

## SYSTEMATIC REVIEW

# A systematic review of social processes and mechanisms in the community that influence risky sexual behaviour among adolescents and young adults

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## Abstract

**Aims:** To examine the associations between social processes and mechanisms within the community and risky sexual behaviour (RSB) among adolescents and young adults.

**Design:** Systematic review.

**Methods:** We used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines and conducted a literature search in August 2020. From 11,216 identified articles, 605 were for full-text screen. We used 24 articles, 22 after applying inclusion criteria and 2 manually searched relevant articles.

**Results:** Social processes and mechanisms within the community included collective efficiency and social support, community safety and community norm. Collective efficacy and social support and community safety were examined using 10 and 16 studies, respectively. We found that collective efficiency and social support, and community norms partially supported the occurrences of RSB among adolescents and young adults. Community safety displayed inconclusive relationships with RSB.

**Conclusions:** The findings highlight the importance of social processes and mechanisms within the community in preventing RSB among adolescents and young adults. Community-based programs to improve community efficacy and social support would be effective strategies to reduce such RSB and to promote better reproductive health among adolescents and young adults.

## KEYWORDS

adolescents, community, risky sexual behaviours, social process, young adults

## 1 | INTRODUCTION

Adolescence is an important phase of human development that constructs a critical foundation for good health. Adolescents account for over 16% of the global population, which is approximately 1.2 billion (World Health Organization, 2021a). The Global Strategy for Women, Children and Adolescents' Health (2016–2030), launched in 2015, identified adolescents as central to achieving the Sustainable Development Goals. It provided a pathway to improve adolescent

health and respond more effectively to their needs (Every woman every child, 2015).

## 2 | BACKGROUND

Adolescent sexuality is a transitional developmental process influenced by biological sexual maturation, parents and peers and environmental opportunities for engaging in sexual debut (Sessa, 2016).

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Risky sexual behaviour (RSB), such as early sexual initiation, unprotected sex and sex with multiple partners, is a relatively common occurrence among adolescents. For example, 85.9% of the adolescents aged 15–19 in Sierra Leon had engaged in unprotected sex, and almost a third (28.8%) of the male adolescents in Congo had multiple sexual partners (Ali et al., 2021). Early sexual debut has been linked to higher delinquency, lower educational attainment and a higher likelihood of engaging in subsequent RSB (Burke et al., 2018).

Sex intercourse and RSBs can result in adverse outcomes, including adolescent pregnancy, sexually transmitted diseases (STDs), human immunodeficiency virus (HIV) and emotional consequences, such as altered self-esteem, depression and inability to form healthy relationships (Miller et al., 2004; Scott et al., 2011). Adolescent pregnancies can result in adverse consequences such as dropping out of school, stigma and the jeopardization of the youth's future education and employment opportunities (World Health Organization, 2021b). Moreover, adolescents and young adults account for a growing share of HIV patients worldwide. In 2020, approximately 1.75 million teenagers were infected with HIV, accounting for almost 11% of new HIV infections (UNICEF, 2021).

Previous studies emphasized the importance of studying the features of the regional, local, social and physical environments to improve the health of individuals on an individual level (Duncan et al., 1993). The community and environment in which individuals are born, raised, live and work potentially influence their behaviour (Hosseini Shokouh et al., 2017). Adolescents spend less time at home, peer relationships are influential, and there is less monitoring by parents (Smetana, 2008). Social disorganization theory can be applied to the study of adolescent sexuality. Shaw & McKay's (1969) social disorganization theory posits that socioeconomic status, racial and ethnic heterogeneity and residential stability provide an explanation for social disorganization and hence informal social control. In addition, social disorganization is not regarded as an inevitable feature of communities, but as a variable based on circumstances (Bellair, 2017). Perceived social disorganization was associated with American adolescents' number of sexual partners (Tewksbury et al., 2013). Community disorganization affects informal social control, which either fosters or inhibits the ability to control adolescent risk behaviour (Maimon & Browning, 2010). Forms of social organization that facilitate residents' interactions in the community and neighbourhoods with a significant degree of cohesion and stability show a greater capacity to impact adolescents' RSB (Kalolo et al., 2019; Tewksbury et al., 2013). Greater collective efficacy and control reduced the prevalence of early sexual initiation, inconsistent condom use and multiple sexual partners (Orihuela et al., 2020). Parents' perception of the safety and quality of the neighbourhood determine the level of solidarity, mutual trust and shared values within the family and the degree of control they exert over their children's outdoor activities (Browning et al., 2005; Chen et al., 2010).

Community characteristics were largely classified into social processes and mechanisms within the community and structural factors and conditions of the community (Decker et al., 2018; Sampson et al., 2002). In a recent review, Decker et al. (2018) included

collective efficacy and social support, safety and norms as social processes and mechanisms within the community. Their review focused on social processes and mechanisms related to reproductive health outcomes, such as contraceptive use, adolescent pregnancy and birthrate. Alimoradi et al. (2017) reviewed the influence of cultural and social changes in the community on RSB for Iranian adolescent girls. Lee et al. (2018) examined the community domain contributing to early sexual debut and coerced sex. However, these previous reviews have yet to synthesize evidence of RSB of adolescents and young adults and its relationships with social processes and mechanisms within the community. Therefore, this review aimed to examine how the community shapes the sexual behaviour of adolescents and young adults in a community and systematically review the roles of collective efficacy, neighbourhood disorder and other social processes and mechanism within a community on their RSB.

### 3 | METHODS

#### 3.1 | Design

We conducted a systematic literature review in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009). While different review methods exist, a systematic review may be appropriate for synthesis and provide more reliable and meaningful findings by using explicit, rigorous systematic methods. For instance, scoping reviews are useful in identifying knowledge gaps and evaluating the coverage of a body of literature on a particular topic (Munn et al., 2018), while narrative reviews are valuable in providing a summary of existing knowledge, highlighting new perspectives or eliciting unresolved issues (Saracci et al., 2019).

The search strategy, selection, quality appraisal, data extraction and synthesis are presented in the following section. This study did not require approval from an Institutional Review Board as it did not use human patients.

#### 3.2 | Search methods

Various resources published between January 2000 and July 2020 were consulted for this review. As the community's influence on adolescent sexuality changes over time, evidence that is too old may be difficult to apply today. After discussion among the research team, we limited the year of publications to the last 20 years.

Eight databases, including the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Cochrane Library, EBSCO, PubMed, PsycINFO, Web of Science, DataBase Periodical Information Academic (DBpia, Korea) and Research Information Sharing Service (RISS, Korea), were accessed to conduct a literature search in August 2020. To identify relevant articles, we searched the title, keywords and abstracts of studies using a combination of the following keywords: 'factor (s)' and 'sexual behavior(s) or risky sexual

behavior(s)' and 'adolescent(s) or young adult(s)'. Each author independently screened and reviewed the title, abstract and full-text articles according to the pre-specified inclusion and exclusion criteria. If there was disagreement in the inclusion of articles, we discussed it to reach a consensus. Furthermore, we manually reviewed the reference list in the included articles and found two eligible articles based on the inclusion criteria (Decker et al., 2018).

### 3.3 | Inclusion and exclusion criteria

The included studies were Korean or English language articles that reported original research and were published in peer-reviewed journals. They were quantitative studies that focused on the relationship between social processes and mechanisms within the community and RSB among adolescents aged 10–19 years old or unmarried young adults aged 20–25 years.

Previous studies classified community variables within the following two domains: (a) social processes and mechanisms within the community or (b) structural factors and conditions of the community (Decker et al., 2018; Sampson et al., 2002). Social processes and mechanisms within the community included: informal social control, community bonding, mutual trust, community resources, community disorder, community safety and community norms. Structural factors of the community included social disadvantages, employment status, education status, household composition, racial or ethnic composition, residential stability and physical environment (Decker et al., 2018). This systematic review examined the association between social processes and mechanisms within the community and RSB among adolescents and young adults.

We classified RSBs as three items for this systematic review study based on the definition of 'high-risk sexual behavior' by Chawla and Sarkar (2019): (a) early sexual debut, (b) intercourse with multiple partners and (c) unprotected sexual intercourse (or inconsistent condom use). Each RSB category was assigned a value, which values were summed to produce the dependent variable 'risky sexual behavior'. However, in addition to the above three, some studies also included other risky behaviours. These were classified as 'other RSBs' in this study. Studies could include differing time frames of recall (e.g., the recent intercourse, the last 3 or 6 months or last year) to measure RSB.

Previous studies (Greene et al., 2018; Kaye et al., 2009) categorized sexual engagement between the ages of 11–16 years as an early sexual debut. We defined early sexual debut as sexual engagement before age 16. If a study did not include an age range or an average age, it was excluded. In this study, unprotected sex was defined as not wearing condoms during sexual intercourse. Condom use among teenagers remains the most popularly used contraceptive method (Eaton et al., 2012) and also protects them from STDs, including HIV. Therefore, if a study examined both condom and contraceptive use (e.g., birth control pill, patch, injection, intrauterine device), it was excluded.

The participants of the studies were adolescents or young adults who generally lived in a community. If the participants of a study were slum-inhabitants, homeless, incarcerated or military youth, it was excluded to avoid heterogeneity of the study population. Moreover, we excluded studies that included participants who belonged to a sexual minority group, had been diagnosed with HIV, STDs or had other health problems. In addition, we excluded studies if their outcome variables were non-consensual sex, which included sexual violence, sexual abuse or transactional sex.

### 3.4 | Search outcomes

In accordance with the PRISMA guidelines (Moher et al., 2009), from 11,216 searched articles, we included 2855 articles in this review (Figure 1). We further screened these articles and, with the use of the title and abstract screening, had a total of 605 articles. Thereafter, we conducted a full-text review of 605 articles twice and excluded 79 articles wherein the outcomes were not adolescents' or young adults' RSBs. Additionally, we excluded 178 articles whose participants did not fit the inclusion criteria of this systematic review. Based on the focus of the systematic review to examine the association between community variables and RSBs, we further excluded 277 articles from the remaining 348 articles, leaving 71 articles. During the second full-text review of 71 articles, we excluded 39 studies that measured only community-related variables on the residential status of the participants. We excluded further seven studies that did not examine social processes or mechanisms within the community and three with insufficient information on the measurement of community variables. This process yielded 22 total studies. Subsequently, the reference list of these studies was reviewed to consider all relevant studies that may not be located by the online database search. As a result, two additional studies were included in this review.

A total of 24 articles were analysed. During the screening of the finally selected articles, each researcher reviewed the titles, abstracts and full text of these articles and discussed the discrepancies in the review until all researchers' consensus was reached.

### 3.5 | Quality appraisal

We performed a quality appraisal using a nine-point assessment scale (Mori et al., 2019) to verify the quality and validity of the included articles. This quality appraisal scale was from a previous meta-analysis (Madigan et al., 2018) and was revised for this study. The scale consisted of nine items: defined sample, representative sample, controls in analysis, predictors measured, completion rate, demographic information, the definition of RSB, details of RSB and publication status (peer-reviewed journal or book). Adhering to the adapted scale (Madigan et al., 2018), studies were allocated a score of 0 (no) or 1 (yes) for each criterion, which were subsequently

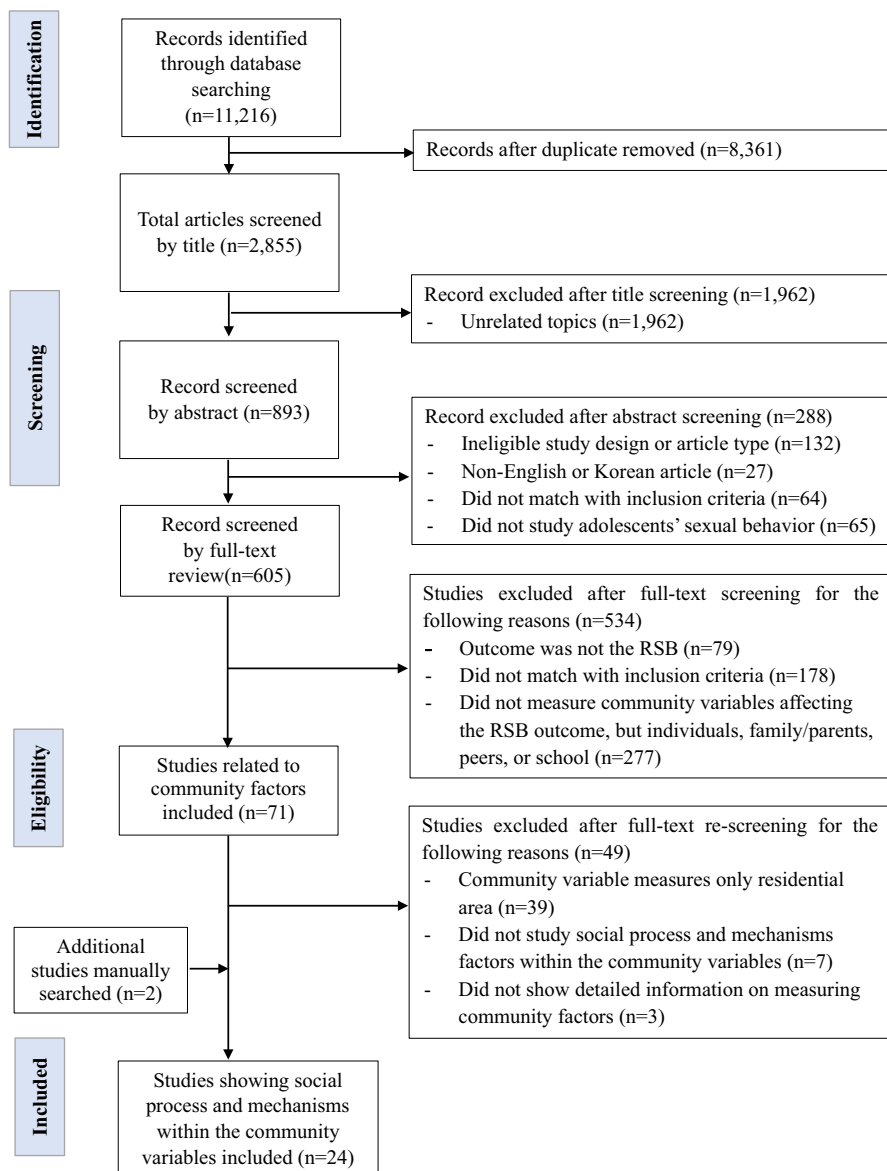


FIGURE 1 Flowchart of systematic review.

summed to a total score of nine. Studies were subsequently ranked as low (<2), moderate (from 3 to 5) or high quality (>6). We rated all 24 articles as high quality. Table 1 presents the quality appraisal of the included studies.

### 3.6 | Data extraction and synthesis

This systematic review illustrates the findings of each study based on the examined adolescent RSB outcomes and relevant community categories. The findings were categorized within one of the following three domains referred from the previous review (Decker et al., 2018): (a) collective efficacy and control, (b) community safety and (c) community norms. Table 2 describes the characteristics of all reviewed studies, including author names, year of publication, country of study, study type, study analysis, study sample, sources of primary data, theoretical frameworks, RSB outcome and community variables. We categorized results on

the observed significant positive and negative relationships and non-significant relationships.

## 4 | RESULTS

### 4.1 | Study characteristics

Of the 24 studies that were reviewed, most (n=17) were conducted in the United States. One study was conducted in each of the following countries: Cambodia, Ireland, Puerto Rico, South Africa, Tanzania and Thailand. Most studies were longitudinal (n=14), and the remaining were cross-sectional (n=10). The sample sizes of the studies ranged from 292 to 2448. The studies included both women and men. However, some studies only focused on men (n=2) or women groups (n=1).

Seven studies employed extensive administrative datasets, such as the following US-based datasets: Adolescent Health (Add

TABLE 1 Summary of quality assessment of the studies included.

Author (year)	Defined sample	Representative sample	Controls in analysis	Predictors measured	Competition rate	Demographic Info.	Definition provided	RSB details	Published study	Total/9	Classification (H/M/L)
Atwood et al. (2012)	1	1	1	1	1	1	1	0	1	8	High
Browning et al. (2004)	1	1	1	1	1	1	1	0	1	8	High
Browning et al. (2005)	1	1	1	1	1	1	1	0	1	8	High
Burke et al. (2018)	1	1	1	1	0	1	0	1	1	7	High
Chen et al. (2010)	1	1	1	1	1	1	1	1	1	9	High
Epstein et al. (2014)	1	1	0	0	1	1	1	1	1	7	High
Fleming et al. (2019)	1	1	1	1	1	1	1	0	1	8	High
Greene et al. (2018)	1	0	1	1	0	1	1	1	1	7	High
Kalolo et al. (2019)	1	1	1	1	1	1	1	1	1	9	High
Kaufman et al. (2004)	1	1	1	1	0	1	1	0	1	7	High
Kaye et al. (2009)	1	1	1	1	0	1	1	1	1	8	High
Kogan et al. (2010)	1	0	1	1	0	1	1	1	1	7	High
Lee (2012)	1	1	1	1	1	1	1	0	1	8	High
Lohman and Billings (2008)	1	1	1	1	0	1	1	0	1	7	High
Manlove et al. (2008)	1	1	1	1	1	1	1	0	1	8	High
Miller et al. (2000)	1	0	1	1	0	1	1	0	1	6	High
Orihuela et al. (2020)	1	1	1	1	0	1	1	0	1	7	High
Ritchwood et al. (2014)	1	1	1	1	1	1	1	0	1	8	High
Roberts et al. (2012)	1	1	1	1	1	1	1	0	1	8	High
Settheekul et al. (2019)	1	0	1	1	1	1	1	0	1	7	High
Swenson et al. (2010)	1	0	1	1	1	1	1	0	1	7	High
Voisin (2002)	1	0	1	1	1	1	1	0	1	7	High
Warner et al. (2011)	1	1	1	1	0	1	1	1	1	8	High
Yi et al. (2010)	1	1	1	1	1	1	1	1	1	9	High
Total (N = 24)										7.63	
Criteria	Y/N	N (%)	Criteria	Y/N	N (%)	Criteria	Y/N	N (%)			
Defined sample	Yes	24 (100)	Predictors measured	Yes	23 (95.83)	Definition provided	Yes	23 (95.83)			
	No	0 (0)		No	1 (4.17)		No	1 (4.17)			
Representativeness	Yes	18 (75)	Completion rate	Yes	15 (62.50)	RSB details	Yes	9 (37.5)			
	No	6 (25)		No	9 (37.50)		No	15 (62.5)			
Controls in analysis	Yes	23 (95.83)	Demographic info	Yes	24 (100)	Published study	Yes	24 (100)			
	No	1 (4.17)		No	0 (0)		No	0 (0)			

(Continues)

TABLE 1 (Continued)

Criteria for assessing study quality for all studies included in the study		
Criterion	Description	Scoring
1. Defined sample	<p>Does the study have a defined sample based on the following elements?</p> <ul style="list-style-type: none"> <li>• Defined eligibility and exclusion criteria</li> <li>• Age range/cutoff age range</li> <li>• An adequate description of the recruitment process</li> </ul> <p>The study must meet at least two of the above elements to receive a score of 1.</p>	Yes = 1 or no = 0
2. Representative sample	<p>Is the study sample representative of the specific population that it draws from? If representativeness is unspecified, score as 0.</p>	Yes = 1 or no = 0
3. Controls in analysis	<p>Is the sample weighted or controlled for factors such as gender and age? Does the study include a regression analysis to take into account the effect of moderating variables?</p>	Yes = 1 or no = 0
4. Predictors measured	<p>Does the study measure and report findings on at least one predictor other than gender?</p>	Yes = 1 or no = 0
5. Completion rate	<p>Does the study report a completion rate?</p>	Yes = 1 or no = 0
6. Demographic Info.	<p>Does the study measure and report findings on at least one predictor other than gender?</p>	Yes = 1 or no = 0
7. Definition provided	<p>Is risky sexual behaviour clearly defined? The study must include clear information at least 1 of the following in order to receive a score of 1:</p> <ul style="list-style-type: none"> <li>• Risks: STDs, HIV, unintended pregnancy, abortion</li> <li>• Sexual activity: early debut, unprotected</li> <li>• Partner: irregular, incentive-driven, multiple</li> </ul>	Yes = 1 or no = 0
8. Risky sexual behaviour details	<p>Does the study provide details (excluding gender and ethnicity) on risky sexual behaviour? For example, are prevalence rates provided for sub-groups or specific risky sexual behaviour details? At least three details need to be reported to receive a score of 1. Examples include the following:</p> <ul style="list-style-type: none"> <li>• Risky sexual behaviour broken down by age groups, family types, relationship status, etc.</li> <li>• Detailed description of RSB</li> </ul>	Yes = 1 or no = 0
9. Publication status	<p>Is the study published (peer-reviewed journals, book chapters)?</p>	Yes = 1 or no = 0
Classification	<p>The classification system used identified studies of low (&lt;2), moderate (3–5) or high (&gt;6) quality</p>	Score ( ) High/Mod/Low

Note: The individual quality score items are summed to generate a total score for each study. Total scores range from 0 to 9. Articles were given a score of 0 ("No") or 1 ("Yes") for each criterion and summed to give a total score out of 9. The classification system used identified studies of low (<2), moderate (3–5), or high quality (>6). The average study quality score was 7.65. That of all studies (100%) fell in the high-quality range. For additional information on Quality scoring was referenced in the study of Madigan et al., 2018.

Abbreviation: RSB, Risky Sexual Behavior.

TABLE 2 Characteristics of included articles.

No.	Author (year), country	Study type, analysis, setting, sample	Primary data source	Outcome variables	Community-related variables	Findings (significant relationships with RSB ( $p \leq 0.05$ ))
[1]	Atwood et al. (2012), Thailand	Cross-sectional; multiple regression home (online) N = 420 age range = 13–14 (mean 13.45 years) F (50.5%), M (49.5%)	N/A	Sexual experience: yes/no	Neighbourhood disorganization (alpha coefficient = 0.97; 20 items): ranging 1–4, not at all to very much/all the time; higher = engagement in behaviour or greater risk perception)	NS relationship between neighbourhood disorganization and early sexual initiation
[2]	Browning et al. (2004), USA	Longitudinal; logistic regression multimethod (home, community) N = 915 age range = 11–16 (mean 13.3 years) F (52.4%), M (47.6%)	1. PHDCN, Wave 1, 1994–1997 2. Census data, 1990	Age at sexual intercourse: open-ended	Collective efficacy: social cohesion intergenerational closure and informal social control	Significant relationship between collective efficacy and age at sexual intercourse ( $B = -0.155$ , $SE = 0.093$ )
[3]	Browning et al. (2005), USA	Longitudinal; multilevel discrete-time logit model multimethod (home, community); N = 907 age range = 11–16 (mean 13.3 years) F (52.4%), M (47.6%)	1. PHDCN, Wave 1, 1994–1997 2. Census data, 1990	Age at sexual intercourse: open-ended	Collective efficacy: social cohesion intergenerational closure and informal social control	Significant relationship between age at sexual intercourse and collective efficacy ( $B = -0.369$ , $SE = 0.160$ )
[4]	Burke et al. (2018), Ireland	Cross-sectional; Hierarchical linear multiple regression primary and post primary school; N = 879 age range = 15–17 F (43%), M (44%)	HBSC, 2014	Age of sexual initiation: 11–17 years	Neighbourhood environment: good, safe, helpful neighbours (3 items, positive to negative scale)	NS relationship between neighbourhood environment and age of sexual initiation
[5]	Chen et al. (2010), USA	Longitudinal; Hierarchical Poisson regression home (visiting); N = 4466 mean age = 16.7 F (47%), M (54%)	Add health, Wave 1–2, 1995–1996	1. CSRI: sum score of five indicators (0–5); sex for drugs/money, nonromantic sex, anal sex, anal sex with nonromantic sexual partners 2. Number of nonromantic partners: ranging 0–5, none to 5 more	Neighbourhood environment: parents' perception of the neighbourhood safety and quality (3-point scale)	Significant relationship between neighbourhood environment and cumulative sexual risk index ( $IRR = 1.09$ , $p = 0.05$ ); NS relationship between neighbourhood environment and number of nonromantic sexual partners

(Continues)



TABLE 2 (Continued)

No.	Author (year), country	Study type, analysis, setting, sample	Primary data source	Outcome variables	Community-related variables	Findings (significant relationships with RSB ( $p \leq 0.05$ ))
[6]	Epstein et al. (2014), USA	Longitudinal; probit regression; public school; N = 1053 age range = 21–24 F (49%), M (51%)	SSDP	1. Multiple sexual partners: 0 = none, 1 = having 3 or more 2. Inconsistent condom use: ranging 1–5, always to never Involvement in prostitution in the past year: 1 = experienced prostitution Sex under the influence of alcohol and drugs: ranging 1–5, never to most of the time Total score = 0–4	Neighbourhood disorganization: 'Lots of kids in my neighbourhood get in trouble'. (Responses ranged from 1 YES to 4 NO)	Significant relationship between neighbourhood disorganization and RSB ( $B = 0.10$ , $p < 0.05$ )
[7]	Fleming et al. (2019), USA	Cross-sectional; multinomial regression; public school; N = 2150 age range = 10–12 grade F (48.4%), M (51.6%)	1. E2S-YES, 2012 2. CTC 3. SSDP	1. Inconsistent condom use or birth control 2. Two or more sexual partners in the past year: two items with open-ended	1. Community risk factors: low neighbourhood attachment (3 items, alpha coefficient = 0.080); Community disorganization (6 items, alpha coefficient = 0.85); Perceived availability of drugs (4 items, alpha coefficient = 0.87); Perceived availability of guns (1 item, -) 2. Perceived racial discrimination (3 items, alpha coefficient = 0.67)	NS relationship between low neighbourhood attachment and RSB; Significant relationship between community disorganization and RSB (AOR = 1.59, 95% CI 1.32–1.93) Significant relationship between perceived availability of drug and RSB (AOR = 2.21, 95% CI = 1.90–2.58) Significant relationship between perceived availability of guns and RSB (AOR = 1.60, 95% CI = 1.39–1.85) NS relationship between perceived racial discrimination and RSB
[8]	Greene et al. (2018), USA	Longitudinal regression model home (online); N = 465 age range = 12–16 (mean 14.4 years) F (51%), M (49%)	Add health, Wave 1, 3, 1994–1995, 2001–2002	1. Early sexual debut before age of 15 years or after 2. Number of sexual partners: open-ended 3. Frequent condom use during the past year: ranging 0–4, never to always	Community assets (alpha coefficient = 0.56): neighbourhood connectedness (true/false) Caring adults (ranging 1–4, not at all to very much)	Significant relationship between cumulative assets and early sexual debut (OR = 0.541, SE = 0.096) Significant relationship between cumulative assets and number of sexual partners (IRR = 0.779, SE = 0.055) Significant relationship between cumulative assets and condom use ( $B = 0.189$ , SE = 0.089)



TABLE 2 (Continued)

No.	Author (year), country	Study type, analysis, setting, sample	Primary data source	Outcome variables	Community-related variables	Findings (significant relationships with RSB ( $p \leq 0.05$ ))
[9]	Kalolo et al. (2019), Tanzania	Cross-sectional; Logistic regression secondary school; N = 403 age range = 14–19 F (50.4%), M (49.6%)	N/A	<p>1. Early sexual debut: 0 = never, 1 = started sex at young age (13 years)</p> <p>2. Number of sexual partners in the past 12 months: 0 = none, 1 = more than 1 partner</p> <p>3. Condom use during the last sexual encounter: 0 = used condom, 1 = nonuse condom</p>	<p>1. Social cohesion: social cohesion was computed as a sum of scores of social trust and social participation scales</p> <p>2. Social trust and compliance to significant others (peers, parents, teachers and religious leaders)</p> <p>3. Social participation: in and out of school activity Member of; youth civil society organization, school or community youth group, youth club or a camp dealing with HIV and AIDS group, people living with HIV and AIDS group, arts group that deals with issues concerning HIV and AIDS</p>	<p>NS relationship between social cohesion and age at sexual debut/ multiple sexual partners; Significant relationship between social cohesion and condom use (OR = 4.83, 95% CI = 1.66–14.06)</p> <p>NS relationship between social trust and age at sexual debut; Significant relationship between social trust and multiple partners (OR = 3.52, 95% 1.01–12.30)</p> <p>NS relationship between social trust and condom use; NS relationship between social participation and age at sexual debut/multiple sexual partners/ condom use</p>
[10]	Kaufman et al. (2004), South Africa	Longitudinal; Logistic regression home (visiting) N = 2992 age range = 14–22 F (55%), M (45%)	Transitions to adulthood in the context of AIDS in South Africa, 2001	<p>Condom use in the last 12 months:</p> <p>0 = If a condom had not been used with one or more partners</p> <p>1 = If a condom had been used at last sex for all partners</p>	<p>1. Community education norms: % of young people enrolled at any level of school; % of people aged 20 and older who graduated from secondary school</p> <p>2. Norms of employment: % of adolescents performing wage labor in a community; the wages they earn per week</p> <p>3. Extracurricular activities: community youth programs, sports, religious clubs</p>	<p>(Male) Significant relationship between % of primary or secondary school and condom use (OR = 0.04, <math>p = 0.049</math>); Significant relationship between % of graduated from secondary school and condom use (OR = 0.01, <math>p = 0.019</math>); NS relationship between average earnings per week and condom use; Significant relationship between current working status and condom use (OR = 0.01, <math>p = 0.019</math>); NS relationship between average earnings per week and condom use; Significant relationship between community-level participation in sports and condom use (OR: 0.15, <math>p = 0.044</math>)</p> <p>(Female) Significant relationship between average earnings per week and condom use (OR = 1.59, <math>p = 0.003</math>)</p> <p>NS relationship between % of primary or secondary school/ % of graduated from secondary school/ current working status/extracurricular activities in community and condom use</p>

(Continues)

TABLE 2 (Continued)

No.	Author (year), country	Study type, analysis, setting, sample	Primary data source	Outcome variables	Community-related variables	Findings (significant relationships with RSB ( $p \leq 0.05$ ))
[11]	Kaye et al. (2009), USA	Longitudinal; Logistic regression home (multimethod); $N = 3316$ age range = 12–14 F (47.7%), M (52.4%)	NLSY, 1997	Unsafe sex: committed relationship (either cohabiting or married), between the age of 14–16 years and 17–20 years	Physical environment risk index (5 items, ranging 0–7)	Significant relationship between Physical environment risk and unsafe sex by age 16 for male (OR = 1.03, $p < 0.001$ )
[12]	Kogan et al. (2010), USA	Cross-sectional; Binominal regression model multimethod $N = 292$ age range = 18–21 F (59.9%), M (40.1%)	N/A	1. Number of times they had vaginal or anal intercourse during the past 3 months 2. Number of times a condom use: 2 items, open-ended	Community Resources and Problems (mean = 16.8, SD = 7.4, alpha coefficient = 0.92) Racist Hassles Questionnaire (M = 12, SD = 5, alpha coefficient = 0.90); perceived discrimination	(Male) NS relationship between community problems and unprotected intercourse; Significant relationship between perceived discrimination and unprotected intercourse (OR = 1.06, 95%CI = 1.01–1.11) (Female) NS relationship between community problems/perceived discrimination and unprotected intercourse
[13]	Lee (2012), USA	Longitudinal; Multiple logistic regression; high school; $N = 6894$ age range = 11–20 (mean 15.07 years) Female (100%) White (54.5%) Black (23.7%) Hispanic (14.9%) / Asia (6.9%)	Add health, Wave 1, 3, 1995, 2001	1. Age of sexual debut: Early = before 15 years old 2. Number of partners during the last 12 months: multiple = 2 people or more	1. Community satisfaction (5-point scale) 2. Community safety (yes/no)	Significant relationship between community satisfaction and early sexual debut for white female (OR = 0.86, 95% CI = 0.74–1.00) Significant relationship between community satisfaction and number of partners for all (White, Black, Hispanic, Asia female) NS relationship between community safety and early sexual debut/multiple partners for all (White, Black, Hispanic, Asia female)
[14]	Lohman and Billings (2008), USA	Longitudinal; multiple regression; home (multimethod); $N = 528$ age range = 10–14 at Wave 1 (mean 11.7 years) Male (100%)	The Welfare, Children and Families: a three-city study, Wave 1, 3, 1999, 2001	1. Early sexual debut: 0 = before age of 15 years, 1 = none 2. Risky sexual behaviour within the past 12 months: multiple partners: ranging 1–6; Frequent sexual intercourse: unprotected sex without using any type of method of birth control	Neighbourhood environment (=Neighbourhood problems): the mothers' perceptions of problematic characteristics of their neighbourhoods at W1 (11 items, alpha coefficient = 0.88) Including high unemployment, unsafe streets, lack of social control, lack of cohesion and trust and abandoned houses	NS relationship between neighbourhood environment and early sexual debut NS relationship between neighbourhood environment and RSB

TABLE 2 (Continued)

No.	Author (year), country	Study type, analysis, setting, sample	Primary data source	Outcome variables	Community-related variables	Findings (significant relationships with RSB ( $p \leq 0.05$ ))
[15]	Manlove et al. (2008), USA	Longitudinal; SEM (multivariate analysis) home (visiting); N = 3632 age range = 12–14 at baseline <sup>a</sup> Measured sexual activity at age 17 F (51%), M (49%)	NLSY, 1997	1. Sexual activity at age 17 in the past year 2. Number of opposite-sex partners in the past 12 months	Home environment quality: enriching environment in and around the home (3 items, ranging 0–3); Physical risk in the home and neighbourhood (2 items, ranging 0–7)	NS relationship between home environment quality and age at first sex/number of sex partners
[16]	Miller et al. (2000), USA	Cross-sectional; Multiple regression; public high school; N = 907 age range = 14–17 (mean 15.3 years) F (57%), M (43%)	N/A	1. Number of partners 2. Age of first sex: 1–3 items with open-ended 3. Frequent condom use: ranging 0–5, never to always	Neighbourhood quality (completed by mothers, 12 items, alpha coefficient = 0.86) Scored as 1 (neighbourhood is unsafe or has problems) or 2 (neighbourhood is safe or does not have problems)	Significant relationship between neighbourhood quality and number of sex partners (beta coefficient = 0.06) NS relationship between neighbourhood quality and age at first intercourse/condom use
[17]	Orihuela et al. (2020), USA	Longitudinal; Hierarchical multilevel regression home (multimethod); N = 4179 Age range = 11.01 at Wave 1, 16.10 at Wave 3 F (50.8%), M (49.2%)	1. Healthy passage (a multi-site longitudinal investigation of adolescent health behaviours), Wave 1, 3 2004, 2011 2. 2000 US census	1. Sexual initiation: age of first vaginal sex (ranging 1–9, 10 years old to 18 years or older) 2. Number of sex partner: open-ended	1. Neighbourhood decay (i) Commercial Decay (15 items, alpha coefficient = 0.89) (ii) Residential Decay (12 items, alpha coefficient = 0.74) 2. Neighbourhood social resources: parents completed the Social Contacts and Resources Scale (5-item, alpha coefficient = 0.85) 3. Collective efficacy: the amount of involvement among neighbours in maintaining informal social control (alpha coefficient = 0.83) 4. Concentrated poverty (=economic disadvantage, 5 items alpha coefficient = 0.92)	NS relationship between social resources and age of first sex/number of sex partners Significant relationship between collective efficacy age of first vaginal sex ( $B = 0.09$ , $SE = 0.04$ ) NS relationship between collective efficacy/number of sex partners
[18]	Ritchwood et al. (2014), USA	Longitudinal; Poisson regression N = 12,448 Age range = 11–18 (mean 12.29 years) Early = 9–13, Older = 14–19 F (49%), M (51%)	The Mobile Youth Survey (MYS), 1998–2011	Number of sexual partners in the previous year: ranging 0–5	The psychological sense of community Scale (6 items, ranging 0 to 6, alpha coefficient = 0.60–0.71); positive feeling about neighbourhood	Significant relationship between sense of community and number of sexual partners both for early and older adolescent (early: $B = 0.02$ , $SE = 0.01$ ; older: $B = 0.01$ , $SE = 0.004$ )

(Continues)

TABLE 2 (Continued)

No.	Author (year), country	Study type, analysis, setting, sample	Primary data source	Outcome variables	Community-related variables	Findings (significant relationships with RSB ( $p \leq 0.05$ ))
[19]	Roberts et al. (2012), USA	Longitudinal; SEM Home (visiting) $N = 745$ Age range = 10–12 (T1) <sup>a</sup> Measured sexual activity age at 18–19 F (55%), M (45%)	FACHS, Wave 1–4	1. Number of sexual partners in the last 3 months: ranging 1–6, none to 7 or more 2. Number of times sex: open-ended 3. Condom use in the last 3 months: ranging 1–4, never to always 4. Nonuse condom use (open-ended) 5. Alcohol or drugs before sex: ranging 1–4, never to most of the time	Neighbourhood risk (frequency of problems such as crime and gang violence)	NS relationship between neighbourhood risk and RSB
[20]	Settheekul et al. (2019), Thailand	Cross-sectional; Multiple logistic regression Rural community; $N = 397$ Age range = 10–19 F (53%), M (47%)	N/A	1. Sexual intercourse: 0 = never, 1 = Yes 2. Condom use: ranging 1–3, never to always 3. Multiple sexual partners: ranging 1–3, 1 to more than 4 Total ranging 0–8, RSB (3–8)	Neighbourhood disorganization (10 items, alpha coefficient = 0.95) Neighbourhood social control (2 items, alpha coefficient = 0.85) Neighbourhood social cohesion (5 items, alpha coefficient = 0.65) Community norms (5 items, alpha coefficient = 0.61)	NS relationship between neighbourhood disorganization/social control/social cohesion/community norms and RSB
[21]	Swenson et al. (2010), USA	Cross-sectional; Hierarchical multiple regression home (online) $N = 1658$ age range = 13–18 (mean age = 15.08) F (60%), M (40%)	N/A	Proportion of safe sex acts: number of times condom use during the last 3 months	The City Stress Inventory, ranging 1–4, never to often, 10 items, alpha coefficient = 0.85; perceived neighbourhood disorder; Exposure to violence in participants' urban neighbourhoods	Significant relationship between neighbourhood stress and % of safe sex acts ( $B = -0.04$ , $\beta = -0.08$ , $sr^2 = -0.08$ )
[22]	Voisin (2002), Puerto Rico	Cross-sectional; Correlation secondary school; $N = 358$ age range = 14–19 M (100%) AM (47.8%) PM (52.2%)	N/A	HIV risk index (MSBQ): sex with concurrent partner; Substance or alcohol use during sex; Unprotected sex without condom use; History of STDs (ranging 0–6) = Each category was assigned a value of 1 (ranging 0–4)	The Exposure to Violence Probe (EVP), 15 items, alpha coefficient = 0.88, ranging 0–7, never to six or more times: 1. Witnessing community violence (6 items) 2. Being a victim of community violence (9 items)	(AM) Significant relationship between witnessing community violence and High-risk behaviours for African-American males (Pearson's $r = 0.28$ , $p < 0.01$ ); significant relationship between victim of community violence and High-risk behaviours for African Americans (Pearson's $r = 0.20$ , $p < 0.01$ ) (PM) No correlation with witnessing community violence/victim of community violence and high-risk behaviour to Puerto Ricans

TABLE 2 (Continued)

No.	Author (year), country	Study type, analysis, setting, sample	Primary data source	Outcome variables	Community-related variables	Findings (significant relationships with RSB ( $p \leq 0.05$ ))
[23]	Warner et al. (2011), USA	Longitudinal; logistic regression home (online) N = 820 age range = 12–19 (mean 15 years) F (54%), M (47%)	1. TARS, Wave 1, 2, 2001–2002 2. 2000U.S. Census	1. Sexual debut: 1 = yes, 0 = no 2. Number of sexual partners: ranging 1–11	Neighbourhood Normative Climate scale: neighbourhood-level the individual scores on a sexual attitudes scale (alpha coefficient = 0.66)	Significant relationship between neighbourhood normative climate and sexual debut (OR = 1.160, $p < 0.05$ ) Significant relationship between neighbourhood normative climate and number of sex partners (IRR = 1.080, $p < 0.01$ )
[24]	Yi et al. (2010), Cambodia	Cross-sectional; multiple linear regression secondary school; N = 1049 Age range = 14–20 F (43.5%), M (56.5%)	N/A	1. Sexual intercourse (the past 3 months) 2. Age at first sex: ranging 0–5, never to 13 or younger 3. Number of sex partners (the past 3 months): ranging 0–2, never to 2 or more 4. Condom use in the last sex: 0 = never, 1 = yes, 2 = no Total score = four measures were calculated, higher scores indicating higher level of RSB	The screening survey of Exposure to Community violence (Yes/No) 1. Victimization (6 items, alpha coefficient = 0.70) 2. Community-violence witnessing (6 items, alpha coefficient = 0.70)	(Male) NS relationship between community-violence victimization and RSB; NS relationship between community-violence witnessing and RSB (Female) NS relationship between community-violence victimization and RSB; Significant relationship between community-violence witnessing and RSB ( $\beta = 0.136$ , SE = 0.023)

Abbreviations: AM, African American males; AOR, adjusted odds ratio; CI, confidence interval; CRSI, Cumulative Sexual Risk Index; CTC, Communities That Care; E2S-YES, Evidence to Success Youth Experience Survey; FACHS, Family and Community Health Study; HBSC, Health Behaviour in School-Aged Children; HIV, human immunodeficiency virus; IRR, incidence rate ratio; MSBQ, Male Sexual Behaviour Questionnaire; NLSY, The National Longitudinal Survey of Youth; N/A, not applicable; NS, nonsignificant; OR, odds ratio; PHDCN, Project in Human Development in Chicago Neighbourhoods Community Survey; PM, Puerto Rican males; RSB, risky sexual behaviour; SEM, structural equation modelling;  $sr^2$ , semipartial correlations; SSDP, Seattle Social Development Project; STD, sexually transmitted diseases; TARS, Toledo Adolescent Relationships Study; YAS, The Youth Asset Study.

<sup>a</sup>Add health = The National Longitudinal Study of Adolescent Health.

Health is called 'The National Longitudinal Study of Adolescent to Adult Health'), the US National Longitudinal Survey of Youth (NLSY) and the Project in Human Development in Chicago Neighbourhoods Community Survey (PHDCN). Add Health is a nationally representative sample of over 20,000 adolescents in grades 7–12 during the 1994–1995 school year. It has been followed for five waves to date, most recently in 2016–2017. Add Health is a school-based probability sample that is representative of schools in the United States with regard to region, urbanicity, school size and school type. The study focuses on adolescents' various social environments, including schools, neighbourhoods and peer networks (Greene et al., 2018). The NLSY cohort is a nationally representative sample of 8209 adolescents aged 12–16 in 1997. NLSY examined school progress, labor force behaviour and the transitions from school to work in the US (Kaye et al., 2009). The PHDCN is an interdisciplinary study of how families, schools and neighbourhoods affect child and adolescent development in the United States (Earls et al., 2007).

## 4.2 | Concept and measurements of social processes and mechanisms within the community

The different community variables with the same meaning were merged into one term to prevent confusion in this study. Based on Decker et al. (2018), social processes and mechanisms within the community variables were categorized into collective efficacy and control, community safety and community norms, each with subcategories (Table 2). Table 3 summarizes the results by outcomes. The measures of social processes and mechanisms within a community were not much different from the countries or studies.

## 4.3 | Collective efficacy and social support

Protective social processes were assessed in varying ways in 10 studies. Collective efficacy and control measured informal social control within the neighbourhood and social cohesion. Informal social control was defined as the method of intervention of the neighbours if they witnessed adolescents skipping school or fighting. Social cohesion was defined as the degree to which members of the community cared for, recognized, helped or got along with each other.

Four studies examined the association between collective efficacy and adolescents' RSB. Collective efficacy was measured using a scale consisting of community trust, willingness to help each other and willingness to get along (Browning et al., 2004, 2005). Their studies found a significant relationship between collective efficacy and early sexual debut (Browning et al., 2004, 2005). Another study found that collective efficacy had a significant relationship with the early sexual debut but not with multiple sexual partners (Orihuela et al., 2020). There was no significant association between collective efficacy and adolescents' RSB (Settheekul et al., 2019).

Three studies examined the association between social cohesion and adolescents' RSB. Social trust and participation were included as aspects of social cohesion (Kalolo et al., 2019) were included. Social trust and compliance measured participants' agreement or disagreement with statements related to trust and compliance with others, including peers, parents, teachers and religious leaders. Social participation measured the activity of groups that promoted safe sex within and outside the school environment. Medium social cohesion was associated with condom use but not with age at sexual debut and multiple sexual partners (Kalolo et al., 2019). Medium social trust was associated with multiple sexual partners but not with age at sexual debut and condom use. Social participation had no significant impact on adolescents' RSB (Kalolo et al., 2019). Two of the three studies reported no significant association between social cohesion and adolescents' RSB (Fleming et al., 2019; Settheekul et al., 2019).

Two studies examined the association between community involvement and adolescents' RSB. One of them found that an increase in sports participation at the community level was associated with a decrease in the odds of males' condom use (Kaufman et al., 2004). The other study reported no significant association between social participation and adolescents' RSB (Kalolo et al., 2019).

Two studies examined the association between a sense of community and adolescents. The prevalence of greater community satisfaction and the early sexual debut was observed among white American women but not with multiple sexual partners (Lee, 2012). An association was found between positive feelings about one's neighbours and multiple sexual partners (Ritchwood et al., 2014).

Two studies examined the association between community assets or resources and adolescents' RSB. Neighbourhood connectedness and caring adults were identified as community assets (Greene et al., 2018). Their study found an association between community assets and RSBs, including early sexual debut, multiple sexual partners and condom use. Social resources were measured using a scale that calculated how frequently neighbours visited each other (Orihuela et al., 2020). The study found no significant association between community resources and adolescents' RSB.

## 4.4 | Community safety

Sixteen studies measured neighbourhood safety variables by examining neighbourhood disorder (disorganization), community violence, positive or negative environment, perception of community safety and quality and community problems. Neighbourhood disorder (disorganization) measured the prevalence of vandalism, drugs and drug dealing, gangs, violent crimes, theft or muggings, sexual assaults or rapes or adolescents getting in trouble. Four studies examined the association between neighbourhood disorder and adolescents' RSB. Two of them found that neighbourhood disorganization was associated with adolescents' RSB (Epstein et al., 2014; Fleming et al., 2019). However, the other two found that neighbourhood disorganization had no significant impact on adolescents' RSB (Atwood et al., 2012; Settheekul et al., 2019).

TABLE 3 Community variables by risky sexual behaviour of quantitative studies reviewed.

Community variables	Early sexual initiation		Inconsistent condom use		Multiple sexual partners		Other RSBs <sup>a</sup>	
	+	-	+	-	+	-	+	-
<b>Social processes and mechanisms</b>								
<i>1. Collective efficacy and social support</i>								
Greater collective efficacy and control	[2], [3], [17], [20]	[2], [3], [17]		[17]		[17]		[20]
Lower social cohesion	[7], [9], [20]		[9]			[9]		[7], [20]
Increased community involvement	[10], [9]		[10] M	[10] F, [9]		[9]		
Positive sense of community	[13], [18]	[13] White			[18]	[13]		
Medium social trust	[9]		[9]	[9]	[9]			
Lower community assets and resources	[8], [17]	[8]	[8]		[8]	[17]		
<i>2. Community safety</i>								
Higher neighbourhood disorder	[1], [6], [7], [20]			[1]			[6], [7]	[20]
Increased community violence	[19], [22], [24]						[22] AM, [24] F, witnessing	[19] [22] PM [24] M, witnessing, F/M being a victim
Negative neighbourhood environment	[5], [11], [14], [15]				[14], [15]		[5], [11] M	[11] F [14]
Positive neighbourhood environment	[4]			[4]				
Perceived community safety and quality	[13], [16]			[13], [16]		[16]		[13]
Increased community problems	[12]							[12]
Greater neighbourhood stress	[21]		[21]					
<i>3. Community norms</i>								
Normative climate more favouring toward sexual activity	[20], [23]	[23]						[20]
Perceived racial discrimination	[7], [12]						[12] M	[7], [12] F

Note: Article numbers in Table 3 are according to article numbers in Table 2.

Abbreviations: +, significant positive; -, significant negative; AM, African American males; F, females; M, males; NS, nonsignificant; PM, Puerto Rican males.

<sup>a</sup>Other RSBs (risky sexual behaviours) included the sum of every sexual behaviour category measured level in each study (n = 10). [5] CSRI: sex for drugs/money, nonromantic sex, anal sex, anal sex with nonromantic sexual partners, never used a condom; [7] RSB: multiple sexual partners, inconsistent condom use, experienced prostitution, sex under the influence of alcohol and drugs; [8] RSB: inconsistent condom use or birth control, two or more sexual partners in the past year; [11] unsafe sex: sex with committed relationship (either cohabiting or married), between the age of 14–16 years and 17–20 years; [12] unprotected sex: number of times they had vaginal or anal intercourse, number of times condom use; [14] RSB: multiple partners, frequent sexual intercourse, unprotected sex without using any type of method of birth control; [19] RSB: number of sexual partners, number of times sex, condom use, alcohol or drugs before sex; [20] RSB: sexual intercourse, condom use, multiple sexual partners; [22] high-risk behaviours: sex with concurrent partner, substance or alcohol use during sex, unprotected sex without condom use, history of STDs; [24] RSB: had engaged in sexual intercourse, age at first experience of sexual intercourse (>13 years or younger), number of sex partners, condom use in their last sex.



An exposure scale to community violence was employed, as community violence scores were derived from survey data that measured witnessing or being a victim of such violence. Three studies examined the association between community violence and adolescents' RSB. Higher community violence was correlated with high-risk behaviours among African American males, but it was not significant for Puerto Rican males (Voisin, 2002). Witnessing community violence had a significant relationship with the RSB of adolescent females but not that of adolescent males (Yi et al., 2010). The frequency of crime and gang violence in the neighbourhood had no significant association with adolescents' RSB (Roberts et al., 2012).

Four studies examined the relationship between negative neighbourhood environments and adolescents' RSB. The neighbourhood environment was associated with adolescents' RSB but not with multiple sexual partners (Chen et al., 2010). Another study found that neighbourhood environment was significantly associated with increased odds of RSB among males only (Kaye et al., 2009). Two studies found that a negative neighbourhood environment had no significant impact on adolescents' RSB (Lohman & Billings, 2008; Manlove et al., 2008). In addition, Burke et al. (2018) found that a positive neighbourhood environment and community problems had no significant association with adolescents' RSB.

Two studies examined the association between perceived community safety or quality and adolescents' RSB (Lee, 2012; Miller et al., 2000). Higher neighbourhood quality was associated with a higher number of sexual partners but not with adolescents' age of sexual debut and condom use (Miller et al., 2000). There was no significant association between community safety and adolescents' RSB (Lee, 2012).

A scale that rated 13 problems in the community, such as drug use, social isolation and unemployment, was used (Kogan et al., 2010). The study found no significant association between community problems and unprotected intercourse among adolescents (Kogan et al., 2010). According to Swenson et al. (2010), Neighbourhood stress was measured using a scale consisting of multiple statements about neighbourhood disorder and exposure to violence committed by family or friends. The study found that higher levels of neighbourhood stress were associated with inconsistent condom use (Swenson et al., 2010).

#### 4.5 | Community norms

Four studies examined the association between community norms and adolescents' RSB. Two of them measured participants' perceptions of discrimination (Fleming et al., 2019; Kogan et al., 2010). One revealed that perceived discrimination and unprotected sex were associated only with males (Kogan et al., 2010). The other found no significant association between discrimination and adolescents' RSB (Fleming et al., 2019). In one of two remaining studies concerning the perception of community members' sexual attitudes, neighbourhood normative climate was associated with early sexual debut and multiple sexual partners (Warner et al., 2011). The other found that

community norms had no significant impact on adolescents' RSB (Settheekul et al., 2019).

## 5 | DISCUSSION

This review examined the relationships between the social processes and mechanisms within the community and the RSB of adolescents and young adults. The social processes and mechanisms within a community that was reviewed included collective efficacy and social support, community safety and community norms. A considerable number of studies examined collective efficacy and social support (10 studies) and community safety (16 studies). They often used instruments to measure these variables, which are heterogeneous across studies. This might make the findings of this review less robust. Several studies used secondary datasets. Especially in the United States, secondary datasets are available at the community level and are widely used for research in the United States, including Add Health, NLSY and PHDCN. These large-scale studies were primarily from the United States; and therefore, literature review that includes these results may bias the results because it is not representative of adolescents' and young adults' sexual behaviour in other countries.

The concept of collective efficacy comprised collective efficacy and control, social cohesion, community involvement, a sense of community, social trust and community assets and resources. A majority of these variables did not have significant relationships with the RSB of adolescents and young adults. Among these constructs, only collective efficacy and control displayed the expected relationships with adolescents' and young adults' RSB. Greater collective efficacy and control in the community were associated with lower early sexual initiation (Browning et al., 2004, 2005; Orihuela et al., 2020). Some relationships were even oppositional to what they were expected to be (e.g., the association between a positive sense of community and greater early sexual initiation). High levels of collective efficacy and control in a community could facilitate the reinforcement of social norms, which can lead to a reduction in adolescents' RSB (Browning et al., 2005). Non-parental adults in the community who know and can interact with the community's adolescents may provide indirect monitoring outside the home and enable the reinforcement of norms (Orihuela et al., 2020). Because forms of social organization can facilitate residents' interactions within the community and neighbourhoods, community cohesion and stability can affect adolescents' RSB (Kalolo et al., 2019; Tewksbury et al., 2013). This can be the mechanism through which collective efficacy and control can reduce early sexual initiation.

Community safety also showed inconclusive relationships with adolescents' and young adults' RSB. Most relationships were not significant. However, higher neighbourhood disorder, increased community violence and a negative neighbourhood environment were associated with greater levels of RSB among adolescents and young adults. Based on such partially supported findings in this review, we

can consider that adolescents and young adults in communities with lower levels of safety are at risk of engaging in RSB. Community disorganization influences informal social control, which can foster or hinder the capacity to control any risky behaviours of adolescents (Maimon & Browning, 2010). A previous study explained that young women in unsafe environments might attempt to gain the protection of a male through sexual activity (Choby et al., 2012). Approximately 20% of their African American adolescent female respondents reported neighbourhood violence as a reason they engaged in sexual activity (Choby et al., 2012). Other researchers posited that when adolescents are exposed to high levels of community violence, they might lack supportive structures to help them cope with stressful community risks. In this case, their vulnerability to displaying risk behaviours might increase, including RSB (Voisin et al., 2018). Thus, community intervention and public policies to reduce neighbourhood disorder and community violence can be developed and implemented to prevent RSB among adolescents and young adults.

Although few studies examined the association between community norms and the RSB of adolescents and young adults, they show specific, insightful findings. For instance, a normative climate that favoured sexual activity was related to early sexual initiation among adolescents and young adults (Warner et al., 2011). Such normative climate can emerge, maintain and transmit social norms that influence the meaning of sexual debut, which can create further sexually permissive normative climate such as engaging in casual sex and a more significant number of sex partners (Warner et al., 2011). Perceived racial discrimination was positively related to RSB among male adolescents and young adults (Kogan et al., 2010). Discrimination may be conducted differently for men compared to women because men could experience discrimination from policies and the judicial system (Kogan et al., 2010). These findings demonstrate the potential impact of community norms on the RSB of adolescents and young adults, which should be more thoroughly investigated in future studies.

Social processes and mechanisms within the community are intangible assets and risks of the community. From this review, we found that a decent number of studies examined these social processes and mechanisms within the community and their relationship with the RSB of adolescents and young adults. Furthermore, we found that social processes and mechanisms within the community partially support the prevalence of RSB among adolescents and young adults. A previous study (Decker et al., 2018) examined the relationship between social processes and adolescent reproductive health outcomes. However, it found insufficient evidence to determine the role of social processes and mechanisms within the community. The findings of this review are relatively aligned with these findings. However, the partially supported evidence elucidates the importance of social processes and mechanisms within the community, such as collective efficacy, community safety and community norms. All of these can prevent and reduce RSB among adolescents and young adults. To prevent adverse reproductive health outcomes like STDs or unintended pregnancies, these social processes and mechanisms within the community need to be emphasized.

Additionally, policies that specifically address adolescents and young adults need to be developed and consolidated to provide a safe environment for them.

## 5.1 | Limitations

This review has several limitations. As most reviewed studies were observational and more than a third were cross-sectional studies, causal inferences between social processes and mechanisms within the community and the RSB of adolescents and young adults could not be drawn. To measure social processes and mechanisms, most studies used self-report questionnaires, which can introduce recall and social-desirability biases into the results. This review is part of the leading research project to understand the risky and protective factors affecting RSB at individual, parent, peer, school and community levels in adolescents and young adults. Thus, we may not have included every relevant study due to the search strategy employed. There may be more studies on the relationship between the social process and mechanism within the community and RSB. We could not perform a meta-analysis due to the heterogeneity of the variables and measures.

## 6 | CONCLUSION

In this review, we found that quite a few studies examined the relationship between social processes and mechanisms within the community and the RSB of adolescents and young adults. Although many of these relationships were not significant, the social processes and mechanisms partially support the occurrence of RSB among adolescents and young adults. Community efficacy and social support were critical variables in their association with RSB. Additionally, community safety and norms further elucidated the RSB of adolescents and young adults. Community-based programs to improve community efficacy and safety would be effective strategies to diminish such RSB, which can lead to better reproductive health among adolescents and young adults.

### AUTHOR CONTRIBUTIONS

Study design: Youngran Yang, Sung-Heui Bae; data collection: Youngran Yang, Jieun Jeong, Sung-Heui Bae; data analysis: Youngran Yang, Jieun Jeong, Sung-Heui Bae; study supervision: Youngran Yang, Sung-Heui Bae; manuscript writing: Youngran Yang, Jieun Jeong, Sung-Heui Bae; critical revisions for important intellectual content: Youngran Yang, Jieun Jeong, Sung-Heui Bae.

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## CONFLICT OF INTEREST STATEMENT

The authors report no conflicts of interest in this study.

## DATA AVAILABILITY STATEMENT

The data used to support the findings of this review study are unavailable.

## ETHICS STATEMENT

This study did not require approval from an Institutional Review Board as it did not use human subjects.

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