

# YOUNG MOTHERHOOD AND SOCIO-ECOLOGICAL VULNERABILITIES: A SYSTEMATIC REVIEW

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## Abstract

*Early motherhood remain a significant global health concern, particularly in regions such as Sub-Saharan Africa and parts of North America. This systematic review, registered with PROSPERO 2025 CRD420251134733, explored the interplay of socio-ecological challenges that impact young mothers by applying Bronfenbrenner's ecological systems theory. Based on a rigorous PRISMA-guided search across six databases, 47 peer-reviewed articles published between 2014 and 2025 were selected for in-depth analysis. The review incorporated both qualitative and quantitative coding conducted using ATLAS.ti, with codes organized into twelve major themes. The study highlights pertinent issues including health system barriers, psycho-social risks, educational and economic precarity, policy failures, and structural inequalities. Framing controversies around the term "vulnerability" are discussed, with a shift toward conceptualizing young motherhood through the lens of structural disadvantage. A code co-occurrence analyses, and ecological overlays supported a holistic understanding of young maternal experiences. The review concludes by proposing an integrative, system-sensitive framework for supporting young mothers and guiding future research, policy, and practice.*

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## 1 Introduction

The exact definition of what constitutes a young mother may vary depending on cultural and societal norms [12, 41]. For example, a mother who gives birth before the age of 25 is often considered young. [45]. The centrality of young mothers as the central focus of this discourse emerges not only from their role as primary caregivers, but also from their unique socio-ecological environment emphasizing their experiences, identities and perspectives. Drawing upon this understanding, sociological perspectives on young motherhood highlight how definitions of what constitutes a "young mother" are socially constructed [12] [41]. Attention is drawn to how societal expectations, stereotypes, and stigma influence how young mothers perceive themselves and are perceived by others. These constructs also shape the experiences and identities of young mothers [40]. From a sociological perspective, defining motherhood by age acknowledges that age itself is a socially constructed concept, and the way society views and treats young mothers varies across cultures and historical periods [23]. This variability imply that challenges faced by young mothers are not inherent to the condition of being a young mother, but are instead the result of specific societal constructs that dictate what is considered normative behaviour at certain ages [35]. For example, in some cultures, becoming a mother at a younger age is considered desirable and even expected,

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while in others, it is viewed with skepticism and concern. To elaborate further, Geronimus et al.'s [17] work critically examines the cultural and societal narratives surrounding teenage pregnancy and motherhood in the United States, highlighting the intersection of race, class, and gender in shaping the experiences of young mothers.

This study provides insights into how societal expectations and stereotypes contribute to the stigmatization of young mothers, particularly those from marginalized communities. This further aligns with Collins's [9] framework, which emphasizes how constructs of motherhood are embedded within broader power dynamics and structural inequalities, offering a basis for examining young motherhood through the lens of intersectionality. Building on this intersectional perspective, Fernandez-Kelly [13] offers important insights into the role of structural conditions in shaping early childbearing. Her research highlights how economic disadvantage and limited opportunities contribute to young women becoming mothers at an early age. By incorporating Fernandez-Kelly's perspectives, a clearer understanding emerges of the challenges young mothers face, such as restricted access to education and employment, which perpetuate cycles of poverty and social exclusion. Contextually, analyzing social stratification helps uncover how systemic inequality intersects with age and gender in shaping young motherhood [13].

Teenage pregnancy remains a challenge requiring urgent resolution the world over [2]. In 2014, the World Health Organization reported that 11% of all births were due to women aged 15–19 years, an estimated 16 million women globally. Approximately 95% of teenage pregnancies happen in developing countries, with 36.4 million women becoming mothers before age 18 and 5.6 million having a live birth before age 15 in 2010. Sub-Saharan Africa had the highest prevalence of teenage pregnancy in the world in 2013. Births to teenage mothers account for more than half of all the births in this region: an estimated 101 births per 1000 women aged 15 to 19. This is almost double the global average. Fourteen of the fifteen countries worldwide that had more than 30% of 20–24 year olds giving birth before age 18 are in sub-Saharan Africa and include Niger, Mozambique, Malawi, Uganda and Cameroon [47].

In this context, the concept of vulnerability becomes central to understanding the positioning of young mothers in public discourse. Accordingly, vulnerability is sometimes used to define groups of fledgling or stigmatized subjects, designated as “populations.” Vulnerability is typically associated with victim-hood, deprivation, dependency, or pathology. For example, public health discourse refers to “vulnerable populations,” such as those who are infected with HIV-AIDS. Groups of persons living in poverty or confined in prisons or other state institutions are often labeled as vulnerable populations. Children and the elderly are prototypical examples of more sympathetic vulnerable populations [15]. However, this use of the concept of vulnerability has given rise to criticism. In research ethics, women are sometimes considered a vulnerable group and at other times removed from such a group. Thus, the notion of vulnerability and how to conceptualize it is an issue for women. However, just labelling women as a vulnerable group is too simplistic and raises problems. Women may not be per se vulnerable or essentially vulnerable, but they might be rendered vulnerable [10]. Because vulnerability is a multifaceted concept [25], re-framing vulnerability in relation to young motherhood means moving beyond deficit-based labels and toward a structural, intersectional understanding, one that recognizes both agency and the socio-political conditions that shape young women's lives [10]. Adolescent motherhood remains a critical public health and social issue, with implications for maternal health, child development, and intergenerational poverty [43]. While prior research has examined isolated risk factors, few studies adopt a holistic, systems-based approach to understanding young motherhood vulnerability.

## **2. Purpose and Objectives of the Study**

The purpose of this systematic review was to examine the intersection of young motherhood and socio-ecological vulnerabilities. The study was guided by the following objectives:

- i. To synthesize empirical evidence on the multi-layered vulnerabilities experienced by Young Mothers.
- ii. To analyze the interconnections and co-occurrence patterns between these vulnerabilities.

- iii. To interpret the findings using Bronfenbrenner's ecological systems framework.

### 3.Theoretical Framework

This systematic review is anchored on Bronfenbrenner's [7] ecological systems theory of human development as a framework to map the interconnected contextual challenges shaping adolescent motherhood. Bronfenbrenner emphasizes the interactive processes between the person and the environment. His ecological systems theory proposed that individual's development in any given area is primarily shaped by the interactions and relationships between the individual and different layers of surroundings. Activities, roles, and relationships of individuals in any setting constitute contexts of development. According to the ecological view, a thorough study of human development can best be achieved by the analysis of these different levels and contexts of person–environment interactions [7]. Thus, this model facilitates the analysis of challenges across the microsystem (family, peers), mesosystem (institutions), exosystem (social structures), macrosystem (cultural values), and chronosystem (lifespan and historical context) [7]. While this synthesis integrates multidisciplinary evidence, longitudinal studies are needed to trace how ecological interactions evolve across the life course. Participatory research with adolescent mothers could further center lived experiences in model refinement.

## 4 Methodology

### 4.1 Review Framework

To ensure transparency and replicability, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines was followed [34]. The analytical framework was grounded in Bronfenbrenner's Ecological Systems Theory to interpret findings across nested systems of vulnerability. This, in accordance with AMSTAR guidelines which recommend searching at least two databases to ensure quality and breadth of literature [25]. This review exceeded that minimum to capture a comprehensive range of perspectives across health, social, and policy domains. Hence, by increasing the number of searched databases, more accurate and comprehensive results were yielded [43].

### 4.2 Search Strategy

To generate a focused research question and guide literature selection, the review adopted the PICO framework, which helped clarify the study's Population (young mothers) and Outcomes (health, social, and economic vulnerabilities) [32].

*Table 1. Core Search Terms*

Concepts	Search Terms and Keywords
Young Motherhood	"adolescent pregnancy" OR "teenage motherhood" OR "young mothers"
Vulnerability	"vulnerability" OR "risk factors" OR "challenges"
Health Issues	"maternal health" OR "postpartum depression" OR "obstetric complications"
Socio-economic Issues	"education" OR "poverty" OR "economic hardship" OR "unemployment"
Social Support	"family support" OR "social stigma" OR "discrimination"
Policy Interventions	"government policy" OR "public health intervention" OR "support programs"

#### 4.2.1. Boolean Search String

A Boolean search query was designed to work across multidisciplinary databases, drawing from free-text terms in titles, abstracts, and indexed subjects. The search strategy was modified according

to each of the specific databases to get the best relevant results. The following search query was created: ("adolescent pregnancy" OR "teenage motherhood" OR "young mothers") AND ("vulnerability" OR "risk factors" OR "challenges") AND ("maternal health" OR "postpartum depression" OR "obstetric complications") AND ("education" OR "poverty" OR "economic hardship" OR "unemployment") AND ("family support" OR "social stigma" OR "discrimination") AND ("government policy" OR "public health intervention" OR "support programs")

#### 4.2.2. Databases Searched

Six academic databases were searched between February and April 2025. These include: Web of Science, Scopus, PubMed, ScienceDirect, Wiley Online Library, Google Scholar. Initial searches commenced with PubMed and Google Scholar to validate topic viability. A simple search was conducted in the two databases with search terms "Young motherhood AND Vulnerability". This was followed by targeted searches across all databases using the finalized Boolean string. All references were exported to Zotero for organization including removal of duplicate entries.

#### 4.3 Eligibility Criteria

Articles were included based on the following inclusion criteria: Published between 2014–2025; Peer-reviewed journal articles, reports, or dissertations; Empirical studies, systematic reviews, or evidence-based policy evaluations; full-text availability; focus on adolescent/young motherhood and associated vulnerabilities; written in English. Exclusion criteria: Studies on adolescent health without specific reference to motherhood; Non-empirical opinion pieces; Inaccessible full-text articles.

#### 4.4 Study Screening and Selection

The study selection process is summarized in Figure 1 following PRISMA 2020 guidelines. From 500 initial records, 110 duplicates were removed, 390 were screened, and 102 full texts were assessed. This resulted in a total of 47 studies which were included in the final synthesis.

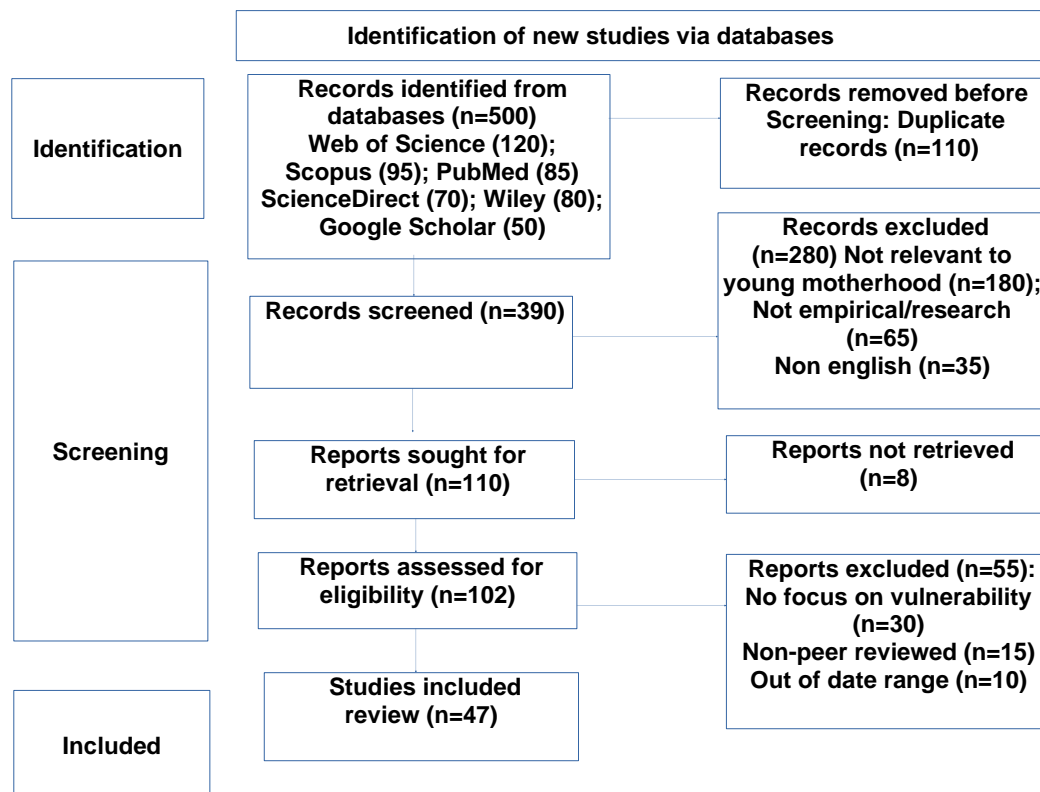


Figure 1. PRISMA Flow Diagram of Study Selection

#### 4.5 Data Sources

Three datasets were integrated into the analytic framework and formed the foundation of the review. These included: Thematic codebook; Code Document Analysis; Code Co-Occurrence Matrix. These

datasets were exported from Atlas.ti for manual verification and thematic expositions. The description of the datasets are as illustrated in Table 2.

*Table 2. Dataset Description*

Dataset	Description
<b>Revised Thematic Codebook</b>	116 quotations categorized into 12 thematic groups capturing key vulnerability domains
<b>Code Document Analysis</b>	Frequency counts of each code across 47 primary studies
<b>Code Co-Occurrence Matrix</b>	Identification of co-coded patterns to assess theme interrelations

#### 4.6 Data Extraction and Synthesis

All 47 studies were imported into ATLAS.ti for qualitative and quantitative analysis. Abstracts and full texts were analyzed to identify recurring themes and patterns. The methodological process involved: qualitative coding of each article manually using inductively and deductively derived codes. For example, “depression” was classified under mental health, and “food insecurity” under socioeconomic vulnerability; thematic mapping involved clustering codes into 12 thematic groups that represent dimensions of adolescent/young motherhood.

#### 4.7 Analytical Framework

This review employed a triangulated qualitative analysis using thematic coding, frequency quantification and co-occurrence mapping. The findings were interpreted through a comparative ecological framework using Bronfenbrenner’s Ecological Systems Theory [7]. This approach enabled the analysis of how vulnerabilities in adolescent/young motherhood operate across socio-ecological domains such as: Microsystem (e.g, family, peers, direct health experiences); mesosystem (e.g. interactions between institutions); exosystem (e.g, structural policies, service accessibility, socioeconomic status); macrosystem (e.g, cultural norms, stigma, racial and gender ideologies); chronosystem (e.g, temporal and life-course factors such as COVID–19 pandemic) [20]. This layered interpretation facilitated a systems-level understanding of the multifaceted aspects of vulnerabilities in young motherhood.

#### 4.8 Risk of Bias and Limitations

Even though formal risk of bias tools were not systematically applied, methodological rigor was evaluated through critical appraisal of study designs, clarity of outcomes, and contextual relevance. Potential bias includes: the over representation of Global North data, under-reporting of paternal or family dynamics, and minimal longitudinal or intervention-based studies.

### 5. Findings and Discussion

#### 5.1 Overview of Included Studies

This systematic review analyzed 47 peer-reviewed studies published between 2014 and 2025, focusing on health, social-cultural, and economic vulnerabilities among adolescent mothers. A total of 106 codes were extracted and grouped into 12 thematic categories derived from recurring patterns in the literature. These themes were identified and synthesized using ATLAS.ti through iterative coding, frequency analysis, and co-occurrence mapping.

#### 5.2 Thematic Distribution

A complete overview of the thematic categories and corresponding code counts is presented in Tables 3a and 3b.

*Table 3a. Codes Frequency*

Code Groups	Number of Codes
Mental health & psychosocial well-being	15
Structural/systemic barriers	15
Social support & family dynamics	14
Adolescent pregnancy/motherhood	10
Sexual & reproductive health	9
Socioeconomic vulnerabilities	9

*Table 3b. Codes Frequency*

Code Groups	Number of Codes
Health risks/outcomes	9
Nutrition & child development	9
Identity, beliefs, and attitudes	6
Behavioral/substance use risks	3
Programmes & interventions	3
Geographical context	4

These findings indicate that adolescent mothers often experience overlapping challenges, ranging from individual psychological distress to systemic inequities. Hence, the thematic codebook structured vulnerabilities under 12 major code groups, representing the multifaceted experiences of adolescent mothers. The most frequently coded themes included: mental health and psychosocial well-being (15 codes); structural and systemic barriers (15 codes); social support and family dynamics (14 codes); and socioeconomic vulnerabilities (9 codes). Table 3 frequency analysis indicates that the prevalence of each of the 106 codes were quantified across all the selected studies to appraise research emphasis.

### 5.3 Frequency Analysis of Vulnerabilities

Code-document analysis revealed that issues such as mental health challenges, economic hardship, and lack of social support were the most consistently reported vulnerabilities across the 47 studies. This highlights the recurrence of these issues across different contexts and geographic regions. The prevalence of each theme was quantified to assess not only presence but prominence in the literature.

### 5.4 Thematic Co-Occurrence Patterns

Key co-occurrence patterns were identified through the analysis of qualitative data in the systematic review. These co-occurrences indicate the frequency and strength of associations between different vulnerabilities, as observed in the reviewed studies. Each instance reflects a meaningful overlap between thematic codes, supporting integrated and multi-dimensional interpretations of adolescent motherhood challenges. Select examples of co-coded patterns and their interpretation are illustrated in Table 4a and 4b below:

*Table 4a. Thematic Co-occurrence Patterns*

Thematic Co-Occurrence	Interpretation	Implication
Young maternal age linked to adverse birth outcomes (3 studies)	Young maternal age was consistently linked to adverse birth outcomes (e.g. preterm birth or low birth weight) in three studies. This leads to biological immaturity and limited access to prenatal care.	Targeted maternal health interventions for adolescent mothers to improve birth outcomes.
Mental health challenges linked to lack of social support (3 studies)	Poor mental health was often reported in the context of inadequate emotional or social support	Programs enhancing peer, familial and community support can mitigate psychological distress among young mothers
Food insecurity linked to economic hardship (4 studies)	Economic deprivation leads to difficulty accessing sufficient nutrition, reflecting a material resource gap	Economic interventions (e.g., cash aid, food assistance) could address both financial and nutritional vulnerabilities.
Stigma linked to healthcare avoidance linked to poor birth outcomes (8 studies)	Cultural devaluation of young mothers results in anticipation of judgment from providers. This delays antenatal care initiation creating a lack of trust in medical systems which directly impact maternal neonatal health.	Implementation of stigma-reduction training for healthcare workers; Come up with youth-friendly clinics with peer navigators; organize community education campaigns challenging negative stereotypes.
Childcare unavailability linked to education disruption linked to economic precarity (5 studies)	Reflected in lack of affordable and reliable childcare. This prevents school re-entry or vocational training. It also limits educational attainment and future earning potential which perpetuate intergenerational poverty.	Develop on-site crèches in educational institutions; implement subsidies for childcare for young mothers; create schedules and distance learning options that are flexible to young mothers' needs
Intimate partner violence linked to trauma linked to parenting stress (4 studies)	Exposure to intimate partner violence increases post-traumatic stress disorder. This impairs maternal responsiveness resulting in increase in risk of harsh parenting behaviors which affect child attachment.	Conduct routine, confidential intimate partner violence screening in maternal health settings; trauma-informed parenting programs; encourage partnerships with domestic shelters for safe housing

Table 4b. Thematic Co-occurrence Patterns

Thematic Co-Occurrence	Interpretation	Implication
Restrictive sexual reproductive health policies linked limited contraception access linked to recurrent pregnancy (4 studies)	Age-consent laws, moralistic policies and other provider bias restrict access to contraception and comprehensive sexual and reproductive health policy education. This leads to rapid repeat pregnancies and heightened risks	Policy advocacy for adolescent-friendly sexual and reproductive health guidelines; provider training on rights-based care; school-based comprehensive sexuality education.
COVID-19 lockdowns linked to healthcare disruption linked to delayed care-seeking (4 studies)	These lead to pandemic-related movement restrictions and clinic closures. The fear of infection also reduced access to antenatal, postnatal and contraceptive services which exacerbated existing health vulnerabilities.	Need to strengthen telehealth and mobile health services; prioritize maternal health through emergency preparedness; multi-month medication dispensing.
Early marriage linked to educational (3 studies)	Sociocultural norms promote marriage after pregnancy and diminish formal education. This reduces future economic independence and decision-making power within households	Conditional cash transfers for school retention; community dialogues on marriage timing; alternative educational trajectory for married adolescents.
Peer substance use norms linked to maternal substance use linked to neonatal risk (3 studies)	Social networks normalize substance use for coping leads to smoking, alcohol, or drug use during pregnancy, affecting fetal development and maternal engagement with health services	Peer-led prevention and harm reduction programs; integrate substance use screening into youth sexual and reproductive health services; develop positive recreational alternatives

These interrelated co-occurrence groups (table 4a & 4b) demonstrate a dynamic system of vulnerability that goes beyond basic cause-effect interactions. They reveal how young motherhood exist within a structure of co-existing constraints that mutually reinforce each other resulting in an ecology of disadvantage. Findings from Kamusiime [26] and Owens [38] mirror patterns of stigma linked to healthcare avoidance and poor birth outcomes. They reveal how societal degradation appear as institutional judgment which constraints timely antenatal care and in turn directly

weakening maternal and neonatal health. This trajectory from social attitude to biological consequence is also usually exacerbated by poverty linked food insecurity and maternal-child malnutrition [37] [28]. Economic impoverishment directly relates to nutritional deprivation, illustrating how material scarcity encourages health vulnerabilities.

Other Studies [1] [33] have revealed a bidirectional relationship of mental health challenges which are linked to lack of social support. This co-occurrence cluster emphasizes how depression and anxiety both emerge from and entrench relational isolation. This creates a feedback loop of psychological distress that is often conditioned by family conflict or partner abandonment. In the young maternal age which is linked to biological risk and adverse birth outcomes, emerges the biological dimension of vulnerability. Here, physiological immaturity combines with delayed healthcare access to accelerate obstetric risks [18] [42]. This connection emphasizes that biological risk is always socially mediated.

Educational and economic trajectories are predominantly shaped by the childcare unavailability which is linked to education truncation linked to economic precarity cluster as observed in other studies [8] [36]. This pattern is an illustration of childcare as a structural determinant of young mothers' resumption of education and achieve economic mobility rather than just as a logistical detail. Studies by Langwenya et al. [30] and [39] introduce intimate partner violence linked to trauma linked to parenting stress as another vital factor of disadvantage. Here, abuse produces psychological effects that undermine maternal responsiveness with a potential affect on child attachment.

Restrictive sexual and reproductive health policies linked to limited contraception access linked to recurrent pregnancy is observed in the findings of a study from Ugandan contexts [26]. This highlights how policy environments have a direct constraint on bodily autonomy resulting in rapid repeat pregnancies that escalate health and economic challenges. Historical shocks like the COVID-19 lockdowns led to healthcare disruption which in turn led to delayed care-seeking [30]. This is an indication of how systemic crises intensify pre-existing vulnerabilities by disrupting essential services and increasing isolation for young mothers. In most cases, early marriage disrupts young mothers' formal education thereby impeding future independence. This is evidenced in studies from South Asia and Africa [44]. At the same time, it is observed that peer networks can normalize substance use as a coping mechanism with direct implications for fetal health [11].

Spatial and economic inequality manifests in the housing discrimination which is linked to instability and then to stress [14]. Here, prejudice based on age in housing markets creates chronic instability that magnifies the stresses of early motherhood. Finally, historical disadvantage cuts across generations through strenuous parenting environments and limited resources which affect child cognitive and emotional environment. This is related to intergenerational disadvantage linked to parenting stress linked to child development delay cluster [29] [46]. These co-occurrence clusters form a nested system of disadvantage where vulnerabilities mutually reinforce each other. Moreover, the consistency of poverty, stigma and mental health across multiple studies is an indication that these nodes are leverage points within the system.

## **5.5 Ecological Systems Interpretation**

Using Bronfenbrenner's Ecological Systems Theory (EST), thematic clusters were interpreted within their contextual layers: Microsystem comprised of individual and interpersonal factors such as adolescent mothers' mental health [1] [4] [11] [21] [31] [37] [46]. Additionally, struggles in balancing developmental and parenting roles were assigned codes like adolescent identity conflict with maternal identity [33]. Studies also revealed tensions between adolescent mothers and family figures coded under co-parenting conflict [5]. Parental neglect and lack of support was characterized by barriers to emotional and instrumental support [4].

Mesosystem includes interactions between microsystems such as home, healthcare, and education systems [20], characterized by school dropout linked to stigma from peers or teachers [22] [36]. The analysis also revealed evidence of school re-entry challenges arising from conflicts between parenting and educational roles [36]. Other codes situated in this layer included educational disparities due to health consequences [18]; impact of teen fertility on educational outcomes and mortality risk [3]. Exosystem involved institutional influences such as access to welfare programs, local health clinics, or housing policy [20]. This layer was grounded by codes such as healthcare



inaccessibility in terms of barriers to antenatal and postnatal care [16]; restrictive sexual and reproductive health policies due to limited access to reproductive health services [26]; childcare challenges such as lack of formal childcare impacting education [8]. Macrosystem involve cultural and societal-level influences [20], including gender norms, poverty, and discriminatory public narratives around adolescent pregnancy. Here, the following codes were contextualized into this layer: stigma and discrimination due to societal devaluation of young mothers [38]; religious and cultural values including normative discourses shaping motherhood [26]; and child marriage and early motherhood due to structural gender inequities [44]. Chronosystem involve temporal changes and historical context [20]. It is characterized by the evolving experience of adolescent motherhood over time, including longitudinal effects of early childbearing on education and employment trajectories. Relevant codes situated in this layer include COVID-19 exacerbation due to intimate partner violence (IPV) and healthcare barriers [29]; Cumulative disadvantage as a result of long term impacts of early motherhood [24].

Mapping vulnerabilities within ecological systems theory provided a framework for understanding how risk factors at various levels mutually reinforce each other. For instance, mental health issues (microsystem) often stem from economic hardship (macrosystem) and are exacerbated by lack of institutional support (exosystem).

### **5.6 Synthesis of emergent themes, patterns and Implications**

This triangulated analytical approach using thematic grouping, frequency counts, and co-occurrence analysis reveals that young mothers are affected by intersection of layered vulnerabilities across cultural, social, economic, and health domains. The thematic group of adolescent pregnancy and motherhood encapsulates the conceptual scope of the phenomenon. These variations concern terminologies used including, "teenage mothers," "young maternal age", among temporal factors such as early onset and recurrence. This, in addition to longitudinal approaches including reproductive trajectories and long-term social or health consequences being faced by these young mothers.

Within the social support and family dynamics theme, the largest cluster makes explicit the importance of family, social, and community supports in their development. Codes relating to this domain cover different sources of support including parental support, peer support, and co-parenting systems; arrangements characterizing a household for example, multi-generational co-residence; and the quality of relational dynamics such as trust, conflict, and emotional availability. Health emerges as a cross-cutting theme across several code groups. Contraception access, risky sexual behavior, and health services utilization are classified under sexual and reproductive health risks disadvantages. Adverse outcomes for maternal and infant health are captured by the health risks and outcomes; while mental health and psychosocial well-being, an extensive group, focuses on adolescent mothers' widespread depression, anxiety, and emotional distress. The theme structural and systemic barriers brings to the fore the macro-level determinants of adolescent pregnancy. These include inequities in access to health care, negative provider attitudes, sociocultural discrimination, and oppressive policy climates. Codes such as "human rights violations" and "institutional stigma" illustrate deep structural hurdles.

Long-term development impacts are captured in both the socioeconomic vulnerabilities and nutrition and development themes. Codes note risks such as malnutrition, impaired cognitive development, and entrenchment of intergenerational disadvantage and poverty cycles. Despite being a smaller group, the geographical context codes emphasize the importance of place-based and demographic differentiation. These codes focus attention on region-based disparities, with a particular emphasis on Sub-Saharan Africa, and intersectional vulnerabilities in regard to race, class, and ethnicity.

The dominance of mental health-related codes across various clusters signifies an area crucial and under-addressed in the context of adolescent pregnancy research and programming; Codes intersect sets of themes, which illustrates the intersection of experiences for example., "racism and mental health" appears under both mental health and structural barriers, thereby reinforcing the argument for multi-dimensional approaches; The relatively few codes categorized under Programs and Interventions are indicative of programs and interventions being poorly studied, evaluated, or documented, thus in itself being a major research gap and an applied knowledge area

in evidence-based programming; Several codes for instance, “Long-Term Consequences” and “Reproductive Trajectories” adopt a life-course lens, that is, considerations of adolescent pregnancy in respect to implications that are proximal and distal in time.

## 6. Implications and Conclusion

This systematic review provide three synthesizing conclusions that potentially frame future research and practice. First, vulnerability is systemic and integrated rather than isolated. The nested challenges across ecological layers affirm the endorsement of multi-sectoral interventions that simultaneously address interconnected physical, mental, and social needs of young mothers. This negates isolated programs that cannot reform this ecology of disadvantage. Second, structural and macro-systemic factors are central facilitators of vulnerability. Hence, successful support requires going above individual-level assistance to establishing structural reforms in policy, economic access, and institutional culture. Third, mental health function as a primary yet underserved transecting axis. This signals the need to prioritize the integration of robust psychosocial support into maternal health services as an essential element of care due to the prevalence of mental health-related themes.

Consequently, future research should employ longitudinal approaches to examine intersections of identities such as gender, ethnicity and socioeconomic status that shape experiences of vulnerability in young motherhood. In sum, vulnerability is cumulative and ecological with adverse outcomes rarely resulting from a single cause. Therefore, any intervention targeting adolescent mothers must operate across socio-ecological levels, prioritizing integration across health, education, and social protection sectors to dismantle the entrenched, nested system of disadvantage facing young mothers.

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