

Research Article

Resilience and Social Influences on Adolescent Pregnancy Prevention in Addis Ababa, Ethiopia

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Abstract

Adolescent pregnancy poses significant health and socio-economic challenges globally, especially in sub-Saharan Africa. In Ethiopia, early pregnancy is closely linked to school dropout, health risks, and long-term poverty. This study aimed to examine how resilience and social influences, including family, peer, school, and community support, affect the prevention of adolescent pregnancies among high school girls in Addis Ababa. A cross-sectional quantitative study was conducted among 790 female students aged 15-19 in government high schools in Akaki Kaliti sub-city using the Adolescent Resilience Questionnaire (ARQ). Data were analyzed using descriptive statistics, bivariate, and multivariate logistic regression with SPSS version 25. Results showed that 49.4% of respondents had high resilience, which was positively associated with family connectedness (53.2%), family availability (53.5%), peer connectedness (52.3%), and school connectedness (58.1%). Adolescents aged 18-19 were significantly more likely to exhibit high resilience than those aged 15-17 (AOR = 1.42; 95% CI: 1.01-2.01; $p = 0.042$), and having a father employed in the government sector also predicted higher resilience (AOR = 1.61; 95% CI: 1.13-2.30; $p = 0.007$). These findings suggest that resilience among adolescent girls is strongly shaped by their social environments, particularly family and school connections. Strengthening these protective domains through school-based psychosocial interventions and community engagement may reduce adolescent pregnancy risk, emphasizing the need for targeted programs that build resilience and supportive networks for urban youth in Ethiopia and similar contexts.

Keywords

Adolescent Pregnancy, Resilience, Social Influence, Peer Support, Family Connectedness, Ethiopia, Prevention

1. Introduction

Adolescent pregnancy remains a pressing global public health issue, particularly in low- and middle-income countries. According to the World Health Organization, approximately 21 million girls aged 15-19 years become pregnant

each year in developing regions, with nearly half of these pregnancies being unintended. In sub-Saharan Africa, adolescent pregnancy is associated with a range of adverse outcomes, including increased maternal and neonatal morbidity

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and mortality, school dropout, early marriage, and long-term socioeconomic disadvantage.

In Ethiopia, the 2016 Demographic and Health Survey (EDHS) reported that 13% of adolescent girls aged 15-19 had begun childbearing. Although Addis Ababa, the capital city, has a relatively lower adolescent fertility rate compared to rural regions, it still faces significant challenges related to youth sexual and reproductive health. Urban adolescents are exposed to a complex mix of influences, including peer pressure, media exposure, and shifting cultural norms, which can either protect against or increase the risk of early pregnancy [1-3].

Resilience, the capacity to adapt positively in the face of adversity, has emerged as a critical protective factor in adolescent development [4, 5]. Resilient adolescents are more likely to make informed decisions, resist peer pressure, and engage in health-promoting behaviors. The Adolescent Resilience Questionnaire (ARQ), developed by Gartland et al., provides a multidimensional framework for assessing resilience across individual and social domains, including family, peers, school, and community.

Social influences are particularly important in shaping adolescent behaviour. Supportive family environments, positive peer relationships, school connectedness, and community engagement have all been linked to reduced risk of early sexual initiation and pregnancy. However, there is limited empirical evidence from Ethiopia, particularly from urban settings—on how these social factors interact with resilience to influence adolescent reproductive outcomes.

This study aims to fill that gap by assessing the role of individual resilience and social influences in preventing adolescent pregnancies among high school girls in Addis Ababa. By identifying the key protective factors within adolescents' social environments, the study seeks to inform the design of targeted interventions that enhance resilience and reduce the incidence of adolescent pregnancy.

2. Methods

2.1. Study Design and Setting

A school-based, cross-sectional quantitative study was conducted from *March to June 2023* in *Akaki Kaliti sub-city*, one of the ten administrative districts of Addis Ababa, Ethiopia. Akaki Kaliti is a densely populated urban area with a mix of residential, industrial, and informal settlements. It encompasses several public high schools serving students from diverse socioeconomic backgrounds.

2.2. Study Population and Eligibility

The study targeted *female students aged 15-19 years* enrolled in grades 9 to 12 in selected government high schools within the sub-city. This age group represents the critical

developmental stage during which adolescents begin to make independent reproductive health decisions. Students who were absent on the day of data collection or unwilling to participate were excluded.

2.3. Sample Size Determination

The sample size was calculated using a single population proportion formula, assuming 50% prevalence of high resilience (due to a lack of prior data), a 95% confidence interval, and a 5% margin of error. After adjusting for a 10% non-response rate and applying a design effect of 2 for multistage sampling, the final sample size was determined to be 807. A total of 790 *students* completed the survey, yielding a *response rate of 97.9%*.

2.4. Sampling Procedure

A *multistage random sampling* technique was employed. First, four government high schools were selected randomly from the total list of schools in Akaki Kaliti. In each selected school, classes were stratified by grade level (grades 9-12), and students were proportionally sampled using simple random sampling within each stratum.

2.5. Data Collection Instrument

Data were collected using a *structured, self-administered questionnaire* adapted from the *Adolescent Resilience Questionnaire (ARQ)* developed by Gartland et al. The ARQ is a validated tool that measures resilience across six domains: individual traits, family connectedness, family availability, peer connectedness, school connectedness, and community connectedness. The questionnaire was translated into Amharic and back-translated into English to ensure semantic and conceptual accuracy. A pilot test was conducted on 5% of the sample in a non-participating school to assess clarity, reliability, and cultural appropriateness.

2.6. Data Collection Procedure

Trained female data collectors administered the survey in a private classroom setting to minimize social desirability bias. Teachers were not present during administration. Informed assent was obtained from students, and for those under 18 years, written parental consent was also secured. Confidentiality and voluntary participation were emphasized.

2.7. Data Management and Analysis

Data were entered using *EpiData version 3.1* and analyzed with *SPSS version 25*. Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarize participant characteristics and resilience domain scores.

Bivariate logistic regression was performed to examine the association between independent variables (e.g., age, grade, parental occupation) and resilience status (high vs. low). Variables with a p -value <0.25 in bivariate analysis were included in the *multivariate logistic regression model* to control for potential confounders. Adjusted odds ratios (AORs) with 95% confidence intervals (CIs) were reported. Statistical significance was set at $p < 0.05$.

2.8. Ethical Considerations

Ethical approval was obtained from the *Addis Ababa Education Bureau Ethical Review Committee (Approval No. AAE/ERB/03/2023)*. Additional permissions were secured from each participating school. Written informed consent was obtained from participants aged 18 and above, and parental consent with student assent was obtained for minors. Participation was entirely voluntary, and anonymity and confidentiality were strictly maintained throughout the study.

3. Results

A total of 790 female students aged 15 to 19 years completed the survey, resulting in a high response rate of 97.9%. The mean age of respondents was 17.1 years ($SD = 1.17$). As shown in [Table 1](#), 51.9% of the participants were aged 15-17 years, while 48.1% were aged 18-19 years. The majority of respondents were enrolled in Grades 9 and 10, accounting for 36.7% and 34.2%, respectively. Orthodox Christianity was the dominant religion (76.1%), and 39.5% of the students reported that their fathers were government employees.

Table 1. Sociodemographic Characteristics of Respondents ($N = 790$).

Variable	Frequency (n)	Percentage (%)
Age Group		
15-17 years	410	51.9
18-19 years	380	48.1
Grade Level		
Grade 9	290	36.7
Grade 10	270	34.2
Grade 11	130	16.5
Grade 12	100	12.6
Religion		
Orthodox	601	76.1
Muslim	89	11.3
Protestant	78	9.9

Variable	Frequency (n)	Percentage (%)
Other	22	2.8
Parental Occupation (Father)		
Government Employee	312	39.5
Private Sector	198	25.1
Daily Laborer	180	22.8
Other	100	12.6

Regarding resilience, the overall distribution was nearly balanced: 49.4% of participants demonstrated high resilience, while 50.6% exhibited low resilience. [Table 2](#) presents the distribution of resilience scores across the social domains. Family connectedness (53.2%) and family availability (53.5%) were reported as high by more than half of the participants. Peer connectedness was also relatively strong (52.3%), while peer availability was slightly lower at 49.1%. Notably, school connectedness was the highest-rated domain, with 58.1% reporting high connection to school, while the supportive school climate domain showed a modest level (50.2%). Community connectedness was the lowest-rated domain, with only 47.7% of respondents scoring high, indicating a relative gap in community-based support.

Table 2. Distribution of Resilience Scores Across Social Domains.

Resilience Domain	High Resilience (%)	Low Resilience (%)
Family Connectedness	53.2	46.8
Family Availability	53.5	46.5
Peer Connectedness	52.3	47.7
Peer Availability	49.1	50.9
School Connectedness	58.1	41.9
Supportive School Climate	50.2	49.8
Community Connectedness	47.7	52.3

Bivariate logistic regression analysis identified two significant factors associated with high social resilience. As indicated in [Table 3](#), adolescents aged 18-19 were significantly more likely to demonstrate high resilience compared to their younger counterparts aged 15-17 ($COR = 1.38$; 95% CI: 1.01-1.89; $p = 0.045$). Additionally, students whose fathers

were employed in government positions had higher odds of being resilient (COR = 1.56; 95% CI: 1.12-2.18; $p = 0.008$). Grade level and religious affiliation were not statistically significant.

Table 3. Bivariate Analysis of Factors Associated with High Social Resilience.

Variable	COR (95% CI)	p-value
Age (18-19)	1.38 (1.01-1.89)	0.045
Grade Level	1.12 (0.89-1.42)	0.321
Father's Occupation (Gov't)	1.56 (1.12-2.18)	0.008
Religion (Orthodox)	1.04 (0.76-1.43)	0.812
Variable	COR (95% CI)	p-value
Age (18-19)	1.38 (1.01-1.89)	0.045
Grade Level	1.12 (0.89-1.42)	0.321

Multivariate logistic regression further confirmed these findings. As presented in Table 4, being in the 18-19 age group remained significantly associated with high resilience (AOR = 1.42; 95% CI: 1.01-2.01; $p = 0.042$). Likewise, having a father employed in a government position was independently associated with high social resilience (AOR = 1.61; 95% CI: 1.13-2.30; $p = 0.007$), even after adjusting for other covariates.

Table 4. Multivariate Logistic Regression of Predictors of High Social Resilience.

Variable	AOR (95% CI)	p-value
Age (18-19)	1.42 (1.01-2.01)	0.042
Father's Occupation (Gov't)	1.61 (1.13-2.30)	0.007

In summary, older adolescent age and parental government employment were significant predictors of higher resilience among the study participants. Additionally, social domains such as family and school support emerged as strong contributors to adolescent resilience, while community connectedness lagged behind, suggesting a need for targeted community-level interventions.

4. Discussion

This study assessed the role of individual resilience and social influences in preventing adolescent pregnancy among

high school girls in an urban Ethiopian setting. The findings demonstrate that both personal characteristics, such as age, and external social factors, especially family and school support, significantly contribute to higher resilience among adolescent girls.

The association between *older adolescent age (18-19 years)* and higher resilience is consistent with previous research suggesting that resilience tends to strengthen with age and cognitive maturity. Older adolescents are generally more capable of self-regulation, abstract thinking, and future planning, which supports better decision-making related to reproductive health [6, 23]. These developmental capacities enable them to better navigate peer pressure and other social challenges related to early sexual initiation and pregnancy.

Family connectedness and availability, both reported at over 53% in this study, were among the strongest protective factors. This aligns with studies conducted in other Sub-Saharan African contexts and globally, which have consistently shown that emotionally supportive and present parents are associated with lower adolescent risk-taking behaviours, including early sexual activity [7-11]. Family relationships provide a stable reference point for adolescents, shaping their values and offering guidance that counters harmful external influences.

Peer connectedness (52.3%) also contributed positively to resilience. However, peer availability had a weaker effect (49.1%), suggesting that it is not merely the presence of peers, but the *quality of peer interactions*, that shapes adolescent outcomes. This distinction echoes findings by Blum, who emphasized that positive peer support serves as a buffer against risky behaviors [12-14], while peer pressure from unstructured or delinquent groups can increase vulnerability to early pregnancy.

School connectedness, the highest-rated domain in this study (58.1%), reflects the powerful role that educational institutions can play in building adolescent resilience. This is supported by studies from South Africa and Ghana, which found that school engagement and perceived adult support in schools are associated with delayed sexual debut and greater contraceptive use [15-20]. Despite this, the moderate score for *supportive school climate* (50.2%) indicates a gap in the depth or consistency of support perceived by students, highlighting the need for structured mentorship and counselling programs within schools [21, 22].

Conversely, *community connectedness was the weakest domain* (47.7%), pointing to a critical lack of protective structures beyond the school and family environment [23-28]. This result is consistent with previous research indicating that urban adolescents, particularly in low-income neighbourhoods, often lack access to community-based programs that foster inclusion and guidance [29]. The absence of youth centres, safe recreational spaces, or community role models may undermine adolescents' ability to access support beyond their immediate circles.

The significant association between *paternal employment in*

government sectors and high resilience may reflect greater socioeconomic stability and access to information, networks, or values that promote adolescent well-being. Previous studies have shown that parental employment in the formal sector is correlated with better health and educational outcomes for children, due to improved access to healthcare, exposure to formal structures, and modelling of responsible behavior [30-33].

Overall, the findings underscore the multidimensional nature of resilience, highlighting the need for *integrated interventions* that strengthen interpersonal relationships and create enabling environments in families, schools, and communities. These interventions should not only target knowledge and behaviour but also address the *social ecology* in which adolescent girls live and grow.

5. Conclusion and Recommendations

The study demonstrated that resilience among adolescent girls is significantly influenced by family, peer, school, and community support. Strengthening these social environments can effectively prevent early pregnancies. Interventions aiming at reducing adolescent pregnancy should integrate strategies that foster strong interpersonal relationships and provide psychosocial support. Policymakers should support school-based programs and community engagement efforts aimed at enhancing adolescent resilience.

Abbreviations

ARQ	Adolescent Resilience Questionnaire
AOR	Adjusted Odds Ratio
COR	Crude Odds Ratio
CI	Confidence Interval
EDHS	Ethiopia Demographic and Health Survey
SPSS	Statistical Package for the Social Sciences
SD	Standard Deviation
WHO	World Health Organization
CSA	Central Statistical Agency
ICPD	International Conference on Population and Development
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome
JAMA	Journal of the American Medical Association
BMC	BioMed Central
ORCID	Open Researcher and Contributor ID

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Author Contributions

Fisseha Berehe Aberha: Conceptualization, Funding acquisition, Project administration, Writing - original draft

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Faniswa Honest: Data curation, Methodology, Writing - review & editing

Tefera Tezera: Data curation, Formal Analysis, Methodology, Software

Conflicts of Interest

The authors declare no conflict of interest.

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