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Gender Differences in Socioemotional Skills among Adolescents and Young Adults in Ethiopia, India, Peru and Vietnam

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ABSTRACT   *This paper examines the emergence of gender differences in socioemotional skills and traits during adolescence, and the socioeconomic and cultural factors that may explain such gaps, in Ethiopia, India, Peru and Vietnam. Findings from Young Lives longitudinal data showed that the gender gap in self-efficacy emerges around age 19, with males scoring more highly than females in Ethiopia, India and Vietnam. Similar, but less consistent, patterns were observed for self-esteem and peer relations. At age 22, males also scored more highly than females, in at least one country, in emotional stability, conscientiousness, grit, and teamwork. In India and Ethiopia, the two countries with higher poverty and more unequal gender attitudes, we found gender differences in a greater number of socioemotional skills or traits. A predictive analysis of self-efficacy, emotional stability and teamwork found that time spent in paid and unpaid household activities, having a more equal attitude to gender roles, and socioeconomic status were associated with the gender gap in socioemotional skills. These covariates explained gender gaps more in India and Ethiopia than in other countries. However, substantial portions of gender differences remained unexplained by available variables. Our findings may help clarify the origins of gender inequalities in life outcomes and how they can be addressed through socioemotional programmes in adolescence.*

KEYWORDS: socioemotional skills; LMICs; young lives; longitudinal analysis

1. Introduction

Socioemotional or non-cognitive skills are important for an individual's well-being and social adjustment and for various outcomes, including educational achievement and success in the labour market (Alan, Boneva, & Ertac, 2019; Heckman, Pinto, & Savelyev, 2013; Hsin & Xie, 2017; Jones, Greenberg, & Crowley, 2015; Kautz, Heckman, Diris, Ter Weel, & Borghans, 2014). Based on Osher et al. (2016), we define socioemotional skills as the 'core competencies to recognise and manage emotions, set and achieve positive goals, appreciate the perspectives of

others, establish and maintain supportive relationships, make responsible decisions, and handle personal and interpersonal situations constructively' (p. 645). Socioemotional competencies develop throughout life, and disparities in these competencies can translate into inequalities in key life outcomes. This research aimed to explore gender disparities in socioemotional competencies that may emerge during adolescence and to examine socioeconomic and cultural factors to explain these gaps. Adolescence is a critical period in an individual's life, setting the stage for early adulthood when socioemotional skills become central in attaining employment and establishing personal relationships. It is also a period when education programmes have the potential to address emerging inequalities (Malhotra, Ayele, Zheng, & Amor, 2021). Thus, the study of socioemotional competencies could be important for understanding both the origin of gender inequalities in life outcomes and ways to address these inequalities.

However, most research on socioemotional competencies and gender gaps has been conducted in WEIRD (Western, educated, industrialised, rich and democratic; (Henrich, Heine, & Norenzayan, 2010) countries. This research is unlikely to be representative of the whole world (Jukes et al., 2021; Nielsen, Haun, Kärtner, & Legare, 2017). Henrich et al. (2010) found that WEIRD societies are global outliers on the spectrum of many psychological abilities. Lancy (2014) presented evidence from 90 countries to argue that childhoods in subsistence agricultural communities contrast in fundamental ways with childhoods in WEIRD contexts. Thus, there is a need to understand more about the development of social and emotional competencies outside of WEIRD contexts.

1.1. The timing and nature of gender differences in socioemotional skills

Few studies have examined the timing of the emergence of gender differences in socioemotional skills in low- and middle-income countries (LMICs). There is also little evidence on how developmental trajectories differ among various socioemotional skills. We aimed to address these gaps in the literature using Young Lives data from Ethiopia, India, Peru and Vietnam. Previous research using this dataset Dercon & Singh (2013) found that boys in India and Ethiopia had higher agency at age 15. This study extends the analysis to young adults up to age 22. The extension of this analysis to older age groups allows us to understand the nature of gender differences in socioemotional skills as participants in the study move into adulthood, where employment, further education, relationships and parenthood, for example, place new demands on individuals' skill sets. An analysis of gender differences in socioemotional skills among these young adults can provide useful insights into the potential implications of such differences for life outcomes. Moreover, understanding the ages at which gender differences in socioemotional competencies emerge, and the specific competencies affected, can inform targeted social and emotional learning programmes (Norman, Jukes, Randolph, Sowa, & Harden, 2021). For example, a girls' empowerment programme in Uganda successfully improved the self-management, self-awareness, social awareness, relationship skills and responsible decision-making of adolescent girls (Malhotra et al., 2021).

Gender differences are unlikely to emerge in similar ways across different socioemotional skills, and we aimed to capture this variation comprehensively in this study to extend findings from previous research using the same dataset. Analyses of the Young Lives data to date (Revollo & Portela, 2019) have found differences in self-efficacy emerging between ages 15 and 19. Questions remain about the development of other socioemotional skills measured in earlier rounds of Young Lives, in two broad categories: intrapersonal and interpersonal skills. Key intrapersonal skills include self-efficacy, which is an important determinant of behaviour, particularly in the face of challenges (Bandura, 1986); self-esteem, which is important for many domains of life including relationships, academics, work and mental and physical health (Orth & Robins, 2022); and pride, which is closely related to measures of self-esteem (Rosenberg,

1965). There was also an assessment of the quality of peer relations, a measure of interpersonal competencies.

We also expanded on the analysis by Revollo & Portela (2019) with four competencies that were introduced to the Young Lives survey subsequent to previous publications. These include three intrapersonal measures: conscientiousness and emotional stability, both of which derive from the Big Five personality traits and have been shown to predict many life outcomes, including health and well-being (Holland & Roisman, 2008; Ozer & Benet-Martínez, 2006; Paunonen & Ashton, 2001); and grit, a measure of perseverance which is a predictor of real-world success in work and academics (Duckworth et al., 2019). Acknowledging the inclusion of personality traits, distinct from skills, in our analyses, we refer to 'skills and traits' or the neutral 'socioemotional outcomes' when referring to all measures in the study. The skills added to the latest round of data collection also include the interpersonal skill of teamwork, which is a key component of the framework of 21st-century skills (Partnership for 21st Century Learning, 2019). Additionally, we ascertained the statistical significance of gender differences in these skill areas – a dimension described only as an average mean trend in Revollo & Portela (2019).

1.2. Determinants of gender differences in socioemotional skills

To identify hypotheses about the sources of gender differences in socioemotional skills, we first reviewed the literature on the origin of gender inequality more broadly. The societal determinants of gender inequality are multifactorial and include a complex interplay between economic and social development on one hand, and social and cultural norms on the other.

Jayachandran (2015) summarised global evidence showing a correlation between a nation's gross domestic product (GDP) and several indicators of gender inequality relating to school enrolment, life expectancy, perceptions of women's competence as business executives, gender-based violence and women's decision-making about household expenditure.

This relationship may be mediated, in part, by household-level socioeconomic factors. For example, wealthier families may be better able to send their girls to school, and will rely less on unpaid labour from female household members. The relationship between GDP and women's empowerment may also emanate from national-level factors, such as women's opportunities for employment. Women experience considerable discrimination in the formal sector in many LMICs (Baden, 1993). Women's labour force participation is 47 percent in Ethiopia, 46 percent in Peru, 48 percent in Vietnam, and a significantly lower 29 percent in India (World Bank, 2023). These factors may negatively affect parents' aspirations regarding girls' education (Dercon & Singh, 2013), which in turn impacts their skill-building. The low labour force participation by women in India, and the fact that women's participation has persistently declined (Lahoti & Swaminathan, 2016) points to the complexity of the relationship between economic development and women's empowerment.

Social and cultural norms play a part in this relationship. In the four countries under investigation, women typically spend more hours on unpaid work than men (Carmichael, Darko, Kanji, & Vasilakos, 2023). A cultural preference for household chores to be carried out by women limits female labour force participation (Deshpande & Kabeer, 2024). Similar concerns for women's purity restrict female participation in education and employment (Jayachandran, 2015).

Other social norms have implications for gender inequality. Patrilineality (male inheritance), patrilocality (where a married couple lives with or near the husband's parent) and an expectation that sons will support their parents in old age may contribute to greater investment in boys compared to girls (Jayachandran, 2015).

In India, there is a notable disparity in education expenditure between boys and girls (Duraisamy & Duraisamy, 2016). Girls often face differential treatment in schooling (Kingdon,

2002) and healthcare allocation (Hazarika, 2000). Similarly, in Ethiopia, there is significant intra-household gender bias against girls in enrolment and educational resources (Delelegn, 2009). Conversely, in Vietnam, expenditure on after-school additional lessons for girls is comparable to that for boys (Le Thuc & Nguyen Thi Thu, 2016; Crivello & Mann, 2020; Kanji, Carmichael, Darko, Egyei, & Vasilakos, 2023; WHO, n.d.).

These societal gender inequalities may affect the development of socioemotional skills in childhood and adolescence through several mechanisms. Differences in the routines and experiences of boys and girls lead to inequalities in the opportunity to develop socioemotional skills, for example, through participation in education or in general freedom of movement outside the home. Different expectations about the future – about employment and one's role as an adult – may lead boys and girls to develop different socioemotional skills (Dercon & Singh, 2013). Finally, normative beliefs about males' and females' capabilities may have direct effects on gender-related self-perceptions, evident in socioemotional skills such as self-esteem and self-efficacy. Relatedly, individuals' academic achievements may influence perceived self-efficacy, self-esteem or agency (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). Using Young Lives data from Peru, Mitchell, Favara, Porter, & Sánchez (2023) found that socioemotional skills are predicted by cognitive skills earlier in life.

It is clear from the literature that there are multiple pathways by which societal gender inequalities may lead to gender differences in the development of socioemotional skills. However, few studies have been conducted to assess whether such gender differences are found in practice, or to investigate the determinants of such gender differences. Ajayi, Das, Delavallade, Ketema, & Rouanet (2022) found gender differences in a set of socioemotional competencies in more than 40,000 adults in 17 African countries. The study found large gender gaps in favour of men for emotional regulation, personal initiative, problem-solving, decision-making and teamwork, and smaller advantages for men for positive self-concept, empathy, expressiveness and interpersonal relatedness. Self-control was the only competency for which no gender difference was found.

Our study aimed to add to this literature by investigating when gender differences emerge in a range of socioemotional skills in adolescents in four LMICs. We also investigated factors associated with gender differences in these socioemotional skills. These factors include proxies for hypothesised societal-level drivers of gender inequality (economic development and social norms), household-level measures of socioeconomic status (SES) and measures of adolescents' experiences (their typical time use and their academic achievement) which may shape their development of socioemotional skills.

1.3. Research questions

The two research questions in this paper are:

1. Do differences between males and females in socioemotional skills emerge within the context of four LMICs, and if so, at what age and with what skills do they emerge?
2. What factors are associated with gender differences in socioemotional skills in the context of four LMICs?

The second hypothesis is operationalised in our study with individual- and household-level variables – such as the SES of the adolescent's household, individual perceptions of gender norms and measures of how individuals use their time. In addition, it is helpful to understand national-level determinants of gender inequality in each of the four LMICs being studied. Although our research design did not allow us to test statistical relationships with national-level determinants, describing these variables provides additional context for the study.

Table 1. Level of GDP per capita and overall gender gaps in the selected four countries

	GDP per capita (US$) 2022	Global Gender Gap Index 2023	Global Gender Gap Ranking 2023 (/146)	% women experienced physical and sexual violence (year varies as shown in text)
Ethiopia	$1,028	0.711	75th	19.8
India	$2,389	0.643	127th	22
Peru	$7,126	0.764	34th	10.8
Vietnam	$4,164	0.711	72nd	10.8

1.4. A Comparison of culture and demographics of the four Young Lives countries

Table 1 presents proxies for two key variables underlying our hypotheses for this research question – perceived gender roles and wealth. In terms of GDP per capita in 2022 (World Bank, 2022), Peru is the wealthiest country, followed by Vietnam, India and then Ethiopia. The main change in the relative wealth of these countries over the 20-year life of Young Lives is that Vietnam's GDP per capita has moved from being roughly equal to that of India in 2000 to being 75 percent larger in 2022. Peru also has the highest ranking in terms of the global gender gap (World Economic Forum, 2022). The ranking of Vietnam and Ethiopia is similar, with India ranking near the bottom at 127th out of 146 countries.

Another manifestation of gender power imbalances is evident in the World Development Indicators (World Bank, 2021), which highlight varying levels of violence against women across the four countries. The proportion of women experiencing physical and sexual violence in the previous year was 10.8 percent in Vietnam in 2010, 10.8 percent in Peru in 2015, 22 percent in India in 2016, and 19.8 percent in Ethiopia in 2016, with India and Ethiopia having much higher rates. These similarities and disparities reflect the diverse cultural, economic, and social characteristics present in the four countries. Additionally, violence against women, particularly intimate partner violence (IPV) rates, were higher among adolescent and young adult women, especially in India and Ethiopia. IPV rates among women aged 15–19 were 28 percent in Ethiopia (2018), 28 percent in India (2017), 16 percent in Peru (2018), and 12 percent in Vietnam (2012) (WHO, n.d.). These country-level factors would lead us to hypothesise that gender differences in socioemotional skills or traits would be more likely in India and Ethiopia than in Peru or Vietnam.

2. Data and methods

To address the two research questions, we used longitudinal data from the Young Lives project, which has followed 12,000 children in four LMICs – Ethiopia, India (the states of Andhra Pradesh and Telangana), Peru and Vietnam – since 2002. In each country, the study is divided into two age groups: 2,000 young people born in 2001 (the Younger Cohort) and 1,000 born in 1994 (the Older Cohort). Young Lives collects data using a sentinel-site sampling design, selecting 20 sites with a pro-poor bias. Participants were randomly selected. While the samples are not representative, they were designed to capture regional and urban/rural differences, as well as the diversity of children in each country. Studies have shown that Young Lives data closely approximate the wealth distribution and diversity of the population when compared with nationally representative surveys such as Demographic and Health Surveys (Escobal & Flores, 2008; Favara et al., 2021; Kumra, 2008; Nguyen, 2008; Outes-Leon & Sánchez, 2008).

Much of our analysis focused on Rounds 4 and 5 of the five survey rounds, carried out in 2013 and 2016 respectively, and constituting previously unreported data. More than 91 percent of the original sample participated in the Round 5 in-person survey (Favara et al., 2021). This

attrition level is low by international standards, partly because people who have moved are tracked within national borders (Sánchez & Escobal, 2020). The focus on Rounds 4 and 5 means we follow the Younger Cohort at ages 12 and 15 and the Older Cohort at 19 and 22. This focus was motivated by the availability and reliability of socioemotional measures: some of the measures were administered only in Rounds 4 and 5 and the measures are consistently more reliable in these rounds, as measured by Cronbach's alpha. The combination of Younger and Older Cohorts helped us to map the emergence of these 'soft' skills throughout adolescence and young adulthood. In doing so, we recognised the limitation that the individuals are not the same in both cohorts.

2.1. Dependent variables

We used eight different measures of socioemotional skills and traits in this study: self-efficacy, self-esteem, peer relations, pride, teamwork, emotional stability, conscientiousness, and grit. Table 2 presents the measures used by each cohort's age and their corresponding survey round. The Young Lives dataset includes a ninth measure – agency – which we excluded due to poor internal reliability. These variables are available only in Rounds 4 and/or 5 for the Older Cohort.

The self-efficacy measure assesses one's perceived ability to cope with daily challenges and adapt to different daily stressful life events (Schwarzer & Jerusalem, 1995). Table S1 in the Supplementary Materials gives the items used to construct each of the socioemotional skill or trait areas, including self-efficacy (List 1).

The self-efficacy measure, as with all socioemotional measures in this paper, consisted of a series of statements to which respondents indicated agreement on a four-point Likert scale, where 1 indicated strongly disagree while 4 signified strongly agree. All statements were defined such that a higher Likert value meant a greater level of self-efficacy. Items coded as 'DK = don't know' and 'I don't want to answer (79)' were considered missing values, following Revollo & Portela (2019). Items were then standardised with a mean of close to 0 and a standard deviation of 1. The scale score for each round was the average of the z-scores for non-missing items. By combining several items in a scale, we obtained the overall and relative position of each individual (Fischer & Milfont, 2010). Summary statistics for the Older and Younger Cohorts at age 22 and 15, respectively, are presented in Table S2 of the Supplementary Materials, along with other variables in the study. Table S3 (Supplementary Materials) presents the Cronbach's alpha values for the selected rounds by cohort and country. The alpha values are generally more than 0.7 for the self-efficacy measure, which is regarded as a suitable threshold.

Self-esteem is defined as the level of regard that one has for oneself as a person (Kling, Hyde, Showers, & Buswell, 1999). The measure was constructed using eight items (see List 2 in Table

Table 2. Measures used in the study, by age and survey round

	Younger Cohort average age (years)					Older Cohort average age (years)				
	1	5	8	12	15	8	12	15	19	22
Round	1	2	3	4	5	1	2	3	4	5
Self-efficacy				•	•				•	•
Self-esteem				•	•				•	•
Peer relations				•	•				•	•
Pride				•	•				•	•
Teamwork										•
Emotional stability										•
Conscientiousness										•
Grit										•

S1), based on the self-esteem scale developed by Rosenberg (1965). A higher score means more self-esteem. The peer-relations measure was constructed using eight items (List 3 in Table S1), where a higher value indicates someone has more friends and is more friendly with their peers. The pride measure consists of four items (List 4 in Table S1). A higher score indicates a higher level of pride. The measure of teamwork comprises three items (List 5 in Table S1), where a higher score indicates better or more cooperative in teamwork. Items in measures three through six use four-point Likert scales.

Emotional stability (a Big Five trait) is defined by a lack of anxiety, hostility, depression and personal insecurity (Barrick, Mount, & Judge, 2001). The measure was constructed based on eight items with a five-point Likert scale (List 6 in Table S1). We reversed the coding of the scale such that a higher value means someone is more emotionally stable.

Similar to emotional stability, conscientiousness (another Big Five trait) was constructed using eight items with a five-point Likert scale (List 7 in Table S1). A higher value means someone is more careful or diligent in performing tasks. Finally, we use the grit index, which is defined as perseverance and passion to achieve long-term goals (Duckworth, Peterson, Matthews, & Kelly, 2007). Grit is measured in terms of consistency of interest (the higher the score, the more consistency), and perseverance of effort (a higher score suggests more perseverance). The Cronbach's alpha value is higher than 0.6 in most cases for these measures, except for the two measures used to construct grit; hence, there is medium to high-level reliability in most measures.[1]

Of the eight measures of socioemotional skills and traits, data on teamwork, emotional stability, conscientiousness, and grit are available in Round 5. Data for the other four measures are available at least in Rounds 4 and 5, which we use to show the trajectories in the emergence of socioemotional skills.

2.2. Independent variables

Gender is a binary self-reported measure suggesting whether an individual is male or female. The key independent variables of interest were related to hypothesised determinants of gender differences in socioemotional skills, discussed in the introduction. A key hypothesised determinant is societal norms towards gender roles. It was assessed through the Attitudes Toward Women Scale for Adolescents (AWSA) scale, a measure of attitudes towards gender roles among adolescents and young adults. The AWSA is a measure of an individual's perception of gender norms, rather than a direct measure of norms at a societal level. Arguably, for some socioemotional skills such as self-esteem or self-efficacy, an individual's internalisation of societal norms is what shapes their self-perception. AWSA is a 12-item scale, each measured on a four-point Likert scale, with questions ranging from strongly disagree to strongly agree (see List 8 in Table S1). Scores were constructed in a similar way to the measures of socioemotional skills or traits. A higher score in AWSA indicates a more gender-equal attitude.

Another key determinant of gender differences in socioemotional skills is household wealth or SES. The independent variable SES was originally coded as the 'wealth index', a composite index of household quality, access to services and consumer durables (see Briones (2017) for methodological detail about the variable construction). The SES measure was transformed into a categorical variable with three tertiles (Briones, 2017).

Furthermore, we measured two indicators of adolescents' individual experiences that may shape their development of socioemotional skills or traits. First, we used four indicators of time use and household chores. These were daily hours spent in unpaid domestic tasks such as farming and family business, caring for household members, and household chores; and in paid activity. These variables are included because societal expectations for gender roles may also lead to socioemotional skill gaps (Hervé et al., 2022). Women tend to consistently shoulder

unpaid household responsibilities and child-rearing tasks (Sayer, 2005). This ongoing engagement may limit the time available for them to develop socioemotional skills.

The second variable relating to an individual's experiences is educational achievement, measured by scores on a mathematics test. Maths scores were estimated using item response theory (IRT), a statistical technique used to explain a latent construct of maths knowledge from a set of observed outcomes or maths items. The final scale was standardised with a mean close to 0 and a standard deviation of 1. Data on maths scores are not available for Round 5 (age 15 for the Younger Cohort and 22 for the Older Cohort), so we included this variable only from Round 4 (age 12 for the Younger Cohort and 19 for the Older Cohort).

We also controlled for a number of other background variables. We used the mother's education level as a control, but not the father's. Adding the father's education led to more missing observations while the coefficients remained quite similar. Our control variable also included a binary measure of whether individuals lived in an urban or rural area. In addition, we controlled for participants' own educational level, because although their ages were similar, they may not have been at the same grade level in school. In addition, we used region dummies to mitigate bias resulting from within-country unobservable characteristics.

The final set of independent variables consists of ethnicity/caste dummies. In Ethiopia, this refers to the caregiver's region of origin (Amhara, Oromo, Tigrian, and SNNPR[2] [Southern Nations, Nationalities, and People's Region]) and language (Gurage, Hadiva or Sidama); in India, the caregiver's caste: Scheduled Castes, Scheduled Tribes, Backward Classes, or Other Classes; in Peru, the caregiver's native tongue –Quechua, Aymara, Spanish, or other dialects; and in Vietnam, whether the caregiver belonged to Kinh, the main ethnic group, or had other ethnic origins (Chinese, Tay, H'Mong, Nung, Ede, Thai, Dao or Giay). The descriptive statistics for all outcome and independent variables for the Older and Younger Cohorts from Round 5 are presented in Table S2. We incorporated these socioeconomic and demographic factors into the analysis for greater precision, and to consider the possibility that households with girls might significantly differ along these characteristics compared to households with boys (Dercon & Singh, 2013).

2.3. Statistical models

Before examining gender differences in the trajectories of socioemotional skill development, we examined gender gaps at age 22 (Round 5) among the Older Cohort. This step provided an overview of gender gaps as young adults prepare for employment and further education opportunities, using the only round in which data on all measures are available.

To estimate the gender differences in skills or traits, we fit Equation 1 using ordinary least squares (OLS) regression models,

$$S_i = \alpha + \beta_1 G_i + \boldsymbol{\beta_2} C_i + \varepsilon_i, \tag{1}$$

where S represents the eight outcome variables (self-efficacy, self-esteem, peer relations, pride, teamwork, emotional stability, conscientiousness, and grit index) of young adults i at age 22. We ran the model on each country and outcome variable separately. The main predictor is gender (G), where β_1 is the corresponding coefficient, while controls (C) include SES, mother's education, and urban/rural location, for which $\boldsymbol{\beta_2}$ is the related coefficient vector. The results are presented in Table 3.

Second, we employed Equation 2 to investigate the extent to which gender gaps, if any, emerge over time from adolescence to young adulthood. In this equation, we pooled data from the Younger and Older Cohorts separately to show the trajectories in each cohort. This is because the socioemotional skill areas considered in this study were measured only in Rounds 4 and 5 or Round 5 alone for both cohorts, as shown in Table 2. We estimated Equation 2 on

Table 3. Gender differences in socioemotional skills at age 22

Coefficients are from independent variable gender or female, where male is the reference category

Dependent variables	All countries	Ethiopia	India	Peru	Vietnam
Self-efficacy	-0.12***	-0.18***	-0.080*	-0.047	-0.14***
	(0.02)	(0.041)	(0.040)	(0.060)	(0.035)
Self-esteem	-0.005	-0.13**	0.043	0.082	0.016
	(0.02)	(0.041)	(0.039)	(0.062)	(0.037)
Peer relations	-0.069**	-0.19***	-0.000014	-0.075	-0.043
	(0.023)	(0.045)	(0.044)	(0.067)	(0.037)
Pride	-0.004	-0.083	0.092	-0.099	-0.030
	(0.027)	(0.059)	(0.050)	(0.069)	(0.047)
Teamwork	-0.17***	-0.20***	-0.28***	-0.016	-0.12*
	(0.029)	(0.060)	(0.053)	(0.084)	(0.056)
Emotional stability	-.019***	-0.10*	-0.28***	-0.21***	-0.17***
	(0.017)	(0.040)	(0.039)	(0.055)	(0.034)
Conscientiousness	-0.53**	-0.11**	-0.061	0.027	-0.029
	(.019)	(0.038)	(0.037)	(0.052)	(0.035)
Grit	-0.094***	-0.19***	-0.16***	0.069	-0.028
	(0.017)	(0.037)	(0.032)	(0.045)	(0.034)
Observations	2,819	692	815	427	860

Notes: (a) Each coefficient is derived from a separate model for the independent variable gender or female. The models are run for each of the dependent variables on the furthest left column. (b) The coefficients can be interpreted in terms of standard deviation as the outcome variables are standardised in the analyses. (c) Controls include SES, mother's education, children's own educational level, urban/rural location, ethnicity/caste, and region. Results for the control variables are omitted. Standard errors are in parentheses. (d) The first model controls for country dummies. $*p < .05. **p < .01. ***p < .001$.

each country and cohort separately using OLS regression models.

$$S_{it} = \alpha + \beta_1 G_{it} + \beta_2 \text{Round} + \beta_3 (G_{it} \times \text{Round}) + \boldsymbol{\beta_4} C_{it} + \varepsilon_{it} \qquad (2)$$

Here, the variable-round dummy refers to Rounds 4 and 5 for age groups 12 and 15 of the Younger Cohort and age groups 19 and 22 of the Older Cohort. The round dummy partially captures changes in age in years between Rounds 4 and 5 (since ages are recorded in months and there is slight variation within each age cohort). In Equation 2, subscript t refers to the round or time that the measures come from. All measures of socioemotional skills in this part of the analysis come from Rounds 4 and 5. To capture the trajectories, we interacted gender with round, where β_3 is the corresponding coefficient.

Third, we examined how far learning achievement and different socioeconomic and cultural factors can explain the socioemotional skills or traits of male and female young adults. We focused on individuals at age 22 and considered the areas which would demonstrate gender gaps in most countries. This was so that the analysis would concentrate on a specific age group or young adulthood, given that gender gaps in socioemotional skills emerge with age, as previous research has suggested (e.g. Revollo & Portela, 2019). Our study further explores which socioeconomic and cultural factors may explain these gaps. However, we provide robustness checks from age 19 to examine the consistency of the results. We estimated Equation 3 for each country separately. Here,

$$S_i = \alpha + \beta_1 G_i + \beta_2 M_i + \boldsymbol{\beta_3} E_i + \boldsymbol{\beta_4} L_i + \varepsilon_i \qquad (3)$$

we add maths achievement (M), socioeconomic (E) and gender-attitude (L) variables separately, with β_2, $\boldsymbol{\beta_3}$ and $\boldsymbol{\beta_4}$ being the related coefficients, respectively. The socioeconomic variables include family SES, mother's education, urban/rural location, and children's ethnicity, caste, region and language. Gender-attitude variables are attitudes towards gender roles and time spent in household tasks, unpaid care, household chores and paid activity by males and females. We also checked the interaction between gender and gender attitudes towards adolescent girls to discover whether its association with socioemotional skills differed by gender.

3. Results

3.1. Gender differences in socioemotional skills and traits in young adulthood: a broad overview

Analyses of Young Lives data using Equation 1 suggested that there are considerable gender disparities in socioemotional skills or traits at age 22 in the four countries under investigation. Table 3 presents gender differences in eight different socioemotional outcomes in Ethiopia, India, Peru and Vietnam, and all countries together in the first model. The coefficients represent the relationship between gender and skill areas based on regression models run on each country with and without controls. As Table 3 shows, females had lower self-efficacy than males in all four countries. The gaps range from 0.05 to 0.18 standard deviations across countries and are statistically significant with and without controls in all countries except for Peru. Coefficient sizes are similar after controlling for background characteristics such as SES, mother's education and urban/rural location.

Gender gaps in favour of males were also noticeable in emotional stability in all four countries and teamwork in all countries except for Peru. While less consistent, we also observed gender gaps in favour of males in self-esteem, in peer relations and conscientiousness in Ethiopia, after controlling for socioeconomic characteristics. Pride was the only socioemotional measure for which there was an advantage for females (in India) and no significant advantage for males in any country. Among cohort members at age 22, Ethiopia exhibited gender inequality in

favour of males in most of the socioemotional outcomes; India and Vietnam showed gender differences in fewer outcomes. The gap in Peru can be seen only in emotional stability.

Table S4 in the Supplementary Materials explores whether inequalities in these socioemotional outcomes were also present by other socioeconomic backgrounds (SES, mother's education and urban/rural location) with the example of self-efficacy. The coefficients for these correlates were largely inconsistent and non-significant for other socioemotional skill measures.

3.2. Emergence of gender differences in socioemotional skills and traits throughout adolescence

To understand how socioemotional skills and traits develop through adolescence and young adulthood, we estimated Equation 2. We focused on self-efficacy because, among the socioemotional outcomes that exhibit significant gender gaps at age 22, it was the only one with data available in at least two rounds. Also, self-efficacy is a socio-emotional competency that is hypothesised to be influenced strongly by gender norms. Self-efficacy is a measure of how individuals perceive their own effectiveness in various domains and so is likely to be affected by normative beliefs about the abilities of boys and girls and the different opportunities boys and girls have to engage in activities that allow them to develop and experience their own competencies. Data for the other areas are available only in Round 5 at age 22. We present the development of gender gaps in other skill areas (self-esteem, peer relations and pride) that were not statistically significant during young adulthood in Figures S1–S3 of the Supplementary Materials.

Figure 1 demonstrates that gender gaps in self-efficacy increased during late adolescence to early adulthood. The gaps were small in the Younger Cohort from ages 12 to 15. Females had lower self-efficacy than males in the Younger Cohort for all countries except for Vietnam, but the gender differences were not statistically significant with or without relevant controls, except for age 12 in Ethiopia.[3] From ages 19 to 22, the male advantage in self-efficacy increased in all countries, although the gap is not statistically significant in Peru at age 22. Ethiopia showed the largest gender differences in self-efficacy, where males had 0.18 standard deviations higher scores than females at ages 19 and 22. Similarly, there are statistically significant differences in India and Vietnam at ages 19 and 22 compared to ages 12 and 15, in favour of young men.

It remains unclear whether the differences in gender gaps between the Younger and Older Cohorts were due, at least in part, to a cohort effect. Because we derived data from two different cohorts (ages 12 and 15 for the Younger Cohort and 19 and 22 for the Older Cohort) to examine the trajectories in socioemotional skills, we cannot determine whether the gender gaps observed are the results of the transition from adolescence to adulthood or because the data came from different cohorts. Nevertheless, the trends across the two cohorts are suggestive of a pattern in the gender gap between age groups. The gender gap was higher among older individuals at age 19 than children at age 12 in the same period, in 2013.

We found a similar pattern for other socioemotional outcomes – whereby gender differences emerge in late adolescence – but for only one country. Males scored more highly than females in self-esteem and peer relations in Ethiopia at ages 19 and 22 (Figures S1 and S2). Results were less consistent for other countries in these outcomes.

3.3. Explaining gender differences in socioemotional skills and traits

The findings we have reported so far suggest that gender differences in socioemotional outcomes become more profound in young adulthood around ages 19 and 22. This section addresses our second research question to examine factors which might explain these gender gaps. We tested hypotheses that gender gaps are related to the SES of individuals (measured by wealth and parental education), ethnicity, attitudes to gender roles (measured by AWSA) as well as actual gender roles (measured by time use). To address these hypotheses, we fit
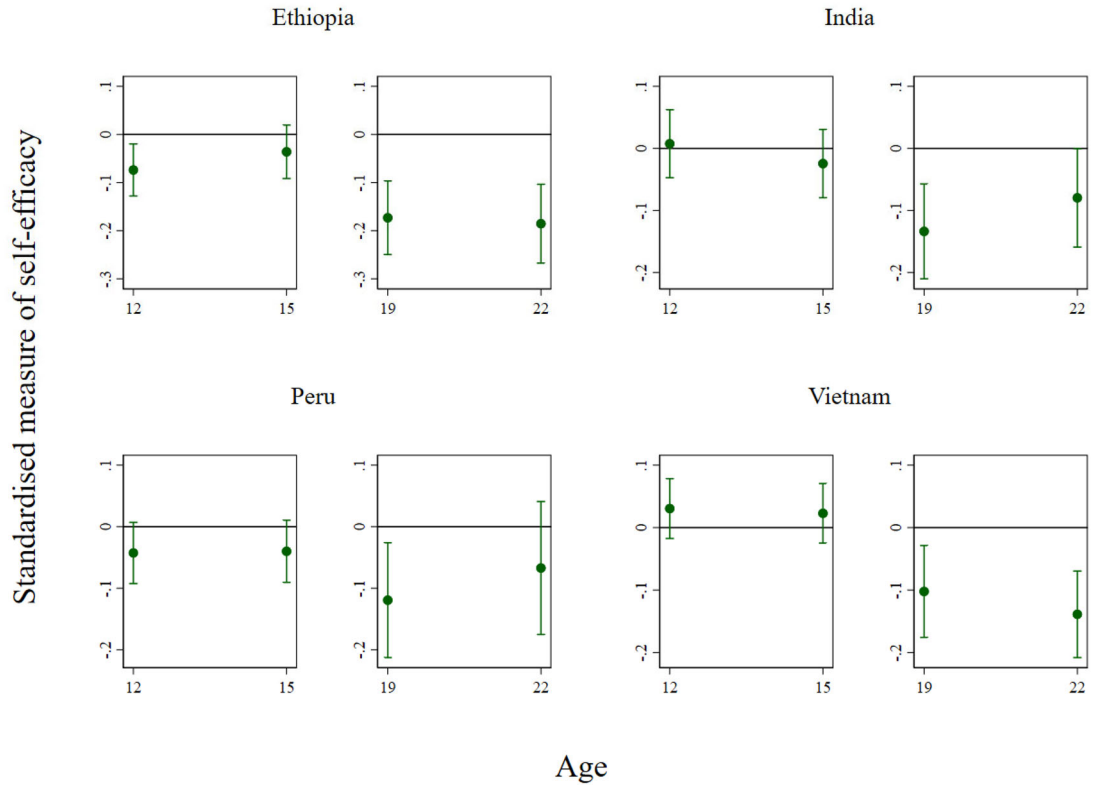
Figure 1. Female self-efficacy scores compared to male young adults.
Notes: Ages 12 and 15 refer to the Younger Cohort and 19 and 22 to the Older Cohort from Rounds 4 and 5, respectively. The coefficients can be interpreted as predicted values for the socioemotional skill areas of females compared to males, conditional on socioeconomic background. The coefficients include 95 percent intervals. When these intervals overlap with the horizontal line at 0 on the y-axis, it indicates that gender differences are not statistically significant or $p > .05$.

Equation 3, to examine whether the coefficient of 'female' (an indicator of gender differences in the socioemotional outcome) is attenuated by the addition of each of four sets of covariates in a series of models. We examined this question for the socioemotional outcomes of self-efficacy, emotional stability, and teamwork, respectively, where we found significant gender differences at age 22 in at least three of the four countries. Coefficients were estimated separately for all three socioemotional outcomes and presented in Figure S4A,B of the Supplementary Materials. Additionally, we looked at a potential mediator of the relationship between gender roles and socioemotional skills or traits – academic achievement.

As Figure S4A,B demonstrate, the inclusion of two types of covariates – time spent in different paid and unpaid activities and AWSA – slightly reduced the estimated gender gaps in self-efficacy (measured by the size of the coefficient 'female'), while the socioeconomic variables of wealth, parents' education, and ethnicity did not affect the size of the gender gap. Starting with self-efficacy (left panel of Figure S4A and Table S5 in the Supplementary Materials), time use was the only covariate that attenuated the gender gap when introduced to the model. Adding time use as a covariate in model 4 decreased the female disadvantage by 0.03 and 0.02 standard deviation points in Ethiopia and Vietnam, respectively. The introduction of AWSA into models did not reduce estimated gender gaps. However, there was a main effect of AWSA on self-efficacy. AWSA had the largest positive association with self-efficacy in Peru, Vietnam and Ethiopia (Table S5), indicating that positive gender attitudes correlate with higher absolute self-efficacy.

The analysis of emotional stability produced results similar to those for self-efficacy. Socioeconomic characteristics did not decrease gender gaps in emotional stability in any of the countries, but the time-use variables did. For instance, in Ethiopia, controlling for time-use variables (model 4 in the left panel of Figure S4A of the supplement) made the gender gap in emotional stability non-significant. Likewise, in India, time-use variables reduced the gender gap in teamwork, while other variables did not (Figure S4B, Supplementary Materials). Additionally, time spent in unpaid work is significantly negatively associated with self-efficacy in India (Table S5, Supplementary Materials). Notably, in all four countries, females are significantly more likely to do unpaid work and household chores than males as shown in descriptive statistics in Table S2 of the supplement. These disparities may capture some of the gaps in skills.

Robustness: In addition to what we discovered in the above analysis for age 22, gender gaps in self-efficacy were evident from age 19. We extended the analysis to include both ages 19 and 22 (with round fixed effects) for robustness checks using the example of self-efficacy. Of the variables included in the above analysis, only the AWSA variable was unavailable at age 19. As Figure S5 in Supplementary Materials demonstrates, the results remained largely consistent with those in the left panel of Figure S4A. The time-use variables (model 3 in Figure S6) reduced the gender gap in self-efficacy in most cases compared to other variables.

Interaction effects: We examined the interactions between independent variables and gender to further analyse the determinants of gender differences in socioemotional skills or traits. We tested whether the association between the AWSA variable and self-efficacy, emotional stability and teamwork, respectively, would differ significantly by gender. We found significant interactions for self-efficacy in Ethiopia and emotional stability in India, Vietnam and Peru, demonstrating that more equal gender attitudes are associated with smaller gender gaps in socioemotional outcomes (Figure 2)[4] The interaction was not significant for teamwork in any country. AWSA scores predicted gender differences in socioemotional measures only where unequal gender attitudes were prevalent, as seen in the mean AWSA scores and global gender gap rankings in Table 2.

We also explored whether gender differences in socioemotional skills and traits differed by socioeconomic status. Gender differences in self-efficacy at age 22 were wider in the poorest tertile in Ethiopia, Peru and Vietnam but significant only in Ethiopia and Vietnam (Figure S9). No significant gender differences were found by mother's education, urban/rural location, or ethnicity/caste/region/language in self-efficacy (e.g. Figure S10).[5]

Taken together, these results show that gender differences in socioemotional skills and traits are explained to some extent by adolescents' time spent in paid and unpaid activities, their attitudes to gender roles and their socioeconomic status.

4. Discussion

We summarise findings in the following three points. First, findings from a comprehensive set of socioemotional skills and traits demonstrate that the gender gap in favour of males is significant and pervasive in young adulthood at age 22 in the selected countries. However, these gender disparities exhibit variations across countries, aligning with societal patterns of development and gender inequality as posited in the introduction. In other words, of the eight socioemotional outcomes considered in this study, we observed significant gender differences in seven areas in Ethiopia, four in India, three in Vietnam and one in Peru. As illustrated in Table 1, Peru has the highest level of GDP per capita among the four countries and the lowest level of gender inequality, followed by Vietnam, India and Ethiopia. Nonetheless, it is essential to highlight that we explain this macro-level pattern as association rather than a causal linkage. It is noteworthy that we found consistent gender differences in all four countries for only one socioemotional measure – emotional stability, a Big Five personality trait. This result is consistent with other cross-national research on the Big Five personality traits (Costa, Terracciano, &
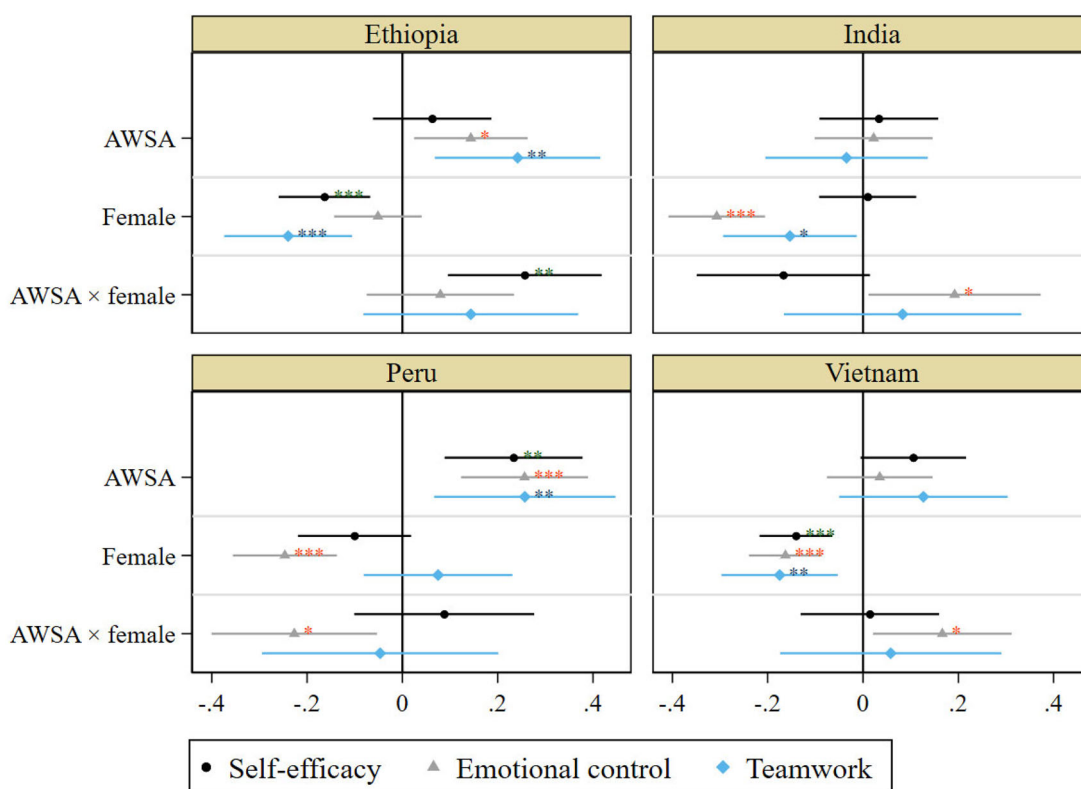
Figure 2. The interaction between AWSA and gender to predict self-efficacy, emotional stability, and teamwork.
Notes: *$p < .05$. **$p < .01$. ***$p < .001$. Results from models without any controls are presented in Figures S6–S8 of the Supplementary Materials.

McCrae, 2001), which has found that gender differences are larger in high-income countries compared to low-income countries, contrary to the hypothesis presented for other socioemotional skills in this paper.

Second, gender differences in self-efficacy emerge in late adolescence, around the age of 19, in three of the four countries studied – India, Ethiopia and Vietnam. Similar, but less consistent, patterns were found for self-esteem and peer relations. This developmental trend is consistent with previous findings that self-concept becomes more distinct in late childhood and adolescence (Revollo & Portela, 2019). Meta-analyses in largely high-income countries have found that gender differences in academic self-efficacy (Huang, 2013) and self-esteem (Kling et al., 1999) also both emerge in late adolescence and favour males. Our findings are also consistent with other analyses showing gender gaps in socioemotional outcomes in India and Ethiopia (Dercon & Singh, 2013; Revollo & Portela, 2019) and extend previous Young Lives analyses with an additional round of data.

Third, we found some evidence of factors which explain gender differences in socioemotional skills and traits. The most important factor in our findings was individuals' perceived gender roles – i.e. AWSA. In three instances we found that having more egalitarian views about gender roles was more strongly related to socioemotional outcomes for females, compared to males: self-efficacy in Ethiopia, and emotional stability in India and Vietnam. Our interpretation is that individuals' perceptions about attitudes to gender roles may be an important determinant of gender differences in socioemotional skills and traits in settings where attitudes to gender roles tend to be unequal.

Other factors explained only a small proportion of gender gaps in socioemotional outcomes. We found that accounting for time spent in paid and unpaid work slightly reduced the size of gender disparities in self-efficacy, emotional stability and decreased teamwork, especially in India and Ethiopia. This result partially aligns with previous research that highlights both countries as having notable gender disparities in unpaid household work (Carmichael et al., 2023; Deshpande & Kabeer, 2024). Cultural norms for women to carry out unpaid work are associated with restrictions on women's participation in education and the labour force (Deshpande & Kabeer, 2024) and may create unfavourable circumstances for females to develop socioemotional skills. We observed a similar pattern in the case of Peru, particularly in relation to gender gaps in self-efficacy at age 19.

Additionally, we observed some evidence that gender gaps are more likely to emerge at the lowest wealth quintile. Specifically, in Ethiopia and Vietnam, we found that gender differences in socioemotional outcomes were greatest in the poorest tertile. These results align with previous research from LMICs, indicating that gender gaps in socioemotional outcomes follow socioeconomic gradients (Ajayi et al., 2022).

No other covariates substantially explained gender gaps in socioemotional skills and traits. For instance, intuitively, one would expect that academic achievement is a major source of adolescents' sense of self-efficacy, and our analyses showed a significant relation between mathematics achievement and socioemotional skills. Despite this relationship, males had a higher level of self-efficacy even in countries such as Vietnam, where there is little or no gender gap in academic achievement.[6] As Figures S4 and S5 in the Supplementary Materials show, adding maths achievement explained little to no gender differences in self-efficacy, emotional stability, and teamwork.

There are several possible explanations why variables in the Young Lives data set are unable to explain substantial portions of the gender difference in socioemotional skills and traits. First, cultural practices, social norms and modes of female empowerment that may influence socioemotional outcomes are many, and the Young Lives data set is unlikely to capture them all. Second, our data were collected at an individual level, whereas socioemotional skills may be influenced more by norms at the societal level. In some cases, there is a strong rationale for the analysis of individual-level variables. For example, a societal norm may affect an individual's skills and behaviour only to the extent that they internalise that norm (Ajzen, 1991). Thus, an individual's attitudes to gender roles may be a better predictor of their socioemotional skills than a norm measured at the societal level. Nevertheless, our results could have been strengthened by societal-level measures of norms and practices. Third, cultural values and gender differences in socioeconomic skills may be 'sticky' (Jayachandran, 2015). That is, there may be a lag between societal changes in economic development and demographics and the subsequent shift in cultural values and practices as well as a lag between shifts in these values and practices and a subsequent change in the socioemotional skills of females and males. Finally, it is possible that some portion of the gender differences in socioemotional skills arises not from culturally specific values and practices but from life experiences or biological factors that are more universal.

Gender differences in socioemotional skills – particularly self-efficacy – persisted in the four LMICs studied, even when other outcomes, such as educational achievement, were more equal between the genders. The gender differences emerge in late adolescence and are partly explained by attitudes to gender roles and socioeconomic status. The implication of our findings is that females in the contexts studied enter adulthood at a disadvantage compared to males. They feel less able to deal with the challenges they face and feel less in control of their own lives. These disadvantages likely carry through into the workplace and adult life in general. One possible response to this challenge is to implement programmes that develop girls' self-efficacy and agency in adolescence (e.g. Edmonds, Feigenberg, & Leight, 2023; Malhotra et al., 2021). Future research could examine the effectiveness of such programmes in reducing the gender gap

in socioemotional skills. Research is also needed to further understand the structural determinants of these gender gaps.

Notes

1. More technical details in the construction of these measures can be found in Porter, McQuade, and Favara (Unpublished) for Round 5, Portela & Yorke (2018) for Round 4, and Young Lives (2009) for Round 3.
2. SNNPR dissolved into separate regions in 2023 but we retain the term as the data were collected before the dissolution.
3. We present the results with controls to simplify the figures. However, the results are similar with and without controls.
4. The interaction term was significant both before and after controlling for socioeconomic characteristics including wealth, parents' education, ethnicity/language, educational level and region, as demonstrated in Figures S6–S8 of the Supplementary Materials. In additional analyses, not reported here, maternal education was the strongest predictor of AWSA scores, among socioeconomic variables.
5. The other results are not presented here to avoid repetition, but are available upon request.
6. In Vietnam, maths achievement did not significantly differ between girls and boys among the Older Cohort at age 19. However, girls performed better at literacy than boys.

Ethics approval

Ethics approval was not required for this study as it did not involve any human subjects.

Disclosure statement

This study has no conflicts of interest.

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