres et al., 2022; Pesando & GFC-team 2019) such as age and educational differences between spouses, women's decision-making power vis-à-vis their male partners, marriage timing, and prevalence of marriage and divorce. Cross-national comparative studies may help scholars identify common structural factors underpinning differences in future generations' outcomes across LMICs, including gender, health, and educational dynamics, as well as potential regional "exceptionalisms" where these structural factors may follow unexpected patterns that do not necessarily conform to extant theoretical predictions which may be (i) more applicable to high-income societies (HICs), (ii) more applicable to individual-level analyses, or (iii) a combination thereof.

The aim of our analyses is to help fill the gaps described above by documenting macrolevel associations between key dimensions of families—grouping the above into the two broader categorizations of *within-couple* dynamics and *union formation* patterns—and multiple children's outcomes related to health at birth and infancy, health during early childhood, and schooling in LMICs. While our estimates provide associations, rather than causal effects, we see them as important as

they offer the first large-scale macrolevel assessment of the inter-generational implications of within-couple and union-formation dynamics for a range of child outcomes in LMICs. Exploring linkages between partnership patterns and child well-being in LMICs is especially important given substantial transformations that the institution of marriage has undergone in recent decades (Cherlin, 2012; Juárez & Gayet, 2014; Montgomery et al., 2003)—including growing rates of divorce and separation and increasing rates of cohabitation (Castro-Martín & Dominguez-Rodriguez, 2016; Clark & Brauner-Otto, 2015; Esteve et al., 2012)—alongside broader societal transformations such as rising life expectancy, rapid urbanization, and significant educational expansion, particularly among women (Psaki et al., 2018), in turn contributing to higher shares of couples with partners having similar levels of education (Esteve et al., 2016; Pesando, 2021) and, at times, increases in women's empowerment (Malik & Courtney, 2011).

Expanding knowledge about the links between demographic behaviour and child well-being outside of HICs is important given recent studies from LMICs highlighting that the features of unions, such as their type or stability, may be less responsive to socioeconomic changes—relative to HICs (Castro Torres et al., 2022; Pesando, 2021). Recent research has also shown substantial variation, between and within LMICs, in partnership and gender regimes, as well as a large degree of heterogeneity in the duration of the process of union formation (Jackson, 2012; Legrand & Barbieri, 2002; Lesthaeghe, 2020; Raymo, Park, et al., 2015). This implies that even when looking at the 'same' process, whether it be union formation or transition to parenthood, it is essential to appreciate the fact that such processes may be operating and changing quite differently across and within countries in response to various forces of economic, social, and cultural development (Jackson, 2015).

Building on scholarship suggesting that marriage forms and gender dynamics within households may show resistance to change in contexts of entrenched poverty and rooted gender norms, in this study we are open to the possibility that patterns of partnership formation and within-couple dynamics might be positively related to some children's outcomes, but not others—and exhibiting important heterogeneity between LMICs. To this end, we explore regional variation in these associations, as well as whether they may differ depending on the stage of fertility transition. We do so by adopting a *multiaxis conceptualization* of child health and well-being including outcomes for (i) health at birth; (ii) health in later life; and (iii) schooling, in line with the broad conceptualization of human capital as a combination of school and health (e.g., Lutz, 2009, 2017). To do so, we use multiple Demographic and Health Survey (DHS) data from 75 LMICs conducted between 1990 and 2018, combined with ancillary sources from the World Bank Development Indicators.

To summarize, this study explores whether prevailing family structures are linked to children's outcomes at an aggregate level and, in doing so, may help unravel the role of the family as a social institution for children's well-being. While this analysis only provides an initial 'systemic' macrolevel step towards a deeper understanding of these relationships, we see the documented macropatterns as an essential step to set the stage for a novel research agenda that will

expand on the micro-level intricacies of such dynamics within and across countries, including before and after global-level crises such as the Great Recession or the COVID-19 pandemic—the consequences of both providing a promising area for global family research. Subsequent analyses will also be more firmly rooted in a life-course theoretical framework that is ultimately necessary to properly align parents and their children's generations and follow their lives over time. This is the next step of our agenda. In the present analysis, by focusing on macrolevel relations between multiple family domains and children's outcomes, and the heterogeneities of these relationships across country groups, we aim to highlight 'regularities', 'stylized facts' and apparent 'irregularities' that deserve further attention at a microlevel and help motivate our longer-term agenda.

## 2 | BACKGROUND

### 2.1 | Within-couple dynamics and children's outcomes

While more is known about how status differences tied to gender influence the links between partnership form and stability in countries with advanced economies, gender differences in status and resources may confer different meanings to both family dynamics and child outcomes and, hence, lead to different implications in the context of LMICs. This observation is especially likely to apply to countries or regions of the world where gender asymmetries in status are more normative and/or more rooted in traditional customs and may therefore play out differently in our explorations of within-couple dynamics and their potential implications for the well-being of children. Drawing on previous research, we rely in this study on three indirect proxies of within-couple dynamics, namely age differences between spouses, educational differences between partners, and women's decision-making within households vis-à-vis men (Bras & Smits, 2022; Carmichael, 2011; Casterline et al., 1986; among others).

Examining historical populations in Sweden, Rotering and Bras (2019) used the spousal age gap as a proxy for conjugal power to explore associations between spousal age differences and timing of first and higher-order births. They found that women in age-hypogamous marriages (i.e., women older than men) leveraged their arguably higher female autonomy to shorten the interval between childbirths, yet the effect on the total number of children was negligible. Kolk (2015) focused on the same topic documenting a very slow decline in age hypergamy in Sweden over the 20th century. Focusing on a similar question in Ethiopia, Kitila et al. (2020) found that women older than their spouses were 1.77 times more likely to use contraceptives compared with women whose husbands were older by 10 years or less, a finding which contrasts with the null association found by Ibisomi (2014) in Nigeria. Another study of 18 countries in sub-Saharan Africa (SSA) using DHS data suggests that large age differences between spouses (15 years and over) were associated with low contraceptive use, a finding tied to women's limited decision-making power and weaker marital bonds (Barbieri & Hertrich, 2005). However, some very recent evidence also using DHS

data from 39 SSA countries reveals that the odds of unintended birth were highest if the wife was the same age or older than the husband and lowest if the husband was 10 or more years older (Bras & Smits, 2022), suggesting that age difference between spouses may not be as good a proxy of conjugal power as commonly thought—or taken for granted in HICs—or pointing at context-specific heterogeneities due the role of community and social norms, as the authors seem to hint at.

While some of these studies focus on couple-related decisions (e.g., bargaining over number of children and/or contraceptive options), including dynamics such as violence against women (Nasrullah et al., 2014), there is hardly any mention of explicit relationships with children's outcomes, regardless of children's age. One notable exception is Samuelsson (2020), who explores the relationship between partners' age gap and child health using microlevel DHS data across 26 SSA countries. Although his estimates are purely correlational, he found that children of couples with a larger-than-average age gap face a lower likelihood of being treated for fever or cough, and a higher likelihood of being underweight, while children of couples with a smaller-than-average age gap have a higher likelihood of having received the first measles vaccination. The author also stresses the key point that in societies that are changing rapidly both economically and socio-demographically, a purely demographic factor may play a vital role in explaining heterogeneous findings across contexts. In other words, while it is true that, historically, age differences between partners were closely linked to women's status, kinship structure, and patriarchal norms (Casterline et al., 1986), variation in partners' ages may be driven by structural constraints as well as preferences tied to social-structural factors that create differing ideal ages at marriage for women and men, as well as different demographic opportunities for same-age partner matching (Samuelsson, 2020).

While far from widespread, studies on the relationship between partners' educational differences and children's outcomes are more common and growing rapidly (Abufhele et al., 2022; Bratsberg et al., 2021; Corti & Scherer, 2022; Edwards & Roff, 2016; Pesando, 2022a; Rauscher, 2020; among others). One potential explanation underlying this discrepancy is that in retrospective surveys in some LMICs it is often easier to record education correctly than age (this is, for instance, confirmed by the DHS data, which report a higher number of missing spousal age differences rather than spousal educational differences). Prominent in this literature is the work by Rauscher (2020) in the United States, who used administrative data on births to estimate the causal effect of parental educational similarity on infant health—mainly birth weight, an indicator for low birth weight (LBW), and prenatal visits. Her results suggest that parental educational similarity is beneficial for infant health, while educational hypergamy ( $H > W$ ) is detrimental. In a similar spirit, Abufhele et al. (2022) used administrative data to look at a related research question in Chile. Their findings also suggest that parents' educational similarity is associated with a reduced probability of LBW and preterm birth, yet educational hypogamy ( $W > H$ ) is detrimental, highlighting the gender-unequal nature of educationally hypogamous couples in Chile, as well as the possible stigma attached to them due to their nonnormative nature. Both studies provide single-country evidence—with a focus on HICs—and children's health outcomes at birth.

Moving to LMICs, Pesando (2022a) expanded on these findings exploring the relationship between parental educational similarity and different measures of children's health from birth to adolescence using longitudinal data from the Young Lives (YL) International Study of Childhood Poverty in Ethiopia, India, Peru and Vietnam. His findings highlight considerable heterogeneity across contexts. In Ethiopia and India, parental educational similarity is associated with worse health outcomes in infancy and childhood, while associations are positive in Peru and, foremost, Vietnam. He explains this heterogeneity by using meso- and macrolevel variables such as educational expansion, patriarchal norms in the family, dynamics of gender equality within the household and in society, and levels of socioeconomic development, finding more positive associations where both gender equality and socioeconomic development are higher (i.e., Peru and Vietnam). Nonetheless, the negative associations documented in Ethiopia and Peru are consistent with Behrman (2020), who also found mother's higher relative educational status to be negatively associated with children's height-for-age z-scores in Malawi, contrary to expectations of bargaining theories. These negative findings are also aligned with other work by Behrman (2019) in SSA and Weitzman (2014) in India, suggesting higher risk of intimate partner violence (IPV) among women with higher relative education and higher financial independence vis-à-vis their male partners, suggesting that women's higher education in partnerships may threaten male domination and challenge patriarchal norms.

Overall, while studies on HICs converge towards the finding that parental educational similarity is beneficial for children's health, the literature on parental educational similarity and children's outcomes in LMICs is highly heterogeneous; a wide array of potential associations might be possible depending the value that women's education holds in society, the commonality and 'normativity' of specific family and parenting practices and the role that women play within and outside of the family.

The literature on women's decision-making power within the household vis-à-vis men and children's outcomes is instead quite well-established; hence, it will be only briefly summarized here. Again, while the general argument is that in contexts where women face higher decision-making power in households, children tend to fare better, there is significant variation within and between contexts. For instance, in the case of nomadic pastoralist populations in Northern Kenya, Brunson et al. (2009) found that a higher level of female autonomy had positive effects on children ages 3–10, while less so on children 0–35 months. Similarly, focusing on DHS data from 12 countries, Desai and Johnson (2005) found that the association between women's empowerment and health outcomes differs by the type of outcome, and such association is stronger for height-for-age than for either child mortality or vaccination status. On a more negative note, McKenna et al. (2019) found that in the Democratic Republic of Congo (DRC) none of the five dimensions of decision-making power utilized (i.e., decision-making power in five domains of life) were associated with stunting or wasting in children. Conversely, on a positive side, Saleemi and Kofol (2022) found that households in rural Pakistan where women participate in decision-making, especially educational decisions for their children, feature higher shares of education expenditure on girls.

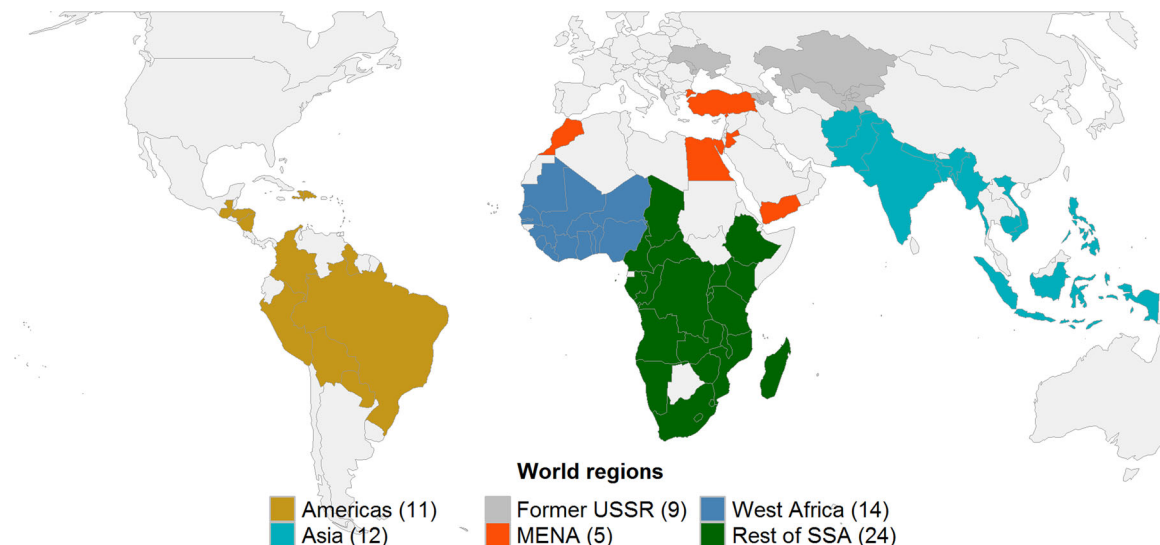
Experimental evidence offers a bit more clarity on this array of possible findings, arguably providing true causal effects. For instance, Haque et al. (2022) assessed the impact of *Suchana*—a large-scale development programme in Bangladesh aimed at shaping behaviour change communication to empower the poorest women—finding large positive effects of the intervention on different aspects of women's decision-making, including expenditures on children. Similarly, De Brauw et al. (2014) found positive effects of the conditional cash transfer *Bolsa Familia* on women's intrahousehold decision-making power, yet this increased sense of agency manifested in some domains only—such as decision-making regarding contraception and expenditure related to children's schooling and health—and in urban areas only.

## 2.2 | Union formation, union stability, and children's outcomes

Studies on HICs frequently highlight that family instability and the gradual 'erosion' of family pillars (e.g., two-parent family and stable marriage) might negatively affect children's outcomes over the life course (Fomby & Cherlin, 2007; McLanahan, 2004). Despite this widespread perception, a growing body of literature suggests that single parenting and divorce might not necessarily be as detrimental to children's well-being as speculated, or at least not in all circumstances (Brand et al., 2019; Cheung & Park, 2016; Härkönen et al., 2017; among others). While these relationships and their heterogeneity have been scrutinized in the context of HICs (Erman & Härkönen, 2017; Härkönen et al., 2017; Kreidl et al., 2017), research on the links between patterns of partnerships—both formation and dissolution—and child well-being in LMICs is scarcer.

Some exceptions are worth noting. For instance, drawing on DHS data from 27 LMICs, Pierce and Heaton (2020) document more positive outcomes for children—namely, child delivery by skilled birth attendant, vaccinations, child nutritional status, child mortality, and school enrolment—when children are raised in cohabiting rather than married unions. While most of the benefits are explained by individual and community-level characteristics, the authors conclude that even in LMICs we are witnessing trends towards greater choice and equality in family life that may make different family arrangements (i.e., different from 'traditional marriage') beneficial for children or supportive of children's well-being.

The literature on women's age at first marriage is dominated by studies highlighting detrimental effects of early, in particular child marriages on women's and their offspring's health and well-being, although the findings from a recent systematic literature review challenge some of the common narratives on this relationship (Fan & Koski, 2022). Still, there is a large body of evidence suggesting that early marriages, particularly those before the age of 18 can contribute to increased health risks for women, for example through higher exposure to sexually transmitted diseases, experiencing early motherhood or lower utilization of health facilities during childbirth (Fan & Koski, 2022; Godha et al., 2013; Nour, 2006). Through these mechanisms and independently, as well as with varied strength across contexts, early marriages can have intergenerational implications and be detrimental to the health and well-being of offspring, with evidence suggesting that



**FIGURE 1** Countries and regions covered in the analysis, number of countries in parentheses.

they can increase the risk of preterm birth, low-birth weight, stunting, contributing to children's early death and hindering early childhood development (Efevbera et al., 2017; Nour, 2006).

In the context of union (in)stability, Smith-Greenaway and Clark (2017) found that, like in other world regions, in SSA parental divorce is tied to poor child health, yet such disadvantage varies greatly across SSA subregions. Specifically, in line with some findings from HICs (e.g., Erman & Härkönen, 2017), they found that the childhood health disadvantage is further accentuated in regions where divorce is a relatively rare event. Focusing on schooling, Chae (2016) also found that in Malawi parental divorce is associated with lower grade attainment and a larger 'schooling gap', that is, the number of years a child is behind in school. Although she found no association between parental divorce and school attendance, girls affected by divorce were significantly less likely to be attending school, highlighting an important gender component, which intersects with the parental separation penalty. Gnoumou Thiombiano et al. (2013) found similar results in Burkina Faso on both schooling and child mortality, yet they did not really discuss the important issue of selection into divorce. These 'negative' results have been recently challenged by Crespín-Boucaud and Hotte (2021), who found that divorce in Senegal did not negatively affect the educational outcomes of children who were young when their parents divorced. Children who were 5 or younger when their parents divorced were actually more likely to have attended primary school than both other children and their older siblings. The authors argue that these findings are consistent with two mechanisms, namely an improvement of the financial situation of either partner (due to remarriage) or an increase in the decision-making power of mothers after the divorce.

To sum up, our review suggests that while in HICs most of these relationships work in a close-to-unidirectional way, with less heterogeneity across contexts, the same cannot be said for LMICs, where research—still in its infancy—delivers a wide array of different outcomes tied to uneven development and urbanization forces,

rooted gender, social, and community norms and persistent patriarchal family practices. This study aims to expand this scholarship by bringing together the highest number of LMICs possible, estimating a broad set of comparable family indicators as well as adopting a *multiaxis* conceptualization of children's outcomes.

### 3 | DATA AND METHODS

We use data from DHS for 75 countries conducted between 1990 and 2018 across six world regions, namely Americas, Asia, Former Soviet Union, Middle East and North Africa, West Africa, and the rest of SSA (see Figure 1).

We distinguish between West Africa and the rest of SSA as the former region is characterized by distinct union formation practices that include higher levels of child and arranged marriage and higher levels of polygyny relative to the rest of the region. In total, we analyze 251 country waves of microdata that include information about socioeconomic characteristics of women aged 15–49.

For each country wave, we compute six macrolevel indicators of partnership events and behaviours developed and tested in previous studies on global family change (e.g., Bras & Smits, 2022; Castro Torres et al., 2022; Pesando & GFC-team, 2019) and we divide them into two groups: (i) indicators reflecting gender differences within partnerships (*within-couple dynamics*): age differences between partners (male partner minus female partner), differences in years of schooling between partners (male partner minus female partner), and a measure of women's decision-making power describing the degree to which partners make joint decisions in the household (proportion of women that have a say in decisions about large purchases)<sup>1</sup> and (ii) broad indicators describing patterns of

<sup>1</sup>Decides on large household purchases either alone or jointly with the partner.

partnerships (*union formation*): singulate mean age at marriage (SMAM), prevalence of marriage,<sup>2</sup> and prevalence of divorce and separation. The latter two indicators are calculated for women who were 25 years old and above at the time of the survey, to ensure that timing of marriage (captured by SMAM) is not embedded in the latter measures as well.<sup>3</sup> We acknowledge that there are alternative and additional dimensions of the family besides within-couple dynamics and patterns of union formation (e.g., reproduction), yet in this study we focus on these two dimensions jointly, building on recent analyses (in this same journal) that have identified these two family dimensions as being closely tied (i.e., loading on the same factorial axis, in more technical terms) and explaining the highest degree of variability in a group of 20 family indicators pertaining to the same 75 LMICs (Castro Torres et al., 2022).

Variables included in the first group are relatively good measures of women's decision-making power within the household vis-à-vis their male partners.<sup>4</sup> Age and educational differences between partners also proxy for kinship structure. For instance, Casterline et al. (1986) suggested that in patriarchal societies and in societies characterized by patrilineal kinship organizations, the spousal age difference tends to be relatively large. Conversely, in settings where traditional social structures allow for a more equal status of spouses, or where exposure to Western family forms and modernization processes have improved the status of women, the age difference tends to be smaller. All indicators except for SMAM are age-standardized to purge them from the confounding role of heterogeneous age distributions across countries.

We relate these measures of partnership with six indicators of child health and well-being from the DHS StatCompiler (Measure DHS, 2022) and the World Bank Database (World Bank, 2022), and group them into three categories. For each country-wave, from StatCompiler we obtain information about (i) children's early-life health: proportion of children aged 0–5 that received all eight basic vaccinations and proportion of children aged 0–5 whose birth weight was less than 2.5 kg (the threshold for the definition of LBW), and (ii) children's later-life health: proportion of children aged 0–5 that are stunted and proportion of children aged 0–5 that are wasted.<sup>5</sup> From the World Bank Development Indicators, we obtain information corresponding to a given country-wave about (iii) children's schooling: net primary school enrolment rate and gross primary school enrolment gender parity index (GPI). We use the World Bank indicators describing children's level of schooling because of large number of missing values for the corresponding

variables in DHS.<sup>6</sup> Figure 2 summarizes our multi-axis conceptualization of the period of infancy, as the basic developmental stage for future human capital accumulation, and the two aspects of partnership patterns and behaviours (predictors) that we focus on in the analysis.

Using linear regression models, we examine country-level associations between our predictors—variables describing partnership dynamics and behaviours—and our outcomes—variables pertaining to child health and well-being. First, we run a series of regressions, starting from basic models without any control variables, and subsequently add variables that could be associated both with our predictors and outcomes. Step-by-step, we control for countries' total fertility rate (TFR) and the level of urbanization, by calculating terciles of the values of these two variables based on the pooled sample of country waves. Our thresholds for defining TFR and urbanization (U) categories are as follows: low (TFR: 1.2–3.5, U: 6%–30%), medium (TFR: 3.6–5.1, U: 30%–46%) and high (TFR: 5.2–7.7, U: 46%–90%). We subsequently add controls for region that a given country is situated in. These models allow us to explore the extent to which the associations under study could be driven by other macrolevel determinants or regional differences in the relationship between patterns of partnerships and child outcomes. Although we control for a series of variables, it should be reiterated that we do not aim to capture causal effects and acknowledge that there might be other factors not accounted for. By including information about the stage of fertility transition, urbanization and region, we aim to capture and explore broad patterns of macrolevel associations. Second, we explore in greater depth heterogeneity in these associations. First, we examine whether there is regional variation in the relationship between union patterns and child well-being. We follow the approach of Pesando and GFC team (2019) and run regressions that exclude one region at a time. This approach overcomes challenges associated with conducting stratified analyses by region, where the sample size would simply be too limited to conduct reliable region-specific analyses. These models include controls for the level of TFR and urbanization. Subsequently, we explore whether the associations between partnership patterns and children's outcomes change as countries transition from higher to lower fertility, thus whether they differ depending on the countries' stage of fertility transition. To that end, we disaggregate our analyses by the level of TFR and conduct separate regressions for country waves belonging to each TFR tercile, as described above. These models include controls for regions and level of urbanization.

Although it would be important to also examine whether the association between union formation, within-couple dynamics and child well-being have changed over time in the last decades, due to the limited number of observations (251 country-years), the fact that not all countries have multiple DHS waves and that survey's time coverage differs between countries, we are unable to conduct such investigation. While in this study we can capture more the between-country rather than within-country, over-time variation, we

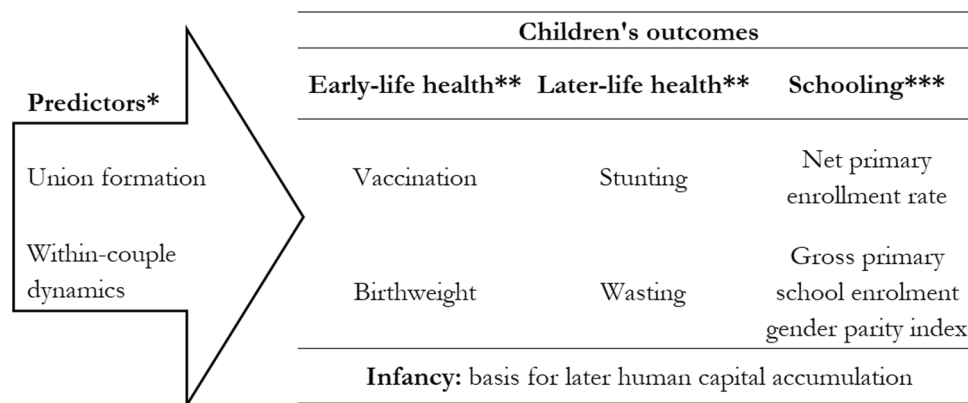
<sup>2</sup>Our definition of marriage in this study excludes those women who report 'living together' with a male husband/partner.

<sup>3</sup>We explored alternative age cut-offs for the calculation of the prevalence of marriage and the prevalence of divorce and separation (e.g., age above 30 instead of 25 years), and they produced similar results.

<sup>4</sup>Note that the decision-making power variables in the DHS have been criticized as proper measures of empowerment for not taking into account how decision-making processes vary across time and space as women's personal goals evolve (Donald et al., 2020; Miedema et al., 2018). Nonetheless, they remain widely used in socio-demographic research, mostly due to the lack of better measures that apply to multiple country contexts.

<sup>5</sup>Note that in this study we define early-life as infancy and later-life as early childhood.

<sup>6</sup>We linearly interpolated the values for available years to obtain yearly estimates and match them with the corresponding DHS waves.



**FIGURE 2** Conceptualization of the period of infancy, as the basic developmental stage for future human capital accumulation, and the two aspects of partnership patterns and behaviours covered by the analysis. Sources of data and indicators—\*Authors' calculation based on individual Demographic and Health Survey recodes, \*\*Measure DHS (2022), \*\*\*World Bank (2020).

attempt to cast light on the temporal heterogeneity in the studied associations. To that end we conduct separate analyses for surveys conducted before and after 2004, to explore whether associations differ between the earlier and later survey DHS waves.<sup>7</sup>

In all the regressions, we weight the estimates by the inverse of the number of waves available for each country to account for the fact that for some countries more surveys are available than for others. We summarize the results in a series of plots that show coefficients describing the standardized associations between our predictors and outcomes. All indicators are standardized on the pooled sample of country waves so that coefficients reflect changes in each child outcome measured in standard deviations (SD) per one SD change in a given predictor. For easier interpretation of the results, we re-code each outcome variable such that a higher value means a more positive outcome. For example, a variable 'stunting' (originally, proportion of children that are stunted) is recoded such that its higher value denotes a more positive outcome, that is, lower level of stunting (and hence it is labelled as 'not stunted' in all figures). Overall, positive coefficients mean that a given predictor is associated with better child outcomes, while negative ones correspond to worse outcomes. Table 1 shows descriptive statistics for each of the predictors and outcomes, across all countries covered by the analysis. It also shows the number of country waves available to calculate each of the indicators, out of the 251 surveys available in total.

## 4 | RESULTS

### 4.1 | Overall and regional analyses

Figures 3 and 4 present associations between the six predictors describing within-couple dynamics and union formation and the six

outcomes measuring child health and well-being. The left panels of these figures present the standardized regression coefficients from six models that are distinguished by four types of markers: (i) a model without any controls (empty dot), (ii) a model with a control for the level of TFR and urbanization (cross), (iii) a model with a control for a region a country is situated in (triangle) and (iv) a model with all the three controls included (filled dot). The right panels of the figures present results of models that include controls for the level of TFR and urbanization (ii above) and exclude one region at a time. The black markers (left panels) and filled markers (right panels) denote coefficients that are statistically significant ( $p < 0.05$ ).

The results describing the associations between indicators of *within-couple dynamics* and child outcomes (Figure 3, left panels) indicate that in settings characterized by more equal status between spouses—that is, a narrower age range between spouses and smaller differences in years of schooling between partners—and higher women's decision-making power, children fare better on several outcomes. For example, note the *negative* relationship between the age differences (with higher values denoting larger age differences, thus less equal status between partners) and vaccination (with higher values denoting higher proportion of children vaccinated). The associations are particularly strong for the indicator measuring age differences between spouses and, for five out of the six outcomes (except for stunting), they are also robust to the inclusion of additional controls (Figure 3, left, top panel). These strong and robust associations attest to the centrality of (relative) age as both a marker of women's position within couples and societies, and as a significant correlate of intergenerational reproduction of (dis)advantages.

While accounting for potential macrolevel determinants and regional variation substantially weakens the association between women's decision-making power and positive children's health and well-being (except for birth weight) (Figure 3, left, bottom panels), the 'protective' role of a more equal status between partners—proxied by smaller differences in years of schooling—continues to be observed for at least one outcome in each of the categories (vaccination, stunting and primary school GPI) (Figure 3, left, middle panels).

<sup>7</sup>We choose year 2004 as it is a midyear of the period covered by the DHS waves that we draw upon (1990–2018). The models include controls for regions and level of urbanization and TFR and are briefly described in the results section and shown in the Appendix.



**TABLE 1** Descriptive statistics for the predictors and outcomes, based on all countries covered in the analysis.

	Mean	(SD)	Min	Max	Country-waves available
<i>Child outcome</i>					
<i>Early-life health</i>					
Vaccination	0.58	(0.20)	0.11	0.95	245
Birth weight	0.89	(0.04)	0.68	0.97	215
<i>Later-life health</i>					
Stunting	0.66	(0.13)	0.40	0.93	215
Wasting	0.92	(0.05)	0.73	1.00	214
<i>Schooling</i>					
Prim. School Enrolment Rate	0.80	(0.18)	0.21	1.00	181
Prim. School Enrolment GPI	0.93	(0.11)	0.50	1.16	229
<i>Predictor</i>					
Age gap between partners	6.88	(2.59)	2.83	13.73	211
Years-of-school gap between partners	0.99	(1.10)	-5.57	3.45	243
Decision-making power	0.57	(0.21)	0.14	0.95	161
SMAM	21.64	(1.87)	17.23	28.26	202
Prevalence of marriage	0.70	(0.20)	0.05	0.96	251
Prevalence of divorce/separation	0.07	(0.05)	0.00	0.25	251
<i>Moderators</i>					
Total fertility rate	4.30	(1.44)	1.20	7.70	249
Proportion urban	0.40	(0.19)	0.06	0.91	251

Note: Number of country waves available to calculate each indicator, out of 251 available in total. Outcome variables are reported such that a higher value corresponds to a more positive outcome (e.g., birth weight—proportion of children *not* underweight at birth, stunting—proportion of children *not* stunted, wasting—proportion of children *not* wasted).

The nonsignificant associations for women's decision-making power may be partly due to lower sample sizes (only 161 country waves had requisite information, see Table 1); it could also be related to the variation in the meaning of women's decision making across contexts, as well as to how well women's participation in decisions reflects empowerment. It may also be the case that higher decision-making power of women could threaten status imbalances within the household, perhaps triggering more controlling or even violent behaviour on the part of male partners, thus not creating better outcomes for children. Some of this evidence would also be consistent with existing literature, described in detail earlier, on

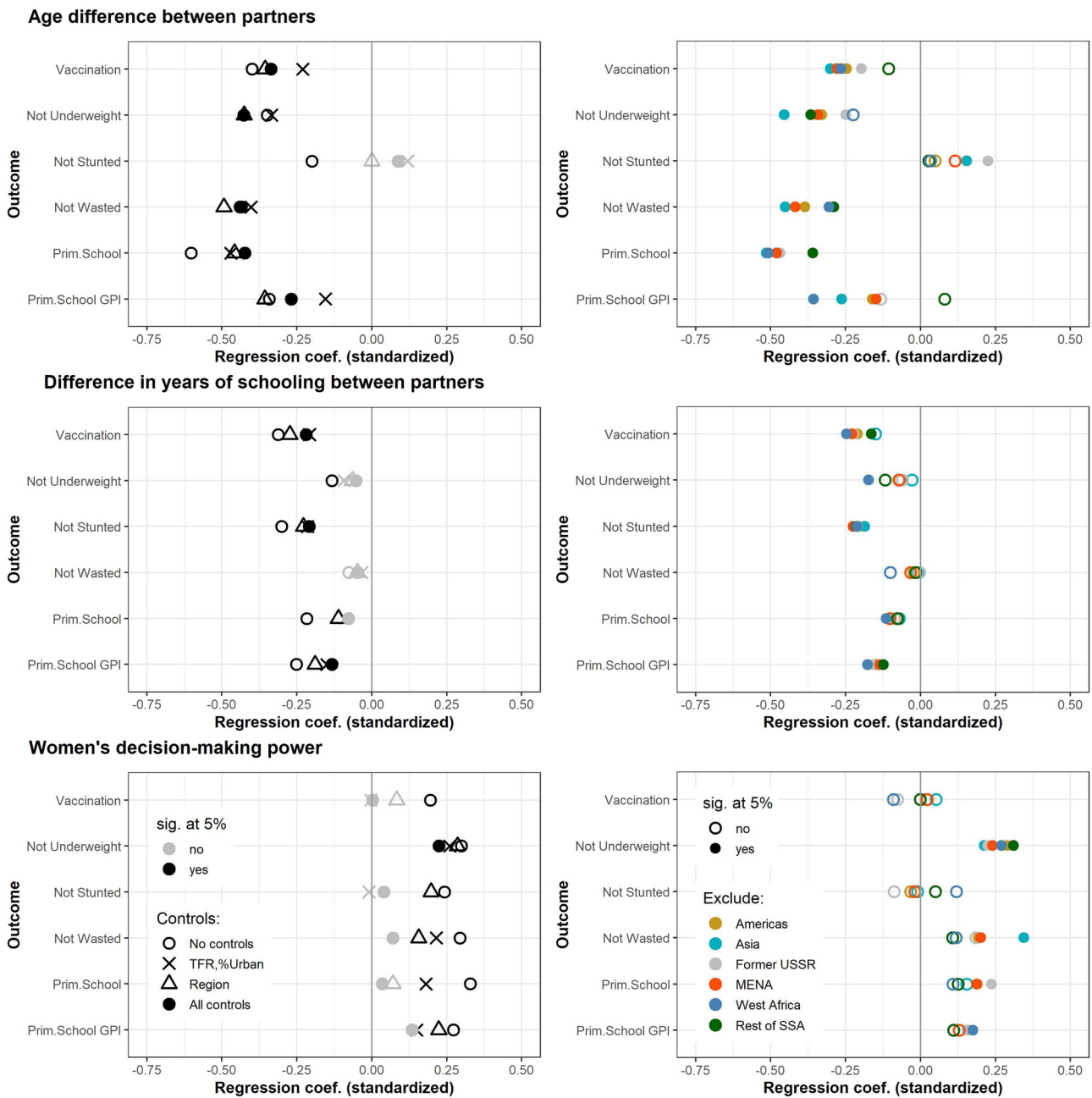
women's autonomy in terms of higher relative education, employment, and financial independence and unequal gender dynamics within households, as demonstrated by Weitzman (2014) in India, Behrman (2019) in Kenya, Uganda, and Zimbabwe and Pesando (2022b) in Angola.

The analysis of regional heterogeneity provides evidence that these associations do not vary markedly; however, some notable differences can be observed. Figure 3 (right panels) presents markers that correspond to the coefficients of regression analyses for a given outcome and a predictor obtained when one region is excluded (these models include a control for TFR level and % urban). There is a relatively high degree of homogeneity in the association between partner's differences in years of schooling and children's health and well-being (Figure 3, right, middle panel for that predictor shows that indicators cluster around each other). The 'protective' role of smaller age differences between spouses is, on the other hand, largely driven by West Africa (for birth weight) and the rest of SSA (for vaccination and for primary school GPI). For example, if the SSA countries (category: rest of SSA) were excluded from the sample, the negative association between age difference between partners and vaccination would become null (Figure 3, top, right panel). Conversely, countries outside of SSA are responsible for making the positive association between women's decision-making power and children's outcomes smaller than it would be if they were excluded (see wasting and primary school attendance in Figure 3, bottom, right panel).

The results of models describing the associations between indicators of *union formation* and child outcomes provide evidence of a strong association between SMAM and children's health and well-being (Figure 4, left, top panel). Although the relationship weakens when the variation between regions, the level of TFR, and urbanization are accounted for, children's early- and later-life health, as well as schooling outcomes are more favourable in settings where women marry at a later age—with the exception of birth weight.

SSA is largely driving this association, as across most outcomes associations would weaken or become null if SSA countries (both West Africa and the rest of SSA) were excluded from the analyses (see, for instance, wasting and primary school GPI in Figure 4, right, top panel). Overall, higher age at marriage among women (as shown in Figure 4 for SMAM) and smaller age differences between partners (as shown in Figure 3) are strongly associated with children's outcomes, and the existing associations appear to be mostly driven by SSA. This is in line with research showing that SSA is the region with the largest differences in age between spouses in the world, which go together with women's early, often child, marriage (Barbieri & Hertrich, 2005; Batyra et al., 2021; Casterline et al., 1986; Koski et al., 2017). Our results indicate that such family contexts may be particularly 'detrimental' when it comes to fostering children's health and well-being.

The findings for the two other indicators of union formation instead point towards the conclusion that at a macrolevel, the prevalence of marriage and divorce/separation is not invariably associated with children's outcomes (Figure 4, left, middle and bottom panels). The regressions without or with only selected controls suggest that the prevalence of marriage is associated with worse later-life health and



**FIGURE 3** Standardized regression coefficients describing associations between indicators of *within-couple dynamics* and child outcomes; analysis for all regions (left panel) and excluding one region at a time while controlling for TFR and urbanization level (right panel). Outcome variables are reported such that a higher value means a more positive outcome.

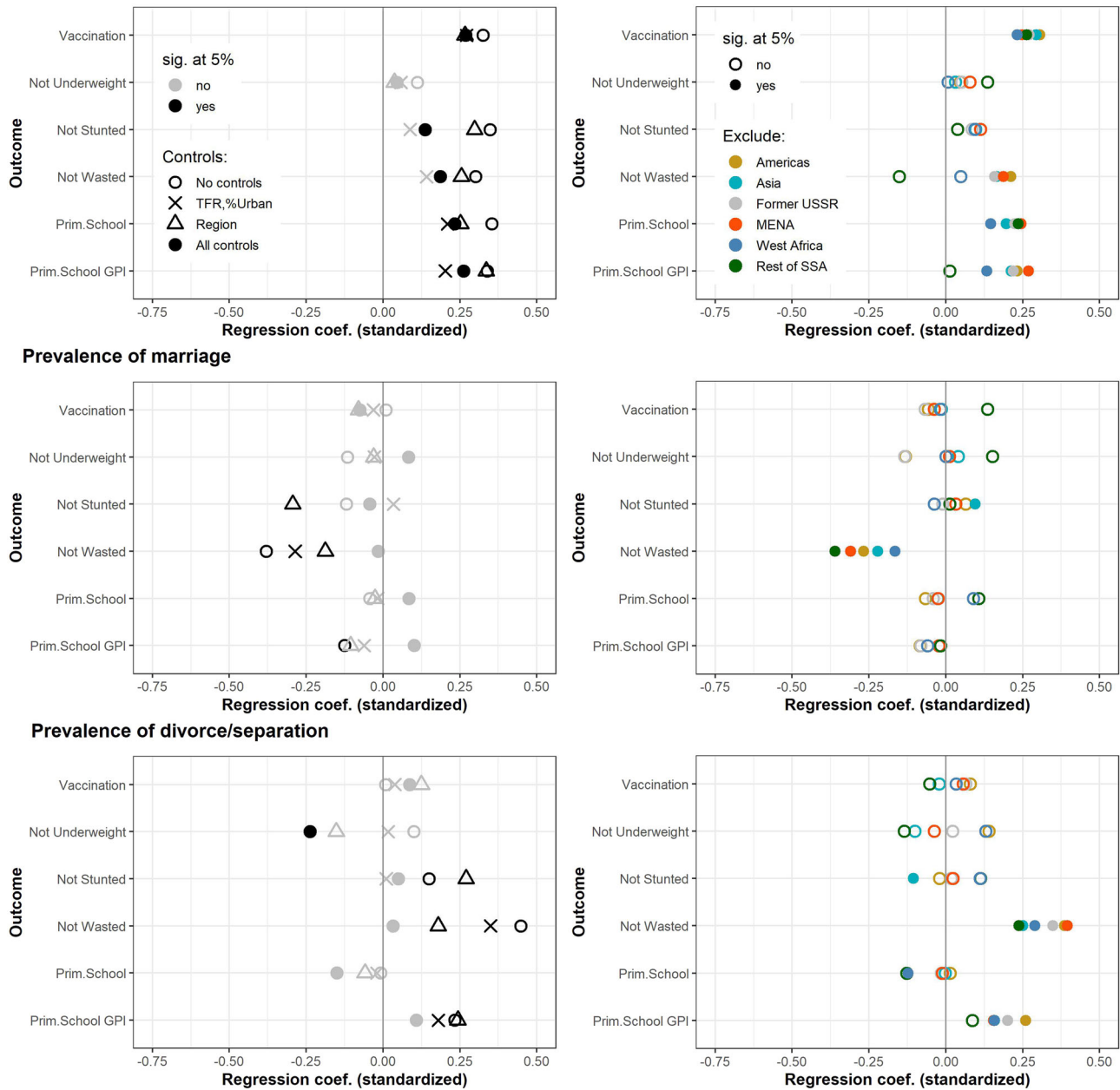
the prevalence of divorce with better later-life health. Nonetheless, these associations disappear once all additional controls are included. Thus, we do not find evidence that settings with higher prevalence of marriage provide a more stable environment for raising healthy and thriving children. Moreover, only for one outcome (birth weight) do we find evidence that children fare worse in settings with higher prevalence of divorce and separation. These findings expand the most recent literature, albeit based on microlevel analysis, challenging the common narratives regarding the links between marriage, union (in)stability and children's outcomes (Crespin-Boucaud & Hotte, 2021; Pierce &

Heaton, 2020). The analysis of variation in Figure 4 (right, middle, and bottom panels) suggests that these relationships are not consistently driven by any region.

#### 4.2 | Analysis by the stage of fertility transition and time-period

Figure 5 shows the analysis by countries' TFR levels and follows the same logic as figures described above, yet each individual panel

## SMAM

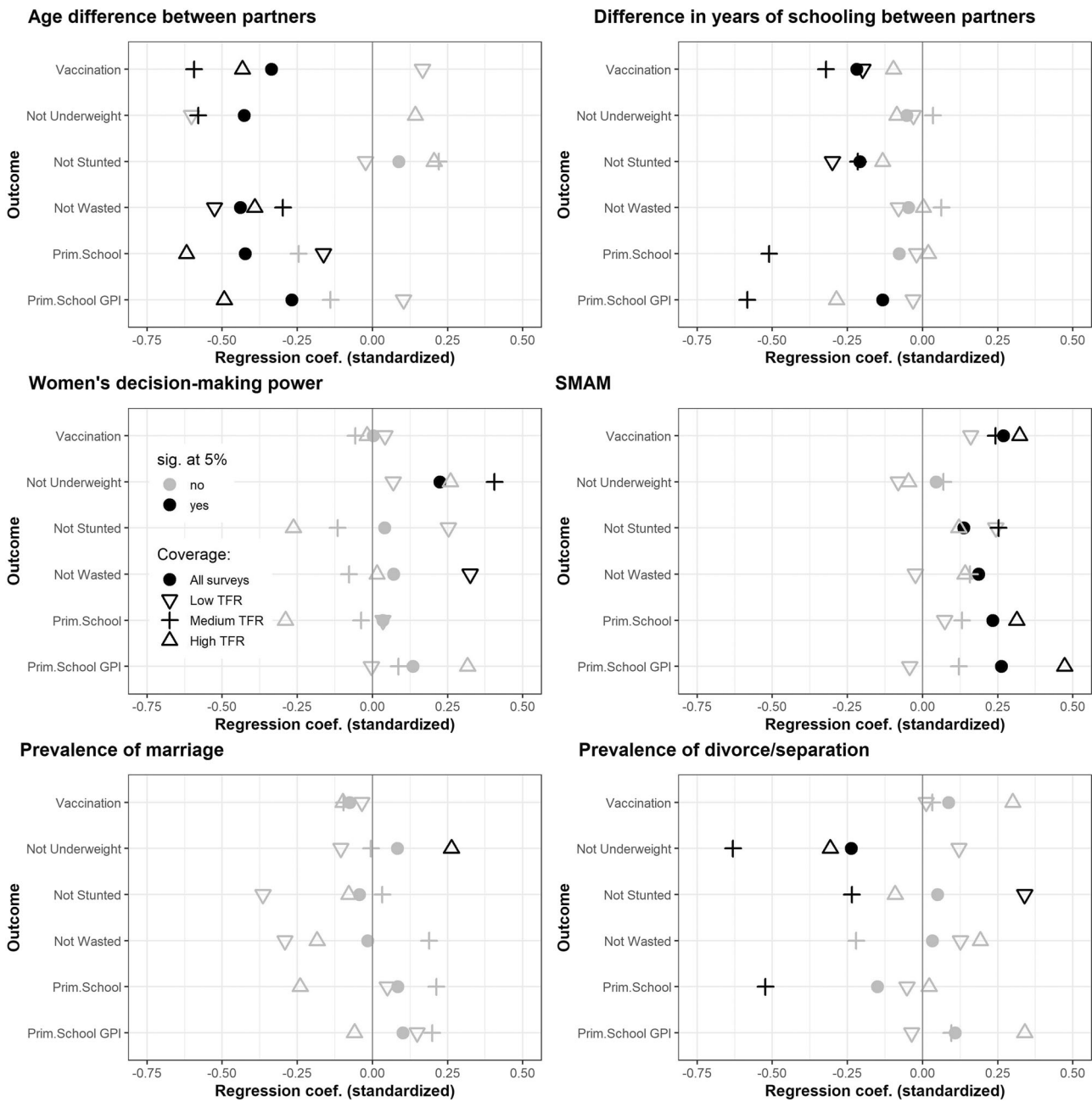


**FIGURE 4** Standardized regression coefficients describing associations between indicators of *union formation* and child outcomes; analysis for all regions (left panel) and excluding one region at a time while controlling for TFR level and urbanization level (right panel). Outcome variables are reported such that a higher value means a more positive outcome.

corresponds to one predictor. Although there is a high degree of heterogeneity in the reported associations, several patterns can be identified in the relationship between indicators of *within-couple dynamics* and children's outcomes. First, the associations between narrower differences in partners' age and children's better health and well-being are stronger in medium- and high-fertility settings (top panel, left). For example, while settings with greater age differences between partners show lower levels of primary school attendance among children overall (coefficient  $\sim -0.4$ ), the coefficients for

high- and low-fertility settings are around  $-0.65$  and  $-0.15$ , respectively (Figure 5, left, top panel).

Moreover, there is a particularly strong association between differences in years of schooling between partners and children's schooling in mid-fertility transition contexts (coefficient  $> 0.5$ ) (Figure 5, right, top panel). It is possible that in the context of declining fertility, which usually goes hand-in-hand with educational expansion, more equal educational status of partners might facilitate children's school attendance, and girls' in particular (as described by



**FIGURE 5** Standardized regression coefficients describing associations between indicators of within-couple dynamics, union formation and child outcomes; analysis by level of total fertility rate, models include controls for region and urbanization level. Outcome variables are reported such that a higher value means a more positive outcome.

the higher GPI in these contexts). This is less the case for children's early-life and later-life health outcomes, where most estimated associations are null, particularly for birth weight and wasting, especially in high-fertility countries. This evidence is consistent with recent sociological analyses on the relationship between parental educational homogamy and children's health outcomes, both the ones that show positive associations (Abufhele et al., 2022; Rauscher, 2020), as well as the ones that show negative or null associations (Behrman, 2020; Pesando, 2022a), as described in the Background. Although several explanations could lie behind the

negative or null associations, a likely one is that in societies where unequal status between men and women is the norm, status homogamy would actually bring disruptions to daily life and be associated with higher levels of stress and tension (Cools & Kotsadam, 2017), thus 'neutralizing' and even reverting the potential beneficial effects of parental educational similarity. Relatedly, it might be the case that given the poor quality of education and the low returns to schooling in some sub-Saharan countries such as Ethiopia, improvements in mother's educational status might do little to change her bargaining power (Behrman, 2020).

When it comes to indicators of *union formation*, two main patterns can be identified. First, in line with the results pertaining to the indicator of within-couple dynamics—age difference between partners—the ‘protective’ role of higher age at marriage among women is also much stronger in mid and higher fertility settings (Figure 5, right, middle panel). This aligns with evidence from sub-Saharan African countries and South Asia that early union formation is associated with early motherhood as well as lower use of health care during pregnancy, at the time of delivery, and during the post-partum period, rising concerns about subsequent children's outcomes (Fan & Koski, 2022), which we show tend to be worse where women marry early. Overall, the strength and the robustness of the associations between children's outcomes and age-related measures (e.g., age difference between partners and SMAM) suggest that intergenerational transmission of (dis)advantage in mid and higher fertility contexts is related to the relative position of women vis-à-vis their partners, and vis-à-vis the society as they enter marriages and potentially become mothers.

When it comes to other indicators of *union formation*, for most outcomes, analyses by level of TFR largely confirm results of the regressions covering all TFR settings, with some exceptions. Namely, Figure 5 shows that prevalence of marriage is generally not associated with children's well-being (left, bottom panel), except for one outcome in high-TFR settings—namely birth weight—where we do observe that higher proportions of marriages correlate with smaller proportions of children that are born under-weight. More prominently, while the analysis covering all countries showed null association in almost all cases (except for birth weight), the analysis by TFR level reveals that children in mid- and high-TFR settings that experience a higher prevalence of divorce/separation fare worse on one outcome in each of the categories (birth weight, stunting and primary school attendance), compared to settings where the prevalence of separation is lower (Figure 5, right, bottom panel). While these results imply the overall, positive, macrolevel link between marriage and children's outcomes in medium and high fertility settings, it should be noted that this link is not visible across all children's outcomes, and it varies in strength, a result that complements literature on heterogeneity in the association between marriage and its (in)stability and children's disadvantage, for example in Senegal and sub-Saharan Africa more broadly (Crespin-Boucaud & Hotte, 2021; Smith-Greenaway & Clark, 2017).

We do not find evidence that the associations between children's outcomes and the prevalence of marriage and divorce/separation documented in high TFR settings extend to low TFR contexts (Figure 5, bottom panels). In fact, the association between the prevalence of divorce/separation and stunting reverses in setting with relatively low fertility levels. These macrolevel results could be seen as in line with a growing number of single-country studies from low fertility contexts, such as the United States, China or Hong-Kong, highlighting that parental divorce might not always be associated with adverse child outcomes and that remaining in unhappy marriages and marital conflict might have equally detrimental consequences on children as divorce itself (Brand et al., 2019; Cheung & Park, 2016; Zhang, 2020).

Finally, the results disaggregated by time period (for survey waves conducted pre- and post-2004), which aim to cast light on the temporal variation, are less clear-cut but largely in line with findings by the stage of fertility transition (see Appendix for results and brief description).

## 5 | DISCUSSION

This paper aimed to document intergenerational macrolevel associations between within-couple dynamics, union formation and children's health and well-being, captured with multiple dimensions and indicators, across a large set of LMICs. Our analyses also focused on identifying heterogeneities in these associations by major geographic regions and the stage of fertility transition, with results offering a deeper understanding of how family processes might be related to children's outcomes (dis)similarly across societies. Many of these macrolevel regularities are not known or documented, and by doing so, our analyses help identify research gaps for future micro-level and/or causal analyses.

Our key findings are twofold: first, at the macrolevel in general, the more equal status of partners within a couple is positively correlated with children's health and schooling, highlighting a particularly important role of within-couple dynamics in promoting children's well-being in LMICs. Our results, however, point to substantial variation in these associations. Namely, we show that these relationships, as well as a positive association between women's age at marriage and better children's outcomes, are particularly strong in mid- and high-fertility countries. Conversely, expanding a nascent literature, primarily based on the microlevel analyses as discussed earlier, our findings point towards the possibility that, at a macrolevel, the prevalence of marriage and divorce/separation might not be invariably associated with children's outcomes. Here as well, the analysis by the level of TFR uncovered a large degree of heterogeneity. We found that marriage and divorce/separation correlated with several positive and negative outcomes, respectively; nonetheless, these associations, to a variable extent depending on the setting and outcome, feature mainly in medium and high-fertility countries. Our findings provide the first macrolevel ‘systematic’ evidence based on the largest possible set of countries and expand the growing scholarship suggesting that marriage and couple stability may not be a prerequisite for children's well-being, or at least not in all circumstances.

Overall, taking a macrolevel perspective and focusing on a range of factors, our findings provide a novel contribution to the literature by suggesting a vast degree of heterogeneity in the links between family structures and children's outcomes in LMICs, as well as a more prominent role of gender-balanced partnerships and marriage in promoting children's health and well-being at earlier, rather than later stages of the fertility transition. In reaching this conclusion, we acknowledge that some of our results that differ by transition stage may be partly driven by the changing nature of selection of couples into specific marriage forms, whose role and meaning do indeed

change over time. When it comes to regional variation, although some of the associations (in particular those pertaining to within-couple dynamics) are driven by SSA countries, overall, there does not appear to be a large degree of cross-regional variation. Our results, on the other hand, highlighted the centrality of demographic factors such as age. Specifically, and despite cross-national heterogeneities in family structures, we find evidence of macrolevel regularities in the meaning that different cultures, religions, societies and institutions across these contexts give to (relative) age as a marker of adulthood, motherhood, and relative position of partners within unions. Interestingly, this macrolevel regularity is a strong predictor of children's health and well-being, thus showing how intergenerational relations are deeply rooted in social structures that can be captured with relatively simple demographic measures.

While our macrolevel approach allowed us to take a global perspective and focus on a rich set of factors, this study, by design, cannot delve into the intricacies of or mechanisms behind the studied associations. Our findings should be seen as a broad overview of regularities in the links between family structures and children's outcomes, including across different world regions, and a basis for more future more extensive examinations involving for example life-course analyses, investigations of within-country changes, period and cohort effects in particular associations or causal analysis. Overall, our results enrich the literature on the importance of broader context in shaping the relationship between family and children's well-being. By highlighting that partnership regimes might not be uniformly associated with children's outcomes our study indicates a need for additional research focusing on the heterogeneity in the relationships between family forms and structures and child well-being in LMICs.

## ACKNOWLEDGEMENTS

The authors gratefully acknowledge support for this paper through the Global Family Change (GFC) Project (NSF Grant 1729185, PIs: Kohler & Furstenberg). Batyra acknowledges funding from the Juan de la Cierva Individual Fellowship (FJC2019-040652-I). Pesando acknowledges support from the Division of Social Science at New York University (AD) (grant # 76-71240-ADHPG-AD405), and the Jacobs Foundation Fellowship (grant # 2021-1417-00). This work was additionally supported by the Eunice Shriver Kennedy National Institute of Child Health and Human Development Population Research Infrastructure Programme (NIH P2C HD044964. PI: Parrado) & the National Institute on Aging (NIH P30 AG012836, PIs: Kohler & Coe). Castro Torres acknowledges funding from the Juan de la Cierva Individual Fellowship (FJC2020-042965-I). The authors are grateful for useful comments and suggestions received during the 2021 Population Association of America (PAA) annual meeting.

## CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available in The DHS Program at <https://dhsprogram.com/>. These data were derived

from the following resources available in the public domain:—The DHS Program, <https://dhsprogram.com/>.

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**How to cite this article:** Batyra, E., Pesando, L. M., Castro Torres, A. F., Furstenberg, F. F., & Kohler, H.-P. (2023). Union formation, within-couple dynamics, and child well-being: A global macrolevel perspective. *Population, Space and Place*, e2661. <https://doi.org/10.1002/psp.2661>