From Childhood Adversity to Adolescent Motherhood: A Cross-Sectional Study of Trauma, Partner Age Gaps, and Parenting Practices in the Dominican Republic

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Abstract

Background: Adolescent pregnancy is increasingly recognized as a consequence rather than a cause of disadvantage. However, limited research has examined specific adverse childhood experiences (ACEs) predicting early childbearing, partner characteristics, or whether parenting deficits persist as adolescent mothers mature. We examined relationships among ACEs, partner characteristics, and parenting practices in adolescent and adult mothers in the Dominican Republic.

Methods: We conducted a cross-sectional study of mothers of children aged 24-48 months enrolled in poverty-focused programs in Santo Domingo, Dominican Republic, between November 2024 and January 2025. Participants were categorized as current adolescent mothers (aged <20 years), former adolescent mothers (first birth <20 years, currently ≥20), or adult-onset mothers (first birth ≥20 years). We collected data via Audio Computer-Assisted Self-Interview using validated instruments: self and partner demographics, ACE questionnaire, HITS violence screen, Edinburgh Postnatal Depression Scale, and standardized parenting assessments. We used ANOVA, chi-square tests, and regression analyses to examine associations.

Findings: Among 1,019 participants (mean age at first birth 21·7 years [SD 5·1]), 91 (9·1%) were current adolescent mothers, 316 (31·4%) former adolescent mothers, and 598 (59·5%) adult-onset mothers. Specific ACEs predicted early childbearing: emotional neglect (50·2% vs 34·2% for mothers <18 vs ≥30 years; p=0·005), physical neglect (50·7% vs 34·2%; p=0·018), and family incarceration (22·9% vs 12·7%; p=0·034). Minor adolescent mothers had partners averaging 9·1 years older versus 2·5 years for mothers ≥26 years (p<0·001), yet these older partners had lower education (40·4% primary-only vs 13·0%). Childhood emotional neglect predicted having older partners (β=-1·65, p<0·01). Unexpectedly, former adolescent mothers used less violent discipline than adult-onset mothers (standardized mean -0·15 vs 0·07; p=0·001).

Interpretation: Our findings suggest adolescent motherhood primarily reflects accumulated childhood adversity rather than being the primary cause of disadvantage. The novel association between emotional neglect and partner pairing reflects intergenerational vulnerability transmission through relationship formation. Former adolescent mothers' less violent discipline practices despite ongoing adversity challenges deficit perspectives, demonstrating adaptive capacity that warrants strengths-based interventions.

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Keywords: adolescent pregnancy, adverse childhood experiences, partner age gap, parenting practices, Dominican Republic, selection effects, intergenerational trauma, adaptation.

Research in Context

Evidence before this study: We searched PubMed, EBSCOhost, EMBASE, and SciSpace online databases for "adolescent pregnancy" and "early childhood development." We included publications in any language between 2015 and 2024 and screened 283 studies, plus 23 earlier studies cited in these publications; we excluded all other publications. Most examined cumulative ACE scores rather than specific adversities. Only 11 studies included father data, focusing solely on age differences without educational characteristics. No studies examined whether parenting deficits persist as adolescent mothers mature or linked childhood emotional neglect to partner pairing. The selection effects hypothesis suggests that preexisting disadvantage explains poor outcomes, but evidence remained limited regarding specific mechanisms and long-term trajectories.

Added value of this study: We identify specific ACEs—emotional neglect, physical neglect, and family incarceration—as stronger predictors than cumulative scores. We document that adolescent mothers' partners average 9 years older yet paradoxically have lower education (40% primary-only versus 13% for older mothers' partners). We provide first evidence linking childhood emotional neglect to pairing with older partners, reflecting intergenerational vulnerability transmission through relationship formation. By comparing current and former adolescent mothers, we demonstrate unexpected adaptation: former adolescent mothers use less violent discipline than adult-onset mothers despite persistent adversity. Educational inequalities persist after age adjustment, with former adolescent mothers having 2·85-fold lower odds of university education compared to adult-onset mothers.

Implications of all the available evidence: The evidence suggests that adolescent pregnancy should be understood primarily as a consequence of disadvantage rather than its primary cause. Prevention should address childhood trauma, particularly emotional neglect, rather than focusing solely on pregnancy prevention. Programs must address power dynamics in age-asymmetric relationships while expanding opportunities for young women. The nonviolent discipline practices of former adolescent mothers challenge deficit perspectives, indicating that strengths-based approaches may prove more effective. Healthcare systems should screen for childhood adversity and relationship dynamics during prenatal care. Educational support must extend beyond crisis intervention to address lasting barriers. Future longitudinal research should examine adaptation trajectories and protective factors that enable positive outcomes despite adversity.

Introduction

Despite decades of pregnancy prevention programs, 12·2 million adolescents worldwide give birth annually,[1] suggesting that traditional approaches fail because they misunderstand adolescent pregnancy as a cause rather than a consequence of disadvantage. Understanding the complex interplay between childhood experiences, partner dynamics, and maternal age at childbearing onset reshapes how societies support young mothers and their children, shifting focus from preventing adolescent pregnancy to addressing its root causes.

The age at which a woman begins childbearing has implications extending beyond the immediate pregnancy. The distinction between maternal age at a specific birth and age at first childbirth is critical, as consequences of adolescent childbearing affect both children born during adolescence and subsequent children, who face persistent educational challenges.[2,3] The selection effects hypothesis challenges deterministic views, proposing that pre-existing disadvantages—poverty, trauma, limited opportunities—select certain young women into early childbearing and primarily drive poor outcomes, rather than adolescent motherhood itself.[2] When controlling for social disadvantage before childbirth, maternal age's direct effect on children's outcomes diminishes significantly, with socioeconomic resources proving more powerful than maternal age.[2] Evidence from the Dominican Republic suggests that maternal adversity disrupts cultural consonance—alignment between individual lives and shared cultural models—mediating the relationships between adversity and parenting.[4] Duncan and colleagues found that each year of delayed first birth is associated with reduced child externalizing behaviors, resulting from gains in maternal education and income.[5] This understanding shifts focus from locating risks within individual mothers to addressing systemic inequities, recognizing that adolescent motherhood often represents a pragmatic response when normative pathways to adulthood are foreclosed.[6]

Three critical gaps persist in adolescent motherhood research: limited understanding of whether adverse childhood experiences (ACEs) precede early childbearing, scarce data on the children's fathers' characteristics, and insufficient evidence on whether parenting deficits persist as adolescent mothers mature. Although evidence suggests that partners are frequently older, the magnitude of age gaps and their association with childhood adversity remain unexplored.[7] Large age asymmetries may reflect power imbalances compounding vulnerabilities, especially when combined with educational inequities. SmithBattle et al. highlight the need for further research examining paternal age as a covariate, noting inconsistent results across studies.[6] Knowledge gaps limit understanding of how partner characteristics might mitigate or exacerbate challenges facing adolescent mothers.

This study addresses these critical gaps through an examination of mothers in the Dominican Republic, where an estimated 25,000 adolescents (5·3%) gave birth in 2023.[1] We examine whether specific ACEs predict adolescent motherhood, the age and educational characteristics of partners, and whether parenting differences persist as adolescent mothers mature.

Methods

We recruited 1,019 mothers of children aged 24-48 months from 23 centers in Santo Domingo administered by the National Institute for Early Childhood Comprehensive Care (INAIPI) of the Dominican Republic between November 2024 and January 2025, with no exclusion criteria. The data are part of a larger study on cultural consonance mediating adversity-parenting relationships.[4]

We collected demographic data, including maternal age at interview, age at first childbirth, age at birth of subsequent children, family structure and living arrangements, partner characteristics (age and education), and household material resources using a 23-item inventory of goods and assets with local cultural meaning.[4] We assessed maternal adversity using three validated instruments: the ACE questionnaire [8] measured childhood trauma; the Hurt, Insulted, Threatened with Harm and Screamed (HiTS) screening tool [9] assessed physical and emotional (IPV) partner violence in the past year; and the Edinburgh Postnatal Depression Scale (EPDS) [10] evaluated depressive symptoms. We measured parenting practices using the Multiple Indicator Cluster Survey Questionnaire for Children Under 5, Modules Early Childhood Development and Child Discipline, an adapted version of the Parent-Child Conflict Tactics Scale.[11] This instrument yields three subscales: cognitive stimulation (activities that promote learning), positive discipline (non-violent discipline strategies), and violent discipline (psychological and physical aggression).

Participants completed Audio Computer-Assisted Self-Interviews via tablets with headphones at INAIPI centers. An interactive avatar guided participants through the survey, enabling participation regardless of literacy while ensuring privacy. Data collection lasted 20-40 minutes. All procedures complied with applicable laws and institutional guidelines. The study protocol and its subsequent amendments were approved by the institutional review boards of the Celia Scott Weatherhead School of Public Health and Tropical Medicine at Tulane University (study 2023-174, approved March 10, 2023) and Universidad Iberoamericana (study CEI2023-2, approved March 6, 2023). The privacy rights of study participants have been observed. Data were de-identified immediately after collection, and identifying information was stored separately from research data.

We conducted data analysis using Python version 3·12·7 within the Jupyter Notebook environment. We standardized maternal adversity and parenting variables (z-scored) prior to analysis to facilitate interpretation of effect sizes. We handled missing data using listwise deletion for each analysis. The extent of missingness for key variables was: maternal age at first birth (1·4%), biological father's age (1·7%) and education (9·0%), age difference between mother and biological father (3·5%), adversity (ACE, HiTS, and EPDS) scores (0%), and parenting practices (0%). Statistical significance was set at $p<0·05$. Effect sizes were reported for all significant findings, including Cohen's d for group comparisons, Pearson's r for correlations, and eta-squared (η^2) for ANOVAs.

We used maternal age at first birth as both a continuous variable and a categorical variable with five groups: under 18 years (minor adolescent mothers), 18-19 years (adult adolescent mothers), 20-22 years, 23-25 years, and 26 years or older. We used the continuous variable in regression analyses to maximize statistical power, and the categorical variable for descriptive analyses and to test specific hypotheses regarding differences between minor and adult adolescent mothers.

We first computed descriptive statistics for all variables and examined bivariate relationships using Pearson correlations for continuous variables and Spearman's rank correlations for ordinal variables. Second, we used chi-square tests to assess the associations between maternal age groups and categorical variables, and one-way ANOVAs to examine the mean differences in continuous outcomes across maternal age groups, with Tukey's HSD post-hoc comparisons. We employed linear trend tests using the Spearman correlation test to examine dose-response relationships. Third, logistic regression identified predictors of adolescent maternity onset. We used ordinary least squares regression to examine continuous outcomes, and hierarchical regression to assess the unique and combined effects of maternal age and family structure on parenting outcomes. Finally, we tested interaction effects between maternal age and family structure by adding cross-product terms to main effects models. With stratified analyses, we examined the nature of significant interactions.

All participants were biological mothers (female sex assigned at birth). We did not separately assess gender identity. Partner data refers to biological fathers (male). Given the sex-specific nature of pregnancy and childbearing, sex-disaggregated analyses were not applicable for the primary outcomes.

This study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for reporting cross-sectional studies.[12]

The authors declare that the funding source had no role in the study design, data collection, data analysis, data interpretation, writing of the report, or the decision to submit for publication.

Results

Participants (N=1,019; mean age at first birth=21·7 years, SD=5·1) comprised current adolescent mothers (<20 years; n=91, 9·1%), former adolescent mothers (first birth <20, currently ≥20; n=316, 31·4%), and adult-onset mothers (first birth ≥20; n=598, 59·5%). For detailed analyses, we used five age groups: <18 (n=205, 20·1%), 18-19 (n=202, 19·8%), 20-22 (n=236, 23·2%), 23-25 (n=163, 16·0%), and ≥26 years (n=199, 19·5%).

Adverse Childhood Experiences

ACEs were highly prevalent in the sample **(Table 1)**: 76·4% of participants (n=779) reported at least one ACE, with a mean ACE score of 2·64 (SD=2·44). Notably, 32·0% of participants met the conventional threshold for high adversity, reporting four or more ACEs. The most reported ACEs were emotional neglect (41·6%), physical neglect (41·5%), and verbal abuse (40·1%). Higher ACE scores correlated with younger age at first birth (r=-0·07, p=0·029, N=1,005). Each additional ACE decreased maternal age by 0.145 years (β=-0·15, SE=0·07, p=0·029), explaining only 0·48% of the variance. A quadratic term had a minimal effect on the change in variance explained (ΔR^2=0.001), suggesting a linear relationship.

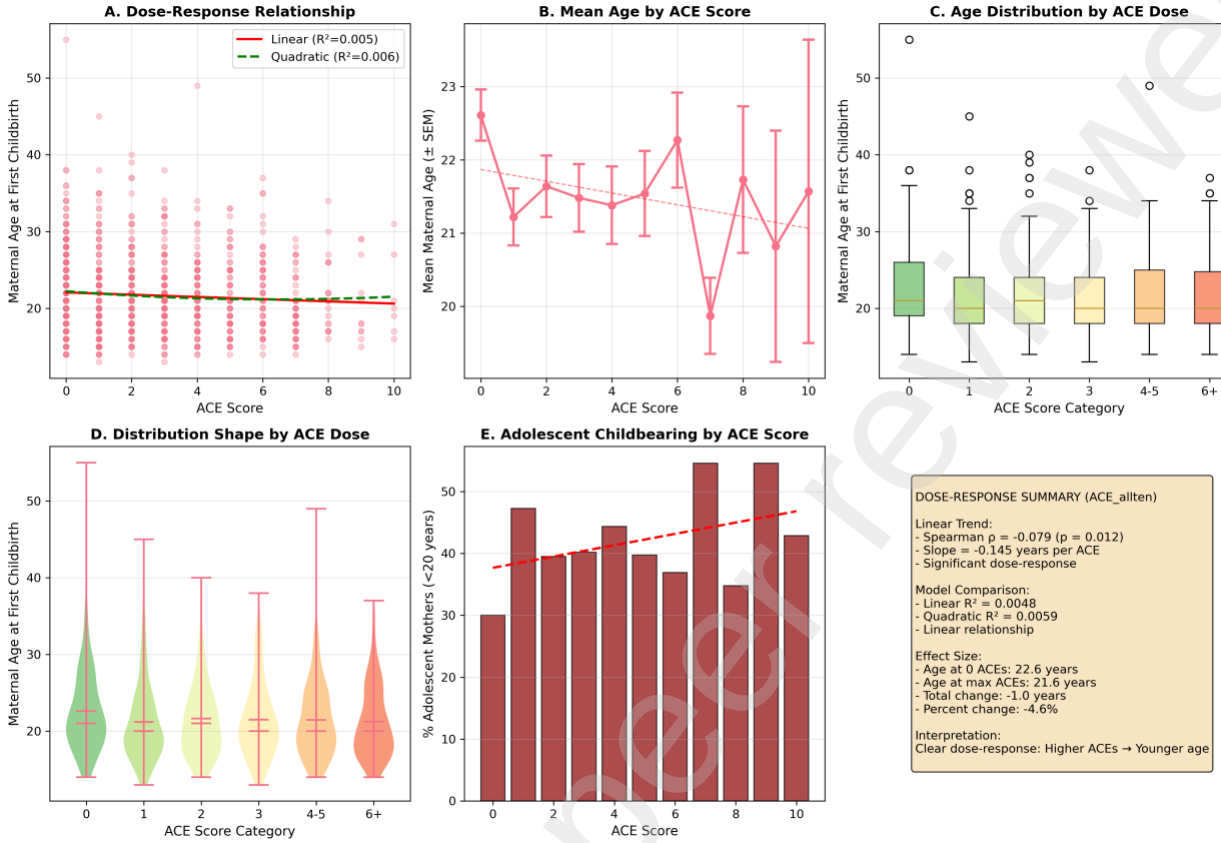
Table 1: Prevalence of Adverse Childhood Experiences by Maternal Age at First Birth

	ACE Indicator	<18 (%)	18–19 (%)	20–24 (%)	25–29 (%)	30+ (%)	χ^2 / F	p
ACE 1	Verbal abuse or intimidation by parent or adult in the household	43·9	41·1	38·6	41·3	32·9	3·43	0·489
ACE 2	Physical abuse by parent or adult in the household	37·1	33·7	34·3	32·6	26·6	2·98	0·562
ACE 3	Sexual abuse by parent or adult in the household	19·5	14·9	17·0	23·8	15·2	6·26	0·180
ACE 4	Emotional neglect (not feeling loved nor supported by family)	50·2	47·0	36·6	38·4	34·2	14·86	**0·005***
ACE 5	Physical neglect (not enough to eat, dirty clothes, not protected, parents too drunk or high)	50·7	44·1	38·3	37·8	34·2	11·89	**0·018***
ACE 6	Loss of parent (divorce/abandonment/death)	34·6	29·2	34·9	34·9	40·5	3·76	0·440
ACE 7	Mother/stepmother experienced physical abuse	18·5	14·9	14·7	17·4	10·1	3·88	0·423
ACE 8	Lived with alcoholic or drug user	11·7	10·4	8·4	15·7	8·9	6·98	0·137
ACE 9	Lived with someone depressed or mentally ill	12·7	13·9	11·2	12·8	13·9	1·01	0·908
ACE 10	Family member went to prison	22·9	17·3	13·0	15·7	12·7	10·38	**0·034***
	Mean ACE score (SD)	**3·02 (2·51)**	**2·66 (2·40)**	**2·47 (2·36)**	**2·70 (2·60)**	**2·29 (2·29)**	**F=2·11**	**0·078**

Note: * p<0·05.

Spearman's rank correlation showed a dose-response relationship between ACE exposure and maternal age (ρ=-0·08, p=0·012). Mothers with no ACEs had their first child at a mean age of 22·61 years (SD=5·41), compared to 21·24 years (SD=4·77) among those with six or more ACEs, a 1·37-year difference. The largest drop in age occurred between those with zero and one ACE (22·61 vs. 21·22 years), suggesting a potential threshold effect **(Figure 1)**. Each additional ACE increased the odds of adolescent motherhood by 5·7% (OR=1·06, 95% CI 1·007 to 1·110, p=0·025). The proportion of adolescent mothers increased from 30·0% among those with no ACEs to 47·3% among those with one ACE, further supporting the presence of a threshold rather than a strictly linear cumulative effect.

Figure 1: Adverse Childhood Experiences and Maternal Age at First Childbirth: Dose-Response Analysis



Note: **Data Source:** Analysis of maternal age at first childbirth across Adverse Childhood Experiences (ACE) scores (n=1,005). **Panel A** displays individual observations with linear (red) and quadratic (green dashed) regression fits showing weak but significant negative correlation. **Panel B** presents mean maternal age ±standard error of the mean by individual ACE score, demonstrating approximately 1-year decrease from ACE 0 to ACE 10. **Panel C** shows box plots grouped by ACE dose categories (0, 1, 2, 3, 4-5, 6+) with medians, IQR, and outliers. **Panel D** illustrates distribution density using violin plots with embedded box plots for each ACE category. **Panel E** displays percentage of adolescent mothers (<20 years) by ACE score with linear trend line. **Statistical Analysis:** Spearman correlation coefficient used for non-parametric assessment of dose-response relationship. Linear and quadratic models fitted to assess relationship pattern. All analyses two-tailed with significance set at p<0·05. **Key Finding:** Statistically significant dose-response relationship observed between ACE exposure and younger maternal age, with effect most pronounced for adolescent childbearing (increasing from ~30% at ACE=0 to >50% at ACE≥8).

Point-biserial correlations between each ACE and maternal age showed that three ACEs were significantly associated with younger maternal age: emotional neglect (r=-0·11, p=0·001), physical neglect (r=-0·09, p=0·004), and family member incarceration (r=-0·07, p=0·026). Emotional neglect decreased from 50·2% among minor adolescent mothers to 34·7% among mothers aged 26 and older ($\chi^2(4)=15·08$, p=0·005), physical neglect decreased from 50·7% to 37·7% ($\chi^2(4)=13·69$, p=0·008), and family incarceration dropped from 22·9% among adolescent mothers to 9·8% among mothers aged 23–25 ($\chi^2(4)=12·71$, p=0·013).

To evaluate whether focusing on the three most impactful ACEs improved predictive power, we created a targeted ACE index and ran a linear regression model. Each additional targeted ACE was associated with a 0·665-year decrease in maternal age (β=-0·67, SE=0·17, p<0·001), representing a 4·5-fold stronger effect than the model using the full ACE score. Group comparisons showed that mothers with none of these three ACEs had their first child at a mean age of 22·50 years (SD=5·21), whereas those with all three had their first child at 20·24 years (SD=4·79), a difference of 2·26 years. The proportion of adolescent mothers increased from 30·3% to 55·0% across this gradient (Spearman ρ=0.080, p = 0.011).

A principal component analysis showed that ACEs were multidimensional: the first component explained only 36·8% of the variance, and six components were required to reach 80%. Based on these findings, we used hierarchical cluster analysis to group ACEs into three domains: abuse/neglect (ACEs 1–5 and 7), household dysfunction (ACEs 8–10), and parental loss (ACE 6). We then entered these clusters into a multiple linear regression model predicting maternal age. The abuse/neglect cluster showed a significant negative association (B=-0·28 years per ACE, p=0·008), while household dysfunction (B=-0·04, p=0·221) and parental loss (B=+0·66, p=0·349) were not significantly associated with maternal age.

Logistic regression models showed that abuse/neglect cluster increased the odds of adolescent childbearing by 9·9% per ACE (OR=1·099), and household dysfunction increased the odds by 9·0% (OR=1·090). In contrast, parental loss was associated with a 26·4% decrease in the odds of adolescent motherhood (OR=0·736), suggesting a potential protective effect. A high-risk profile analysis showed that mothers with high abuse/neglect (≥3 ACEs) and household dysfunction (≥1), but no parental loss, had the highest prevalence of adolescent childbearing (48·2%), while those with low scores on both risk clusters and parental loss had the lowest prevalence (30·6%).

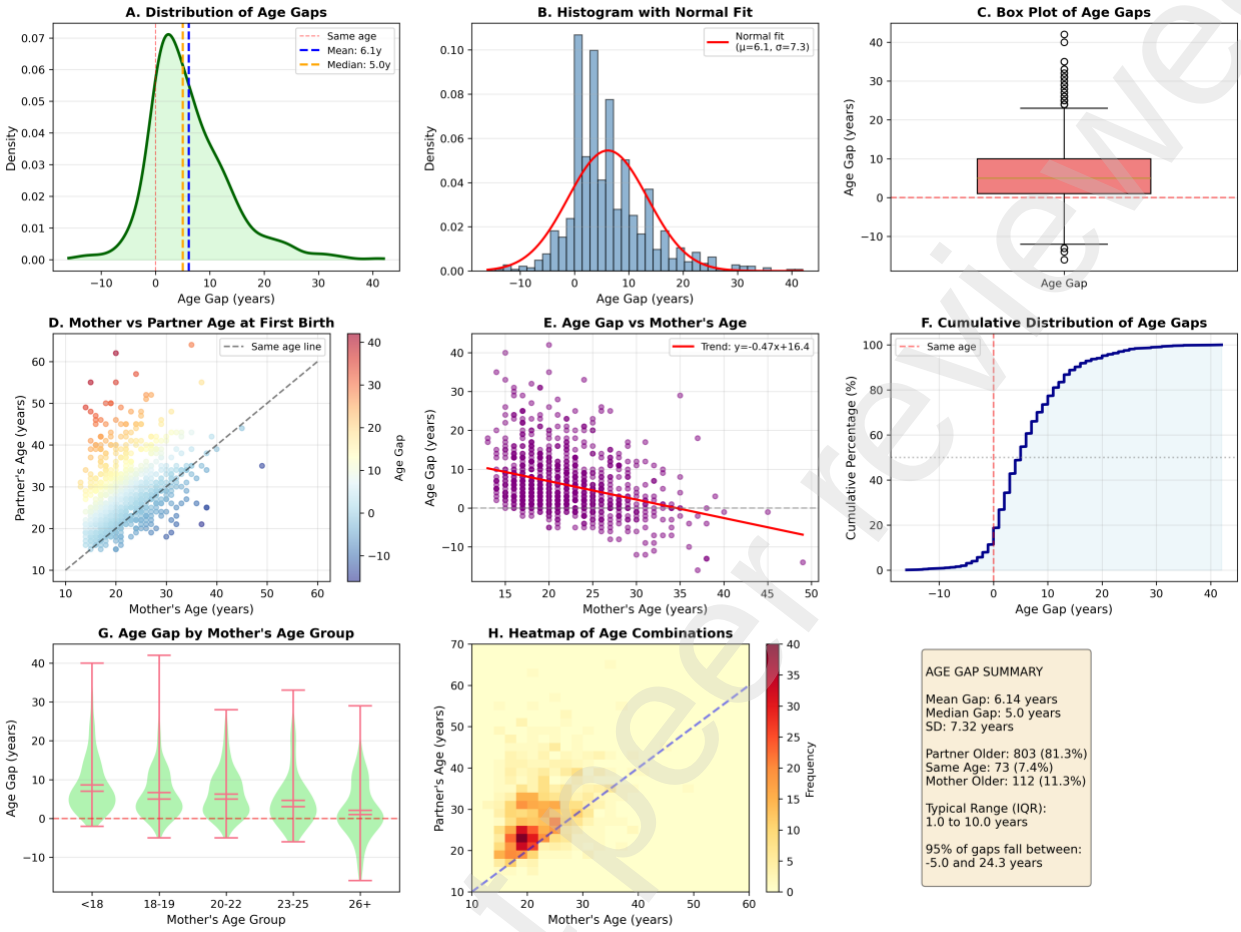
Partner Characteristics

One-way ANOVA comparing five maternal age groups (<18, 18–19, 20–22, 23–25, 26+) found significant differences in partner age gaps, $F(4, 983)=23·88$, $p<0·001$, $\eta^2=0·089$. Minor adolescent mothers had partners averaging 9·1 years older (SD=7·7, range=-2 to 40), while mothers aged 26+ had partners 2·5 years older (SD=7·3). This gap progressively decreased with increasing maternal age: 7·1 years for adult adolescents, 6·4 years for early twenties mothers, and 5·3 years for mid-twenties mothers (**Figure 2**).

Despite being older, partners of adolescent mothers had lower educational attainment. Among minor adolescent mothers, 40·4% of partners had only primary education compared to 13·0% among partners of mothers aged 26+—a threefold difference. Only 5·3% of partners of minor adolescent mothers held university degrees compared to 29·2% for mothers aged 26+—a more than fivefold difference. The correlation between partner age and education, positive overall ($\rho=0·20$, $p<0·001$), was essentially absent among partners of adolescent mothers ($\rho=0·01$, $p=0·895$ for minor adolescents).

To test whether early adverse experiences were associated with partner characteristics, we compared women who reported feeling unloved in childhood with those who did not. At maternity onset, emotionally neglected women had partners averaging 26·7 years old, while non-neglected women had partners averaging 28·3 years old (difference=1·62 years, $t(1000)=-3·20$, $p<0·001$, $d=-0·20$), despite emotionally neglected women having larger partner age gaps. This association persisted after controlling for maternal age, $\beta=-1·65$, $p<0·01$. Mediation analysis showed that 13·8% of the effect operated through earlier childbearing.

Figure 2: Partner Age Gap Analysis Showing Distribution and Relationship with Maternal Age

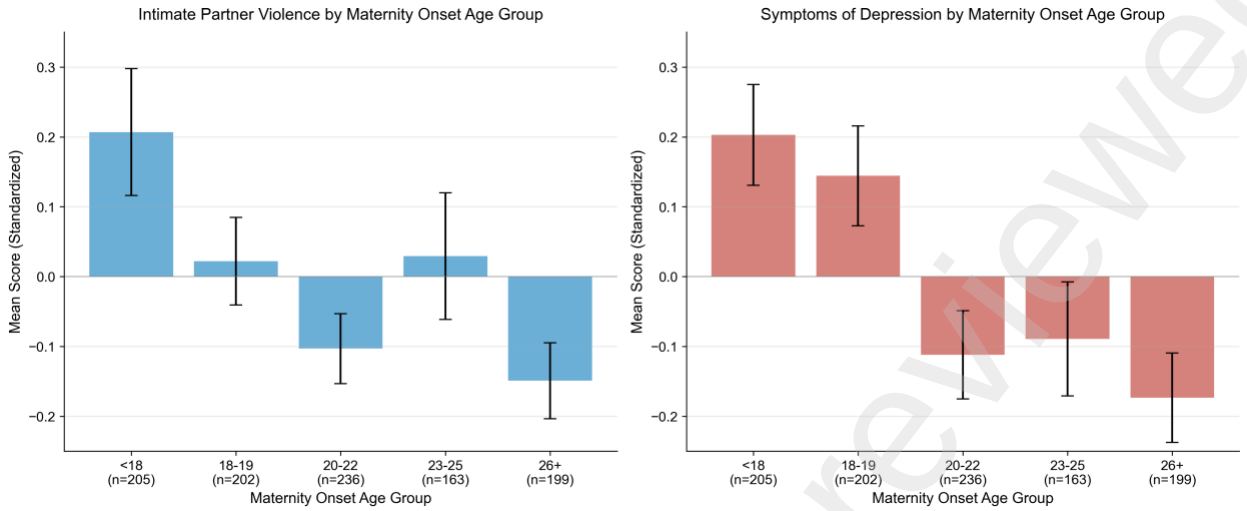


Notes: **Data Source:** Analysis of age gaps between mothers and their partners at first childbirth (n=988). Age gap calculated as partner's age minus mother's age at time of first birth. **Panel A** shows kernel density estimate with vertical lines indicating same age (blue dashed), mean (green dotted), and median (orange dashed). **Panel B** displays histogram with normal distribution overlay (μ=6·1, σ=7·3). **Panel C** presents box plot with median, IQR, and outliers; shaded region indicates partner older than mother. **Panel D** scatter plot colored by age gap magnitude with diagonal reference line for same age. **Panel E** demonstrates negative correlation between mother's age and age gap (r=-0·47, p<0·001). **Panel F** shows cumulative distribution function with 50th percentile marked. **Panel G** violin plots stratified by maternal age groups (<18, 18-19, 20-22, 23-25, 26+). **Panel H** heat map displaying frequency of mother-partner age combinations. **Statistical Analysis:** Descriptive statistics include mean gap of 6·14 years (SD=7·32), median of 5·0 years. Distribution shows right skew with 81·3% of partnerships having older male partners, 7·4% same age (±1 year), and 11·3% older female partners. Typical range (IQR) spans 1·0 to 10·0 years. **Key Finding:** Strong pattern of older male partners across all maternal ages, with age gaps decreasing as maternal age increases. Younger mothers (<18 years) show widest variation in partner age gaps, while older mothers (26+) demonstrate more age-concordant partnerships.

Current Psychosocial Adversity

To examine the relationship between maternal age at first childbirth and current psychosocial adversity, we estimated correlations between maternal age and two outcomes: IPV exposure and depressive symptoms. Younger maternal age was significantly associated with higher IPV (r=-0·09, p=0·003) and more depressive symptoms (r=-0·12, p<0·001). Descriptive comparisons across maternal age groups confirmed these patterns (**Figure 3**). Minor adolescent mothers reported the highest IPV (M=0·21, SD=1·30) and depressive symptoms (M=0·20, SD=1·03), whereas mothers aged 26+ reported the lowest IPV (M=-0·15, SD=0·77) and depression scores (M=-0·17, SD=0·90). High-risk prevalence analyses (defined as >1 SD above the mean) demonstrated clear gradients: rates of high IPV decreased from 20·5% among minor adolescent mothers to 8·0% among mothers aged 26+, OR=2·96, 95% CI 1·78 to 4·92. Similarly, high depression declined from 21·0% to 9·0%, OR=2·69, 95% CI 1·64 to 4·41.

Figure 3: Mean standardized scores for intimate partner violence and depressive symptoms by maternal age at first childbirth



Notes: **Data:** Standardized scores for intimate partner violence exposure and depression symptoms across maternal age groups at first childbirth (N=1,005). Scores are z-standardized (mean=0, SD=1). Error bars represent 95% confidence intervals. **Intimate Partner Violence Panel:** Adolescent mothers (<18) show highest IPV exposure (0·21 SD above mean), with protective effect emerging for mothers aged 20+ (scores below mean). Lowest IPV rates observed in mothers 26+ (-0·15 SD). **Symptoms of Depression Panel:** Youngest mothers (<18, 18-19) exhibit elevated depression symptoms (0·20 and 0·15 SD above mean respectively). Depression scores decline with maternal age, reaching lowest levels in mothers 26+ (-0·17 SD). **Key Finding:** Both IPV exposure and depression symptoms demonstrate inverse relationships with maternal age at first birth, suggesting adolescent mothers face compounded psychosocial vulnerabilities requiring targeted support interventions.

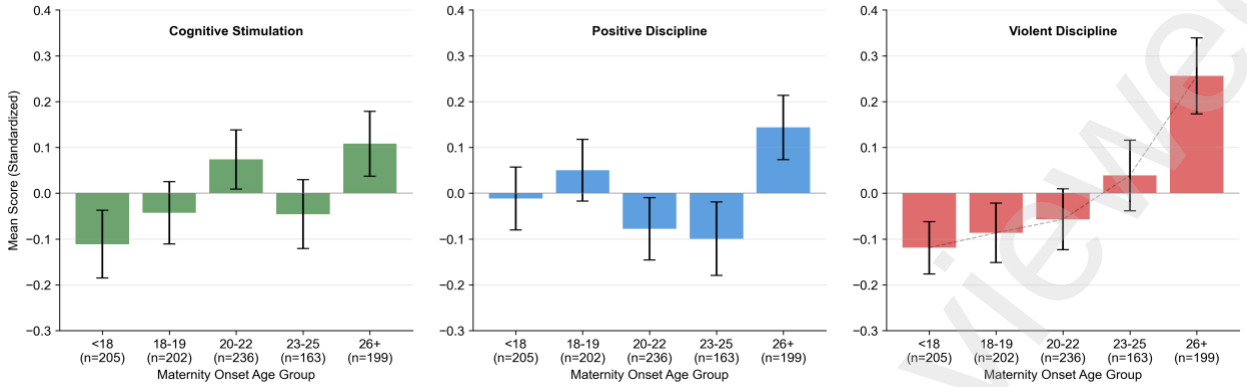
Women with less-educated partners were more vulnerable: those whose partners had only primary schooling reported higher IPV scores (M=0·24, SD=1·27) than women whose partners had university education (M=-0·18, SD=0·68), with high IPV prevalence nearly double (18·3% vs. 10·1%), OR=1·99, 95% CI 1·31 to 3·04. Living arrangements also reflected heightened vulnerability among adolescent mothers. They were significantly less likely to reside with the child's biological father (46·2%) compared to former adolescent mothers (58·2%) or adult-onset mothers (59·8%), $\chi^2(2)=6·10$, p=0·047. Conversely, multigenerational living arrangements were more common: 16.5% of adolescent mothers lived with the child's grandmother compared to 5·1% of former adolescent mothers and 7·4% of adult-onset mothers, $\chi^2(2)=13·37$, p<0·001.

Parenting Practices

We examined parenting practices across maternal age groups at first childbirth, focusing on cognitive stimulation, positive discipline, and violent discipline **(Figure 4).** While stimulation showed no significant correlation with maternal age (r=0·043, p=0·172), mean scores increased from younger to older mothers (-0·11 for <18 years to 0·11 for ≥26 years). Positive discipline showed no significant differences across age groups (r=0·038, p=0·235). Violent discipline demonstrated a significant positive correlation with maternal age (r=0·159, p<0·001), explaining 2·5% of variance, with mothers under 18 years at first birth reporting the lowest use (M=-0·12, SD=0·82) and mothers aged 26 or older reporting the highest (M=0·26, SD=1·17), a 0·38 standard deviation increase (β=0·031, p<0·001).

Analyses of variance showed that family structure was a significant predictor of cognitive stimulation (F=11·97, p < 0.001), accounting for 4·1% of the variance. Single mothers provided less stimulation (M=-0·29 for single child, -0·24 for multiple children) compared to mothers living with the child's biological father (M=0·19), a difference of 0·49 standard deviations. Family structure showed no significant effect on positive (F=0·28, p=0·891) or violent discipline (F=0·41, p=0·800).

Figure 4: Parenting Outcomes by Maternal Age at First Childbirth



Notes: **Data:** Standardized parenting behavior scores across maternal age groups at first childbirth (N=1,005). Scores represent z-standardized measures (mean=0, SD=1) for three parenting domains. Error bars represent 95% confidence intervals. **Cognitive Stimulation** includes reading, educational activities, and learning support. **Positive Discipline** encompasses non-punitive guidance strategies and constructive correction. **Violent Discipline** measures physical punishment and harsh disciplinary practices. **Key Finding:** Former adolescent mothers show significantly lower violent discipline than both current adolescent and adult-onset mothers.

Long-Term Effects of Early Maternity Onset

We compared mothers aged 20 and older by the timing of maternity onset. Adult-onset mothers had 3·33 times the odds of attaining a university education (OR=3·33, 95% CI 2·33 to 4·76, p<0·001) and maintained 2·85 times the odds (AOR=2·85, 95% CI 1·98 to 4·10, p<0·001) after adjusting for current age. Only 14.2% of former adolescent mothers had attained a university education, compared to 35.6% of adult-onset mothers. Material disadvantage also persisted. In unadjusted analyses, former adolescent mothers owned 0·87 fewer material goods than adult-onset mothers (p<0·001). While this difference attenuated after controlling for current age (β=-0·16, p=0·622), refrigerator (adjusted OR=0·56, p<0·001) and washing machine (adjusted OR=0·72, p=0·007) ownership remained lower among former adolescent mothers.

Former adolescent mothers continued experiencing higher adversity in adulthood. They reported more depression (M=0·15, SD=1·02) than adult-onset mothers (M=-0·12, SD=0·97), t(984)=4·23, p<0·001, d=0·28, and more IPV (M=0·11, SD=1·11 vs. M=-0·08, SD=0·89), t(984)=3·01, p=0·003, d=0·20. Despite this ongoing adversity, former adolescent mothers used significantly less violent discipline (M=-0·15, SD=0·85) than adult-onset mothers (M=0·07, SD=1·07), t(912)=-3·23, p<0·001, d=-0·23.

Partner differences remained evident in adulthood. Partners of former adolescent mothers were younger (M=25·49 years) than partners of adult-onset mothers (M=29·38 years), t(984)=-8·26, p<0·001, d=-0·54, yet age gaps remained larger (8·13 vs. 4·80 years), t(972)=7·04, p<0·001, d=0·46.

Correlation analyses demonstrated the interconnected nature of these findings. Maternal age at first birth showed negative associations with ACEs (r=-0·07, p<0·05), IPV (r=-0·09, p<0·01) and depression (r=-0·12, p<0·001), but a positive association with violent discipline (r=0.16, p<0·001). ACEs showed strong positive correlations with both IPV (r=0·29, p<0·001) and depression (r=0·40, p<0·001), as well as violent discipline (r=0·30, p<0·001), illustrating how childhood trauma reverberates through multiple domains of adult functioning.

Discussion

Four key findings emerge: emotional neglect selectively predicts early childbearing; emotional neglect shapes partner pairing; adolescent mothers partner with older yet less-educated men; and former adolescent mothers show unexpected adaptation in parenting despite persistent adversity.

Our most significant contribution identifies emotional neglect as affecting both reproductive timing and partner pairing. While previous research documented higher ACE scores among adolescent mothers,[13] we demonstrate differential predictive power across adversities. The threshold effect between zero and one ACE, where mean maternal age dropped 1·4 years, suggests minimal exposure disrupts developmental trajectories. We present the first evidence linking childhood emotional neglect to partner selection patterns. Emotionally neglected adolescents had children with partners averaging 9·1 years older, persisting after controlling for maternal age. The "long arm of childhood" [14] extends beyond individual health to affect relationship formation, with emotionally neglected girls potentially seeking validation through relationships with older men. The age gap for mothers under 18, reaching 40 years, suggests relationships characterized by power imbalances that align with previous observations,[7] but our contribution lies in documenting the educational paradox: despite being older, these partners had significantly lower educational attainment than expected. Adolescent mothers partner not with successful older men providing economic security, but with older men occupying marginal social positions who may target vulnerable young women because limited prospects make age-matched partnerships less attainable. This pattern extends intersectionality theory [15] by showing how age, gender, education, and childhood trauma intersect, creating unique vulnerabilities.

Our most surprising finding challenges assumptions about adolescent motherhood's long-term consequences. Former adolescent mothers used significantly less violent discipline than women who delayed childbearing, despite experiencing higher levels of depression and intimate partner violence. This contradicts deficit-focused narratives and suggests remarkable adaptation. Several mechanisms may explain this: accumulated parenting experience, potentially developing effective discipline strategies through experiential learning, targeted interventions emphasizing positive parenting, or selection effects, with adolescent mothers who successfully navigate early parenthood representing a particularly adaptable subgroup. Our previous work from this cohort demonstrated that cultural consonance mediates adversity-parenting relationships, with family dynamics consonance protecting against violent discipline, while material-social consonance unexpectedly increased it.[4] This suggests that early childbearing within supportive family contexts may facilitate adaptive responses not captured by traditional deficit models and that former adolescent mothers may develop compensatory strategies that prioritize relational over material aspects of parenting. Rather than viewing early childbearing as inevitably compromising parenting capacity, our results suggest that with time and support, young mothers develop parenting practices exceeding those of peers who delayed childbearing. Yet educational inequalities persist—adult-onset mothers maintained 2·85 times the odds of university education after age adjustment—demonstrating the distinction between behavioral adaptation and structural disadvantage.

Our findings support the selection effects hypothesis[2,6] by identifying specific mechanisms through which disadvantage perpetuates intergenerationally. This aligns with ecological systems theory,[16] demonstrating how individual vulnerabilities shape microsystem characteristics that affect developmental contexts. The unexpected adaptation adds complexity to life course theory,[17] suggesting early transitions need not inevitably compromise development when individual adaptation, social support, and cultural context interact positively—challenging deterministic cumulative disadvantage models and highlighting heterogeneity among vulnerable populations.

Intervention efforts should address childhood emotional neglect and how it may impair their ability to recognize exploitative relationships with older partners, rather than focusing solely on pregnancy

prevention. The adaptation of former adolescent mothers suggests strengths-based, long-term support may be more effective than deficit-focused interventions. Addressing educational inequalities requires structural interventions, including flexible education pathways, childcare provision, and economic support, enabling continued education.

The cross-sectional design prevents causal inference. Future longitudinal research should investigate how relationships between childhood neglect, partner pairing, and parenting evolve over time. Mixed-methods approaches could explore subjective experiences underlying these patterns. Investigation of protective factors, particularly family dynamics that buffer against violent discipline,[4] could inform strengths-based interventions. Cross-cultural comparisons could test generalizability beyond the Dominican context.

Conclusion

This study challenges our understanding of adolescent motherhood and suggests that it primarily reflects accumulated adversity, particularly childhood emotional neglect, rather than being the primary cause of disadvantage. The novel pathway from emotional neglect to partner pairing shows how trauma affects not just individual outcomes but the relational contexts of development. Yet the unexpected adaptation of former adolescent mothers in avoiding violent discipline demonstrates that early childbearing need not determine parenting capacity. These findings demand we move beyond solely preventing adolescent pregnancy to addressing its root causes—childhood trauma and structural inequities—while recognizing and supporting young mothers' capacity for adaptation.

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Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the authors used Claude AI 0·10·14 to improve the readability and language of the manuscript. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

Data Sharing Statement

De-identified individual participant data underlying the results reported in this article will be made available immediately following publication, with no end date. Data will be available to researchers who provide a methodologically sound proposal, with approval by the investigator team. Proposals should be directed to the corresponding author. Data requestors will need to sign a data access agreement.

Declaration of Interests

We declare no competing interests.

Contributors Statement

AC and LSV conceived and designed the study. Both authors had full access to all the data in the study and verified the underlying data. AC and LSV developed the methodology, conducted the formal analysis, and performed data curation. AC obtained funding. Both authors administered the project and conducted the investigation. LSV supervised data collection. AC wrote the original draft. Both authors contributed to data interpretation, critical revision of the manuscript, approved the final version for submission, and had final responsibility for the decision to submit for publication.

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