INTERNATIONAL JOURNAL OF SEXUAL HEALTH
2024, VOL. 36, NO. 1, 15–31
https://doi.org/10.1080/19317611.2023.2283440

Taylor & Francis
Taylor & Francis Group

Associations of Parents-Adolescent Relationship with Adolescent Sexual Risk Behaviors: A Global Analysis Based on 156,649 School-Going Adolescents from 50 Countries

Md Shajedur Rahman Shawon[a], Nazifa Nawal Huda[b], Rashawan Raziur Rouf[c], Fariha Binte Hossain[d] and Gulam Muhammed Al Kibria[e]

[a]Centre for Big Data Research in Health, UNSW Sydney, Sydney, Australia; [b]Department of Global Public Health, Karolinska Institute, Stockholm, Sweden; [c]Shaheed Suhrawardy Medical College, Dhaka, Bangladesh; [d]School of Population Health, UNSW Sydney, Sydney, Australia; [e]Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

ABSTRACT

Our study, examining the Global School-Based Student Health Survey data from 50 countries across four WHO regions, found boys have higher sexual exposure (33.5 vs 17.7%) and risk behaviors – early sexual initiation (55.0 vs. 40.1%), multiple partners (45.2 vs. 26.2%), and condom nonuse (29.2 vs. 26.8%) – than girls. We found that adolescents with parents who understood their problems, monitored academic and leisure-time activities, and respected privacy were less likely to be engaged in sexual activities and risk behaviors. This study highlights the importance of parental involvement and advocates for gender-specific, family-focused interventions to mitigate adolescent sexual risks.

ARTICLE HISTORY
Received 10 June 2023
Revised 19 September 2023
Accepted 29 October 2023

KEYWORDS
Adolescent sexual health; sexual risk behaviors; sexual exposure; early sexual initiation; parental monitoring; parents' behavior

Introduction

According to the World Health Organization (WHO), adolescents represent 16% of the global population and they are identified as a critical demographic group for promoting sexual health (World Health Organization (WHO), 2023a). Adolescence is a pivotal phase of rapid physiological, psychological, and cognitive transformations, during which sexual maturation occurs, while cognitive development and decision-making ability may trail due to the developing brain (Kincaid et al., 2012; Steinberg, 2005). As a result, adolescents are susceptible to engaging in risky sexual behaviors such as early sexual initiation, having multiple sexual partners, and practicing unsafe sex. These behaviors expose adolescents to a myriad of potential negative health outcomes, including sexually transmitted infections (e.g., HIV) and mental health problems (Kincaid et al., 2012; Pinyopornpanish et al., 2017; Szucs et al., 2020). An increasing trend over time has been observed in the proportion of adolescents engaging in early sexual activity, associating with multiple sexual partners, and inconsistently using condoms (Alawode et al., 2021; Blum et al., 2003; Ishida et al., 2011; Kurtz et al., 2005; Kushal et al., 2022; Nield et al., 2014; Yaya & Bishwajit, 2018).

Parenting practices, encompassing aspects of communication, support, monitoring, and management, have been linked with sexually risky behaviors among adolescents in several studies (de Graaf et al., 2010; Gazendam et al., 2020; Lee et al., 2018; Lohman & Billings, 2008; Yimer & Ashebir, 2019). Recent systematic reviews and meta-analyses have reported that parental monitoring is associated with delayed sexual initiation, greater condom and contraceptive use (Dittus et al., 2015), whereas

CONTACT Md Shajedur Rahman Shawon s.shawon@unsw.edu.au Centre for Big Data Research in Health, UNSW Sydney, Level 2, AGSM Building (G27), Sydney, NSW 2052.

Supplemental data for this article can be accessed online at https://doi.org/10.1080/19317611.2023.2283440.

parent–adolescent sexual communication improves adolescents' sexual attitudes and safe-sex efficacy (Rogers, 2017; Widman et al., 2016). The association between parent-adolescent relationships and adolescent sexual behavior is multifaceted (Rogers, 2017; Widman et al., 2016) and grounded in theoretical considerations like the Integrative Model of Behavioral Change (Fishbein & Ajzen, 2011) and Bronfenbrenner's Ecological Systems Theory of human development (Bronfenbrenner, 1979), which encompasses both direct and indirect influences of parental communication and the dynamic, reciprocal interactions within family systems. Parents act as direct agents of sexual socialization for young individuals, playing a critical role in conveying sexual information and guidance and exerting a significant influence on adolescents' sexual cognitions, such as attitudes, perceived cultural norms, and beliefs regarding sexual behaviors (Widman et al., 2016). Additionally, the paths from parent-adolescent relationship to adolescents' sexual behaviors can be mediated through the balance of autonomy and control, reducing opportunity for sexual engagement, and negating peer influences (Rogers, 2017). Parents may also provide a powerful model of open and honest communication about sexual health issues, shaping the way adolescents approach their own sexual relationships (Widman et al., 2016).

Although these complex interplays illustrate the pivotal role parents can play in influencing adolescent sexual behavior, there is surprising unavailability of evidence on such associations from low- and middle-income countries where nearly 86% of all adolescents reside (World Bank, 2002). Hence, it is crucial to delve deeper into the associations between parent-adolescent relationships and risky sexual behaviors among adolescents from developing countries. Previous studies had differences in variable definitions, sample populations, and methodological approaches, which have limited cross-country and cross-region comparisons. Additionally, small sample sizes based on community samples hinder the generalizability of findings (Alawode et al., 2021; Blum et al., 2003; Ishida et al., 2011; Kurtz et al., 2005; Nield et al., 2014; Yaya & Bishwajit, 2018).

To address these limitations and inform the development of adolescent sexual and reproductive health policies, a large-scale epidemiological investigation is needed. Our study utilizes data from the Global School-based Health Survey (GSHS) (World Health Organization (WHO),), 2023b), which provides country-representative samples of school-going adolescents from many countries across WHO regions. In this study, we aim to estimate the prevalence of parent behaviors and risky sexual behaviors among school-going adolescents, compare prevalence estimates by sex, countries, and WHO regions, and investigate the associations of parents-adolescent relationship with engagement in sexual activities and risky sexual behaviors.

Methods

Data sources

This cross-sectional study utilized the Global School-based Student Health Surveys (GSHS) data from 50 countries. The data collection took place from 2009 to 2018. Surveys conducted prior to 2009 were omitted due to either lack of pertinent data or variations concerning our selected variables of interest. In cases where multiple surveys were conducted within our specified period, we included the most recent survey into our analysis.

The specific objectives and methodologies of the GSHS survey were described elsewhere (World Health Organization (WHO), 2023c) and summarized here. GSHS was initiated by the WHO and the US Centers for Disease Control and Prevention (CDC). The overall aim of the GSHS is to assist countries in formulating public health policies and interventions to improve adolescent health, as well as to enable cross-national comparisons across diverse domains of adolescent behaviors, attitudes, and protective and risk factors (World Health Organization (WHO), 2023b). These surveys utilized a two-stage cluster sampling technique to achieve country representative samples. The first stage involved random selection of schools from a comprehensive list, employing the probability-proportionate-to-size (PPS) method. The next stage involved random selection of classrooms with students within our target age group. All students within the selected

classrooms were invited to participate in the survey. During a typical class period, a validated and, where necessary, translated self-administered questionnaire was distributed. The questionnaire was also included country-specific phrases to ensure sociocultural adaptation (World Health Organization (WHO), 2023c).

The required ethics approval for the GSHS surveys was obtained either from the relevant national government agency, an institutional ethics review board, or both, as needed. Informed consent was taken from participating students, their guardians, and school administrators, as appropriate (World Health Organization (WHO), 2023c). As this study utilized publicly accessible GSHS data, we did not need additional ethical approval.

Parent-adolescent relationship

We assessed four factors related to "parents-adolescent relationship" and those variables are: parental understanding of problems, monitoring academic activities, monitoring leisure time activities, and parental respect of privacy (Kushal et al., 2021). For these variables, participants were asked relevant questions with the responses: "never", "rarely", "sometimes", "most of the time", and "always". We converted the original responses to these survey questions into dichotomous responses where 0 = no and 1 = yes for analysis. Parental understanding of problems, monitoring academic activities, and monitoring leisure time activities were defined based on responses "most of the time" or "always", whereas parental respect of privacy was defined based on responses "never" or "rarely (Supplementary Table 1).

Sexual risk behaviors

We first assessed adolescents who were engaged in sexual activity and among them, we examined three sexual risk behaviors: early sexual initiation, multiple partners, and nonuse of condom. Early sexual initiation was defined as engaging in sexual activity at or before the age of 14 years (Kushal et al., 2022). Participants who reported having more than one sexual partner were classified as having multiple partners. Non-condom use was assessed based on the question "The last time you had sexual intercourse, did you or your partner use a condom?"

Statistical analysis

We followed the instructions for GSHS data analysis provided by the CDC (Centers for Disease Control and Prevention (CDC), 2018). We used a weighted variable, a stratification variable and a primary sampling using (PSU) variable in the "SVYSET" programme in Stata (version 16.0) to account for the complex sampling design of survey data. The sampling weights accounted for non-response and the varying probability of selection of schools, classrooms, and students in the survey. We computed country-specific weighted prevalence estimates with 95% confidence intervals (CIs) for parents-adolescent relationship factors and sexual risk behaviors variables according to sex. We then pooled the prevalence estimates by regions and overall, by conducting random-effect meta-analysis in the "metaprop" programme (Nyaga et al., 2014) in Stata because there was substantial heterogeneity in prevalence estimates between countries (I^2 >95%).

To investigate the association between parents-adolescent relationship and sexual risk behaviors, we used multilevel mixed-effect logistic regressions to estimate odds ratios (ORs) with 95% CIs. A random intercept was used to deal with common cluster-level random effects within country. Regression models were adjusted for covariates with p-values <0.05 in the unadjusted models, including age, sex, hunger as proxy for socioeconomic status (Kushal et al., 2021), survey year, WHO region, close friend, being bullied, loneliness, anxiety, suicide ideation, peer support, cigarette smoking, physical activity, and overweight. Details of each of these variables are provided in Supplementary Table 1. We included covariates if they had p-value <0.05 in the unadjusted models for specific outcomes. We looked at the associations separately among boys and girls to explore whether there were any sex-specific differences in such associations.

Participants who had valid information on parent-adolescent relationship and sexual risk behavior variables were included in the analysis. Missing or non-applicable values for covariates were treated as a separate category. We did sensitivity analysis restricting to participants who had valid information for all variables and found no substantial differences (data not shown). Where we present results in figures, ORs are represented by squares, and their corresponding 95% CIs are represented by lines. Statistical significance was set at a two tailed $p < 0.05$.

Results

Our analysis utilized GSHS data from 50 countries and 156,649 adolescents (54.2% of whom were girls) aged between 12 and 17 years were included in the study. The characteristics of the included surveys and participants are detailed in Table 1. These surveys originated from four WHO regions: 10 from the African Region, 21 from the Regions of Americas, 6 from South-East Asia Region, and 13 from the Western Pacific Region. Sample size for these surveys varied considerably across regions, ranging from 89 participants in Tokelau to 43,181 in Argentina. Notably, 87% of this overall sample had valid responses to our variables of interest. The overall mean age was 14.4 (SD 1.2) years and the mean age ranges from 13.4 years in Bahamas to 15 years in Laos. The correlation matrices for parents-adolescent relationship factors and adolescents' sexual risk behaviors variables are presented in Figure 1. There were weak positive correlations among parental understanding of problems, monitoring academic activities, monitoring leisure time activities; but they all had very weak negative correlation with parental respect of privacy. On the other hand, all three sexual risk behavior variables had weak positive correlations among each other.

Prevalence of sexually active adolescents

Overall, 25.4% (95% CI: 21.8–29%) adolescents reported that they were sexually active, with boys reporting around twice as much as that of girls (33.5 vs. 17.7%) (Table 2). This gender difference was consistent across all regions and countries without exception. The prevalence of sexual activity was region-specific, being highest in the African region (32.8%) and lowest in the South-East Asia region (13.4%). At the individual country level, the highest prevalence was observed in Mozambique (47.7%), while the lowest prevalence was found in Vietnam (4.2%).

Prevalence of sexual risk behaviors

Table 3 illustrates the country-specific, pooled-regional, and overall prevalence of sexual risk behaviors among sexually active adolescents, overall and stratified by gender. Approximately half (49.7%) of them reported early sexual initiation, 38.7% reported involvement with multiple partners, and 28.7% reported no condom use during the last sexual intercourse. The Regions of Americas had the highest prevalence of early sexual initiation (62.5%) and involvement with multiple partners (49.3%). In contrast, the South-East Asia region reported the lowest prevalence for both these risk behaviors, standing at 36.2 and 27.6%, respectively. Interestingly, in almost all regions, adolescent boys exhibited a higher prevalence in three risk behaviors, except for not using condoms in the Regions of Americas, where girls showed a higher prevalence (30.1 vs. 28.3% in boys). Country-level exceptions were noted in Seychelles and Bangladesh, where girls showed higher prevalence of early sexual initiation compared to boys, with prevalence at 68.2 vs. 68.8% and 50.6 vs. 89.5%, respectively. Vietnam was the only country where girls reported a higher prevalence of involvement with multiple partners (11.1 vs. 8.3% in boys). Furthermore, girls from various countries reported a higher prevalence of not using condoms compared to boys. This was observed in several countries across the African region (Mauritius, Seychelles, Sierra Leone), the Regions of Americas (Anguilla, Antigua and Barbuda, Argentina, Barbados, Bolivia, British Virgin Islands, Costa Rica, Curacao, El Salvador, Paraguay, Peru, Saint Lucia, Suriname, Trinidad and Tobago), the South-East Asia region (Bangladesh, Thailand), and the Western Pacific region (French Polynesia, Vietnam, Wallis and Futuna) (Table 3).

Table 1. Survey characteristics, by country.

Country	Survey year	n/N	Analysis sample (%)	Boys, *n* (%)	Girls, *n* (%)	Mean age (SD)
African Region						
Benin	2016	1032/1174	87.9	471 (45.6)	561 (54.4)	14.9 (1.1)
Ghana	2012	1302/1780	73.1	651 (50.0)	651 (50.0)	14.5 (1.3)
Liberia	2017	560/842	66.5	273 (48.8)	287 (51.2)	14.7 (1.2)
Mauritania	2010	1519/1996	76.1	713 (46.9)	806 (53.1)	14.8 (1.1)
Mauritius	2017	2046/2533	80.8	926 (45.3)	1120 (54.7)	14.5 (1.1)
Mozambique	2015	816/1011	80.7	395 (48.4)	421 (51.6)	14.9 (1.1)
Namibia	2013	2128/2655	80.2	881 (41.4)	1247 (58.6)	14.6 (1.1)
Seychelles	2015	1934/2470	78.3	830 (42.9)	1104 (57.1)	13.9 (1.4)
Sierra Leone	2017	1521/1884	80.7	673 (44.2)	848 (55.8)	14.5 (1.2)
Tanzania	2014	2648/3093	85.6	1212 (45.8)	1436 (54.2)	14.1 (1.3)
Region of the Americas						
Anguilla	2016	619/725	85.4	276 (44.6)	343 (55.4)	14.5 (1.1)
Antigua and Barbuda	2009	1003/1253	80.0	455 (45.4)	548 (54.6)	14.0 (0.9)
Argentina	2018	43181/48215	89.6	20293 (47.0)	22888 (53.0)	14.5 (1.1)
Bahamas	2013	1128/1343	84.0	493 (43.7)	635 (56.3)	13.4 (1.0)
Barbados	2011	1410/1620	87.0	609 (43.2)	801 (56.8)	14.2 (0.9)
Belize	2011	1641/1972	83.2	786 (47.9)	855 (52.1)	14.0 (1.4)
Bolivia	2012	3045/3497	87.1	1514 (49.7)	1531 (50.3)	14.4 (1.1)
British Virgin Islands	2009	1419/1589	89.3	627 (44.2)	792 (55.8)	14.1 (1.4)
Costa Rica	2009	2498/2660	93.9	1187 (47.5)	1311 (52.5)	14.3 (1.1)
Curacao	2015	1555/1851	84.0	692 (44.5)	863 (55.5)	14.3 (1.3)
Dominican Republic	2016	993/1211	82.0	426 (42.9)	567 (57.1)	14.5 (1.1)
El Salvador	2013	1694/1878	90.2	902 (53.2)	792 (46.8)	14.3 (1.0)
Honduras	2012	1553/1730	89.8	747 (48.1)	806 (51.9)	14.0 (1.3)
Jamaica	2017	1221/1422	85.9	524 (42.9)	697 (57.1)	14.7 (1.0)
Paraguay	2017	2287/2559	89.4	1054 (46.1)	1233 (53.9)	14.4 (1.2)
Peru	2010	2723/2853	95.4	1306 (48.0)	1417 (52.0)	14.5 (1.0)
Saint Kitts and Nevis	2010	1441/1724	83.6	588 (40.8)	853 (59.2)	14.4 (1.0)
Saint Lucia	2018	1468/1703	86.2	639 (43.5)	829 (56.5)	14.2 (1.3)
Saint Vincent and The Grenadines	2018	1287/1449	88.8	559 (43.4)	728 (56.6)	14.8 (1.0)
Suriname	2016	1566/1740	90.0	712 (45.5)	854 (54.5)	14.2 (1.2)
Trinidad and Tobago	2017	2738/3315	82.6	1217 (44.4)	1521 (55.6)	14.0 (1.4)
South-East Asia Region						
Bangladesh	2014	2485/2949	84.3	973 (39.2)	1512 (60.8)	14.2 (0.9)
Bhutan	2016	4317/4725	91.4	1825 (42.3)	2492 (57.7)	14.6 (1.2)
Indonesia	2015	8208/9919	82.8	3519 (42.9)	4689 (57.1)	13.9 (1.3)
Nepal	2015	4669/5727	81.5	2159 (46.2)	2510 (53.8)	14.3 (1.2)
Thailand	2015	4163/4886	85.2	1743 (41.9)	2420 (58.1)	14.0 (1.3)
Timor-Leste	2015	1543/2282	67.6	642 (41.6)	901 (58.4)	14.6 (1.2)
Western Pacific Region						
Brunei Darussalam	2014	2189/2333	93.8	999 (45.6)	1190 (54.4)	14.4 (1.2)
Fiji	2016	1915/2394	80.0	889 (46.4)	1026 (53.6)	15.0 (0.9)
French Polynesia	2015	2195/2431	90.3	1031 (47.0)	1164 (53.0)	14.3 (1.2)
Kiribati	2011	1406/1559	90.2	592 (42.1)	814 (57.9)	14.3 (1.0)
Laos	2015	2400/2542	94.4	1039 (43.3)	1361 (56.7)	15.0 (0.9)
Malaysia	2012	18966/20835	91.0	9257 (48.8)	9709 (51.2)	14.5 (1.1)
Mongolia	2013	4119/4442	92.7	1917 (46.5)	2202 (53.5)	14.1 (1.3)
Samoa	2017	1036/1414	73.3	331 (31.9)	705 (68.1)	14.5 (1.2)
Tokelau	2014	89/101	88.1	49 (55.1)	40 (44.9)	13.9 (1.4)
Tuvalu	2013	670/904	74.1	295 (44.0)	375 (56.0)	14.1 (1.5)
Vanuatu	2016	1449/1773	81.7	582 (40.2)	867 (59.8)	14.6 (1.2)
Vietnam	2013	2111/2285	92.4	960 (45.5)	1151 (54.5)	14.8 (0.8)
Wallis and Futuna	2015	743/892	83.3	328 (44.1)	415 (55.9)	14.2 (1.3)
Total		156649/180140	87.0	71761 (45.8)	84888 (54.2)	14.4 (1.2)

n: number of participants who had valid response on psychological distress variables and physical behaviors and included in this analysis; *N*: total number of participants included in the GSHS.

Estimates for parents-adolescent relationship factors

Overall, 36.6% of the adolescents reported having parents who were understanding of their problems, with a negligible gender difference (boys: 36.8%, girls: 36.5%) (Table 4). Approximately 40% of the adolescents reported that their parents monitored their academic activities, with similar rate among boys and girls (40.3 vs. 39.6%). However, more girls reported that their parents monitored their leisure time activities compared to boys (46.3 vs. 41.1%). Over two-thirds of adolescents reported that their parents respected their privacy, with similar rate between genders (69.7% in girls vs. 69% in boys) (Table 4). When we looked at the data by region, the Western

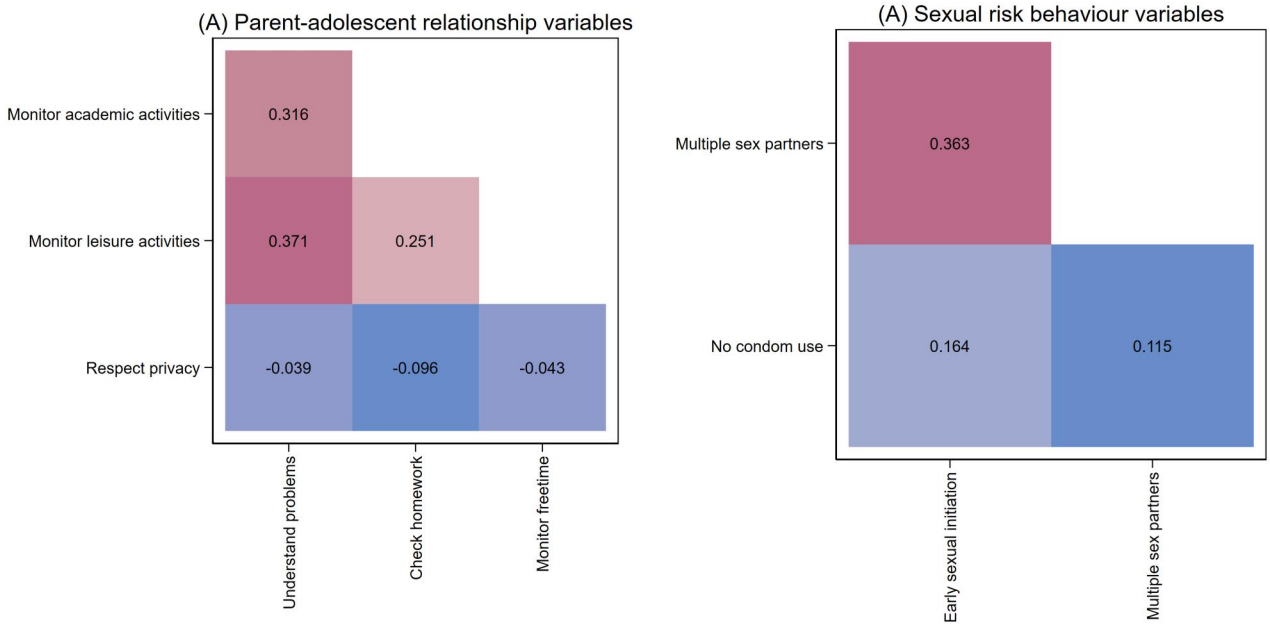

Figure 1. Correlation matrices for parents' behavior and adolescents' sexual risk behavior variables. Pearson coefficients were used to estimate the correlation among variables. The color gradient goes from blue to red, with smaller correlation coefficients represented as blue and larger correlation coefficients represented as red.

Pacific region reported the lowest proportions in both genders for parents understanding their problems and monitoring their academic activities. The least parental supervision of leisure activities was reported among boys in the South-East Asia region (36.4%), while for girls, it was in the Western Pacific Region (39.7%). Adolescents from the South-East Asia region also reported the lowest levels of parental respect for privacy, for both boys (63.6%) and girls (64.1%). Significant variations were also observed across countries in the prevalence of parent-adolescent relationship factors, which are further detailed in Supplementary Tables 2-5.

Associations between parents-adolescent relationship and sexual risk behaviors

Figure 2 shows that parental understanding of problems (adjusted OR: 0.84, 95% CI: 0.82–0.87), monitoring academic activities (adjusted OR: 0.85, 95% CI: 0.83–0.88), and monitoring leisure time activities (adjusted OR: 0.71, 95% CI: 0.69–0.73) were strongly associated with lower odds of sexual activity in adolescents. However, we observed no significant association between parental respect for privacy and adolescents' exposure to sexual activity (adjusted OR: 0.97, 95% CI: 0.95–1.00). There were strong and persistent associations for parental understanding of problems, monitoring academic activities and monitoring leisure time activities with lower odds of sexual exposure among all WHO regions except for South-East Asia region where monitoring academic activities was not significantly associated with sexual exposure (Figure 2). Conversely, only adolescents from the Regions of Americas had significant association between parental respect of privacy and being sexually active. We observed similar associations between parents-adolescent relationship factors with sexual exposure separately among boys and girls (Supplementary Figures 1 and 2).

We then examined the associations of parents-adolescent relationship factors with sexual risk behaviors among sexually active adolescents (Figure 3). We observed that all four factors representing parents-adolescent relationship had significant negative associations with sexual risk behaviors. Significant variations were observed in region-specific ORs for the associations between parents-adolescent relationship factors and sexual risk behaviors (Figure 3). In stratified analysis according to gender, we found similar associations for boys and girls, but some of them did not reach statistical significance (Supplementary Figures 3 and 4).

Table 2. Country-specific, pooled-regional, and pooled-overall prevalence of sexually active school-going adolescents, by sex and overall.

Country	Prevalence (95% CI)*		
	Boys	Girls	Total
African Region			
Benin	41.6 (37.1–46.2)	20.1 (16.9–23.7)	34.4 (31.5–37.4)
Ghana	30.4 (26.9–34.1)	22.4 (19.3–25.8)	26.4 (24.0–28.9)
Liberia	46.5 (40.5–52.6)	33.8 (28.3–39.6)	40.4 (36.3–44.6)
Mauritania	34.9 (31.4–38.5)	28.8 (25.7–32.0)	32.1 (29.8–34.5)
Mauritius	24.0 (21.3–26.9)	11.1 (9.3–13.1)	16.9 (15.3–18.6)
Mozambique	62.5 (57.6–67.3)	32.5 (28.1–37.2)	47.7 (44.2–51.2)
Namibia	54.5 (51.1–57.8)	31.2 (28.6–33.8)	41.1 (39.0–43.2)
Seychelles	42.5 (39.1–46.0)	36.5 (33.7–39.4)	39.2 (37.1–41.5)
Sierra Leone	42.1 (38.3–45.9)	22.9 (20.1–25.9)	32.2 (29.9–34.6)
Tanzania	24.8 (22.3–27.3)	11.8 (10.1–13.5)	18.0 (16.5–19.5)
Pooled estimates	*40.3 (32.5–48.1)*	*25.0 (18.7–31.3)*	*32.8 (26.0–39.5)*
Region of the Americas			
Anguilla	42.0 (36.1–48.1)	19.5 (15.5–24.1)	29.9 (26.3–33.7)
Antigua and Barbuda	47.7 (43.0–52.4)	24.3 (20.7–28.1)	36.2 (33.2–39.3)
Argentina	44.0 (43.4–44.7)	31.8 (31.2–32.4)	37.6 (37.1–38.0)
Bahamas	37.3 (33.0–41.8)	18.1 (15.2–21.3)	26.9 (24.3–29.6)
Barbados	43.7 (39.7–47.7)	25.3 (22.4–28.5)	34.0 (31.6–36.6)
Belize	34.7 (31.4–38.2)	16.1 (13.7–18.8)	25.2 (23.1–27.4)
Bolivia	29.9 (27.6–32.2)	19.3 (17.3–21.3)	24.6 (23.1–26.2)
British Virgin Islands	50.9 (46.9–54.9)	29.7 (26.5–33.0)	39.7 (37.1–42.3)
Costa Rica	28.0 (25.4–30.6)	19.1 (17.0–21.4)	23.5 (21.9–25.3)
Curacao	28.8 (25.4–32.3)	19.9 (17.3–22.8)	24.2 (22.1–26.4)
Dominican Republic	49.5 (44.7–54.4)	19.0 (15.9–22.5)	34.0 (31.1–37.1)
El Salvador	30.8 (27.8–33.9)	13.3 (11.0–15.8)	22.3 (20.3–24.3)
Honduras	36.5 (33.1–40.1)	14.1 (11.8–16.7)	24.7 (22.6–27.0)
Jamaica	63.5 (59.3–67.7)	24.5 (21.4–27.9)	42.5 (39.7–45.3)
Paraguay	30.3 (27.5–33.1)	15.8 (13.8–18.0)	22.6 (20.9–24.4)
Peru	27.7 (25.3–30.2)	11.1 (9.5–12.8)	19.3 (17.8–20.9)
Saint Kitts and Nevis	50.2 (46.1–54.3)	23.2 (20.4–26.2)	36.1 (33.6–38.6)
Saint Lucia	44.4 (40.5–48.4)	19.4 (16.8–22.3)	30.9 (28.6–33.4)
Saint Vincent and The Grenadines	60.1 (55.9–64.2)	33.8 (30.4–37.4)	45.5 (42.7–48.2)
Suriname	30.8 (27.4–34.3)	17.9 (15.4–20.7)	23.8 (21.7–26.0)
Trinidad and Tobago	32.0 (29.3–34.7)	15.6 (13.8–17.5)	23.1 (21.6–24.7)
Pooled estimates	*40.0 (36.0–44.0)*	*20.5 (16.7–24.3)*	*29.8 (26.2–33.4)*
South-East Asia Region			
Bangladesh	12.5 (10.5–14.8)	3.5 (2.6–4.6)	9.3 (8.1–10.5)
Bhutan	19.7 (17.9–21.6)	8.1 (7.1–9.2)	13.3 (12.3–14.4)
Indonesia	6.8 (6.0–7.7)	3.8 (3.3–4.4)	5.2 (4.7–5.7)
Nepal	20.8 (19.1–22.6)	16.9 (15.4–18.4)	18.7 (17.6–19.9)
Thailand	19.2 (17.4–21.1)	10.9 (9.7–12.2)	14.6 (13.6–15.7)
Timor-Leste	24.9 (21.6–28.5)	14.4 (12.2–16.9)	19.2 (17.3–21.3)
Pooled estimates	*17.3 (10.9–23.6)*	*9.5 (5.6–13.5)*	*13.4 (8.3–18.4)*
Western Pacific Region			
Brunei Darussalam	12.0 (10.1–14.2)	8.9 (7.4–10.7)	10.5 (9.2–11.8)
Fiji	22.6 (19.9–25.5)	10.2 (8.4–12.3)	15.9 (14.3–17.6)
French Polynesia	39.8 (36.8–42.8)	26.5 (24.0–29.2)	32.9 (30.9–34.9)
Kiribati	40.0 (36.1–44.1)	10.0 (8.0–12.2)	23.7 (21.5–26.0)
Laos	15.5 (13.3–17.8)	8.4 (7.0–10.1)	12.0 (10.7–13.3)
Malaysia	9.1 (8.6–9.8)	6.7 (6.3–7.3)	7.9 (7.5–8.3)
Mongolia	15.1 (13.6–16.8)	7.7 (6.6–8.9)	11.3 (10.3–12.3)
Samoa	32.6 (27.6–38.0)	13.2 (10.8–15.9)	21.6 (19.2–24.3)
Tokelau	40.8 (27.0–55.8)	15.0 (5.7–29.8)	30.3 (21.0–41.0)
Tuvalu	28.8 (23.7–34.3)	8.3 (5.7–11.5)	17.3 (14.5–20.4)
Vanuatu	34.7 (30.8–38.7)	17.1 (14.6–19.7)	25.3 (23.0–27.6)
Vietnam	5.4 (4.1–7.0)	3.1 (2.2–4.3)	4.2 (3.4–5.2)
Wallis and Futuna	34.5 (29.3–39.9)	14.2 (11.0–18.0)	23.3 (20.3–26.5)
Pooled estimates	*24.9 (19.3–30.5)*	*11.2 (8.7–13.7)*	*17.8 (13.9–21.6)*
Overall estimate†	***33.5 (28.9–38.1)***	***17.7 (14.9–20.6)***	***25.4 (21.8–29.0)***

*Country-specific sampling weights were used to yield country representative estimates.
†Random-effect meta-analysis was used to calculate the pooled estimates.

Discussion

In this comprehensive study, we analyzed nationally representative samples of school-going adolescents from 50 countries across various WHO regions and found that one in four adolescents reported that they were sexually active, with boys reporting more than girls. Among these sexually active adolescents, approximately half had early

Table 3. Country-specific, pooled-regional, and pooled-overall prevalence of sexual risk behaviors among adolescents who were sexually active, by sex and overall.

Country	Prevalence (95% CI) among sexually-active adolescents*								
	Early sexual initiation			Multiple partners			No condom use		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
African Region									
Benin	60.4 (53.1–67.4)	32.1 (23.3–41.8)	55.0 (49.2–60.8)	64.6 (57.4–71.3)	17.9 (11.2–26.6)	55.4 (49.5–61.1)	56.8 (49.4–63.9)	33.0 (24.2–42.8)	52.0 (46.2–57.8)
Ghana	43.2 (36.0–50.5)	30.4 (22.9–38.8)	37.5 (32.2–43.0)	33.7 (27.0–40.9)	24.6 (17.7–32.7)	29.6 (24.7–34.8)	37.9 (31.0–45.2)	19.6 (13.3–27.2)	29.9 (25.0–35.2)
Liberia	38.6 (30.3–47.5)	10.8 (5.5–18.5)	26.9 (21.4–33.1)	34.8 (26.8–43.6)	21.6 (14.0–30.8)	29.5 (23.7–35.8)	34.8 (26.8–43.6)	20.6 (13.2–29.7)	28.6 (22.9–34.9)
Mauritania	49.2 (42.8–55.6)	37.2 (31.0–43.8)	44.3 (39.8–48.8)	37.6 (31.6–43.9)	26.0 (20.4–32.1)	32.8 (28.7–37.2)	24.0 (18.8–29.8)	19.0 (14.2–24.7)	21.8 (18.2–25.8)
Mauritius	43.1 (36.4–49.9)	39.3 (30.6–48.6)	42.0 (36.7–47.5)	39.8 (33.2–46.7)	22.1 (15.1–30.5)	33.1 (28.1–38.4)	26.9 (21.1–33.3)	44.3 (35.3–53.5)	33.1 (28.1–38.4)
Mozambique	54.5 (48.0–60.8)	25.0 (18.2–32.9)	44.6 (39.6–49.7)	45.1 (38.8–51.6)	13.9 (8.7–20.6)	34.4 (29.7–39.3)	20.3 (15.5–25.9)	9.7 (5.4–15.8)	16.7 (13.1–20.7)
Namibia	66.4 (62.0–70.6)	39.0 (34.1–44.1)	54.3 (50.9–57.7)	50.7 (46.2–55.3)	29.1 (24.6–33.9)	41.2 (37.9–44.5)	23.1 (19.4–27.1)	16.8 (13.1–20.9)	20.3 (17.7–23.1)
Seychelles	68.2 (63.0–73.1)	68.8 (63.9–73.4)	68.5 (65.0–71.9)	55.8 (50.4–61.1)	50.0 (44.9–55.1)	53.0 (49.3–56.7)	37.0 (31.9–42.3)	45.1 (40.1–50.2)	41.0 (37.4–44.7)
Sierra Leone	64.8 (59.2–70.2)	48.1 (40.7–55.6)	58.6 (54.1–63.0)	38.7 (33.3–44.4)	20.0 (14.5–26.5)	31.7 (27.6–36.0)	45.8 (40.2–51.5)	48.6 (41.2–56.1)	46.7 (42.2–51.2)
Tanzania	50.7 (44.9–56.4)	26.6 (20.1–34.0)	42.5 (38.0–47.1)	30.6 (25.5–36.1)	9.5 (5.5–14.9)	23.3 (19.5–27.3)	34.5 (29.2–40.2)	18.9 (13.3–25.7)	29.2 (25.1–33.5)
Pooled estimates	*54.2 (47.6–60.7)*	*35.8 (24.3–47.3)*	*47.5 (40.0–55.1)*	*43.2 (36.6–49.8)*	*23.5 (15.6–31.5)*	*36.4 (29.9–42.9)*	*33.9 (27.2–40.7)*	*27.4 (18.7–36.0)*	*31.8 (24.8–38.9)*
Region of the Americas									
Anguilla	74.6 (65.6–82.3)	39.1 (27.6–51.6)	62.3 (54.8–69.3)	58.8 (49.2–67.9)	21.7 (12.7–33.3)	45.9 (38.5–53.4)	29.8 (21.6–39.1)	30.4 (19.9–42.7)	30.1 (23.5–37.3)
Antigua and Barbuda	87.5 (82.4–91.5)	79.4 (71.6–85.9)	84.7 (80.6–88.3)	67.9 (61.3–73.9)	53.7 (44.9–62.3)	63.1 (57.8–68.1)	29.0 (23.2–35.4)	30.1 (22.6–38.6)	29.4 (24.8–34.4)
Argentina	68.2 (67.2–69.1)	56.6 (55.5–57.7)	63.0 (62.2–63.7)	55.4 (54.4–56.5)	42.2 (41.1–43.4)	49.5 (48.8–50.3)	13.9 (13.2–14.6)	20.8 (19.9–21.7)	17.0 (16.4–17.6)
Bahamas	78.7 (71.9–84.4)	51.8 (42.1–61.3)	69.0 (63.3–74.2)	52.8 (45.2–60.3)	25.0 (17.3–34.1)	42.8 (37.0–48.7)	35.4 (28.4–42.9)	15.2 (9.1–23.2)	27.9 (22.8–33.5)
Barbados	77.3 (71.7–82.3)	63.1 (56.0–69.7)	71.7 (67.4–75.8)	52.3 (46.0–58.5)	40.9 (34.1–48.0)	47.9 (43.3–52.6)	27.7 (22.3–33.6)	29.1 (22.9–35.8)	28.3 (24.2–32.6)
Belize	67.3 (61.5–72.7)	45.7 (37.2–54.3)	60.0 (55.1–64.7)	63.7 (57.8–69.3)	36.2 (28.2–44.8)	54.7 (49.9–59.6)	26.1 (21.0–31.6)	23.9 (17.1–31.9)	25.1 (21.0–29.5)
Bolivia	52.5 (47.8–57.2)	39.3 (33.7–45.1)	47.4 (43.8–51.0)	46.4 (41.7–51.1)	26.8 (21.9–32.3)	38.7 (35.2–42.3)	26.0 (22.1–30.3)	33.9 (28.5–39.6)	29.2 (25.9–32.6)
British Virgin Islands	76.3 (71.3–80.9)	59.5 (52.8–65.9)	69.7 (65.6–73.5)	66.2 (60.7–71.4)	46.3 (39.6–53.0)	58.3 (54.0–62.5)	19.9 (15.6–24.7)	29.1 (23.3–35.4)	23.3 (19.9–27.1)
Costa Rica	58.2 (52.6–63.7)	47.3 (40.9–53.8)	53.7 (49.4–57.9)	51.6 (45.9–57.2)	34.4 (28.5–40.8)	44.5 (40.3–48.8)	29.4 (24.5–34.8)	36.9 (30.8–43.4)	32.7 (28.8–36.7)
Curacao	56.5 (49.2–63.7)	54.3 (46.3–62.2)	55.8 (50.5–61.1)	42.9 (35.8–50.3)	34.6 (27.3–42.4)	39.4 (34.2–44.7)	25.7 (19.6–32.5)	45.1 (37.2–53.1)	34.0 (29.1–39.2)
Dominican Republic	69.4 (62.4–75.8)	42.9 (32.9–53.3)	61.9 (56.1–67.5)	63.3 (56.1–70.0)	28.6 (19.9–38.6)	53.7 (47.9–59.5)	28.1 (21.9–34.9)	26.5 (18.1–36.4)	27.6 (22.5–33.0)
El Salvador	62.8 (56.8–68.4)	52.4 (42.4–62.4)	59.7 (54.7–64.7)	48.9 (43.0–54.9)	26.2 (18.0–35.8)	42.3 (37.3–47.4)	19.9 (15.4–25.0)	27.2 (18.9–36.8)	21.8 (17.8–26.3)
Honduras	58.8 (52.8–64.6)	40.9 (31.8–50.4)	53.3 (48.2–58.3)	40.1 (34.3–46.2)	24.3 (16.8–33.2)	35.5 (30.8–40.5)	25.8 (20.8–31.4)	17.4 (11.0–25.6)	23.1 (19.0–27.6)
Jamaica	85.1 (80.7–88.8)	45.1 (37.2–53.1)	72.7 (68.5–76.6)	71.4 (66.2–76.3)	46.9 (39.0–54.9)	63.6 (59.2–67.9)	31.1 (26.0–36.4)	27.8 (21.0–35.3)	30.0 (25.9–34.3)
Paraguay	52.9 (47.2–58.6)	38.9 (31.9–46.1)	47.7 (43.3–52.2)	55.2 (49.4–60.8)	29.0 (22.7–36.0)	45.3 (40.9–49.8)	22.6 (18.0–27.6)	23.8 (18.0–30.5)	23.1 (19.4–27.0)
Peru	70.4 (65.4–75.0)	54.9 (46.9–62.6)	66.0 (61.8–70.0)	56.1 (50.8–61.2)	23.8 (17.5–31.0)	46.7 (42.4–51.1)	32.3 (27.6–37.4)	34.1 (26.9–41.9)	32.7 (28.7–36.9)
Saint Kitts and Nevis	77.5 (72.2–82.3)	53.2 (45.8–60.5)	69.3 (65.0–73.5)	66.0 (60.1–71.4)	51.6 (44.2–58.9)	61.1 (56.5–65.5)	40.4 (34.6–46.3)	33.0 (26.3–40.2)	37.8 (33.5–42.4)
Saint Lucia	67.6 (61.8–73.0)	54.7 (46.9–62.3)	63.2 (58.6–67.7)	61.7 (55.8–67.3)	44.7 (37.1–52.5)	56.0 (51.3–60.6)	39.7 (34.0–45.6)	44.7 (37.1–52.5)	41.4 (36.8–46.0)
Saint Vincent and The Grenadines	83.8 (79.4–87.6)	53.7 (47.2–60.1)	71.5 (67.7–75.2)	70.7 (65.5–75.5)	49.6 (43.1–56.1)	61.8 (57.7–65.8)	43.4 (38.0–48.9)	42.1 (35.9–48.6)	42.9 (38.8–47.0)
Suriname	64.8 (57.9–71.2)	47.9 (39.6–56.4)	57.9 (52.5–63.1)	52.9 (45.9–59.8)	28.1 (21.0–36.1)	43.0 (37.8–48.3)	22.4 (16.9–28.6)	31.5 (24.1–39.7)	26.1 (21.6–31.0)
Trinidad and Tobago	57.8 (52.7–62.7)	41.8 (35.8–48.0)	52.0 (48.1–55.9)	50.4 (45.3–55.4)	24.7 (19.6–30.4)	41.2 (37.4–45.0)	28.8 (24.3–33.5)	31.6 (26.0–37.6)	29.9 (26.4–33.5)
Pooled estimates	*69.0 (65.0–73.1)*	*50.8 (47.0–54.7)*	*62.5 (59.1–66.0)*	*56.9 (53.7–60.2)*	*35.3 (31.2–39.4)*	*49.3 (46.2–52.4)*	*28.3 (23.7–33.0)*	*30.1 (26.3–34.0)*	*29.2 (25.1–33.2)*
South-East Asia Region									
Bangladesh	50.6 (42.7–58.4)	89.5 (75.2–97.1)	55.9 (48.8–62.8)	56.0 (48.1–63.7)	55.3 (38.3–71.4)	55.9 (48.8–62.8)	30.7 (23.8–38.3)	31.6 (17.5–48.7)	30.9 (24.6–37.7)
Bhutan	58.2 (53.0–63.4)	23.9 (18.2–30.4)	46.5 (42.4–50.8)	43.7 (38.5–48.9)	13.4 (9.0–18.9)	33.6 (29.7–37.7)	32.7 (27.9–37.8)	13.9 (9.5–19.5)	26.4 (22.8–30.2)
Indonesia	17.1 (12.6–22.5)	11.8 (7.5–17.5)	14.9 (11.6–18.6)	15.1 (10.9–20.2)	7.3 (3.9–12.2)	11.8 (8.9–15.3)	22.4 (17.4–28.2)	11.8 (7.5–17.5)	18.2 (14.6–22.2)
Nepal	25.1 (21.0–29.5)	18.5 (14.4–23.0)	21.9 (19.0–25.0)	20.4 (16.6–24.5)	8.6 (5.9–12.2)	15.0 (12.6–17.8)	14.0 (10.8–17.7)	9.8 (6.9–13.5)	12.0 (9.8–14.5)
Thailand	46.1 (40.6–51.6)	48.2 (42.0–54.5)	47.0 (42.9–51.1)	30.0 (25.1–35.3)	24.1 (19.0–29.8)	27.4 (23.9–31.2)	13.0 (9.6–17.1)	26.8 (21.5–32.7)	18.6 (15.5–22.0)
Timor-Leste	32.1 (24.9–39.9)	31.7 (24.3–40.0)	31.9 (26.7–37.5)	28.9 (22.0–36.6)	15.9 (10.3–22.8)	23.7 (19.0–28.9)	25.8 (19.2–33.3)	23.4 (16.8–31.2)	25.0 (20.2–30.3)
Pooled estimates	*38.1 (24.5–51.8)*	*36.9 (19.6–54.2)*	*36.2 (23.6–48.9)*	*32.2 (21.1–43.2)*	*17.8 (10.8–24.9)*	*27.6 (17.8–37.4)*	*22.8 (15.8–29.9)*	*18.3 (12.0–24.6)*	*21.5 (16.0–27.1)*

(*continued*)

Table 3. Continued.

Country	Prevalence (95% CI) among sexually-active adolescents*								
	Early sexual initiation			Multiple partners			No condom use		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Western Pacific Region									
Brunei Darussalam	27.5 (19.7–36.4)	19.8 (12.7–28.7)	23.9 (18.5–30.0)	15.8 (9.8–23.6)	12.3 (6.7–20.1)	14.2 (9.9–19.4)	17.5 (11.2–25.5)	17.9 (11.2–26.6)	17.7 (13.0–23.3)
Fiji	45.1 (38.0–52.4)	29.0 (20.6–38.5)	39.4 (33.9–45.2)	35.9 (29.2–43.1)	14.0 (8.1–22.1)	28.5 (23.5–33.9)	31.3 (24.8–38.3)	15.9 (9.5–24.2)	25.8 (21.0–31.2)
French Polynesia	62.2 (57.4–66.8)	54.0 (48.5–59.4)	58.8 (55.2–62.3)	48.0 (43.1–52.9)	30.4 (25.5–35.6)	40.8 (37.3–44.4)	32.6 (28.2–37.3)	47.2 (41.8–52.7)	38.8 (35.4–42.4)
Kiribati	56.6 (50.1–62.9)	35.0 (24.7–46.5)	51.9 (46.3–57.4)	43.4 (37.1–49.9)	16.2 (8.9–26.2)	37.3 (32.0–42.8)	58.3 (51.8–64.5)	40.0 (29.2–51.6)	54.0 (48.4–59.6)
Laos	18.3 (12.5–25.4)	14.6 (8.2–23.3)	16.9 (12.4–22.1)	20.3 (14.2–27.5)	11.5 (5.9–19.6)	17.3 (12.8–22.5)	15.0 (9.8–21.7)	9.4 (4.4–17.1)	12.9 (9.0–17.7)
Malaysia	24.2 (21.3–27.3)	14.2 (11.5–17.2)	19.8 (17.7–22.0)	15.7 (13.3–18.4)	9.3 (7.1–11.9)	12.9 (11.2–14.8)	17.6 (15.0–20.4)	17.2 (14.2–20.4)	17.4 (15.5–19.5)
Mongolia	42.0 (36.1–48.1)	21.8 (15.8–28.7)	34.8 (30.3–39.4)	39.5 (33.7–45.5)	17.1 (11.7–23.6)	31.6 (27.3–36.2)	27.9 (22.7–33.6)	25.3 (19.0–32.5)	26.9 (22.8–31.3)
Samoa	31.7 (22.8–41.7)	25.3 (16.7–35.5)	29.7 (23.3–36.7)	32.7 (23.7–42.7)	18.7 (11.3–28.2)	27.6 (21.4–34.5)	30.7 (21.9–40.7)	17.6 (10.4–27.0)	26.0 (20.0–32.9)
Tokelau	60.0 (36.1–80.9)	60.0 (14.7–94.7)	60.0 (38.7–78.9)	45.0 (23.1–68.5)	40.0 (5.3–85.3)	44.0 (24.4–65.1)	60.0 (36.1–80.9)	40.0 (5.3–85.3)	56.0 (34.9–75.6)
Tuvalu	37.3 (27.0–48.7)	25.8 (11.9–44.6)	34.2 (25.6–43.7)	37.3 (27.0–48.7)	9.7 (2.0–25.8)	30.7 (22.4–40.0)	38.6 (28.1–49.9)	9.7 (2.0–25.8)	31.6 (23.2–40.9)
Vanuatu	29.0 (22.7–36.0)	18.9 (13.1–25.8)	25.6 (21.1–30.5)	38.3 (31.5–45.6)	13.8 (8.9–20.2)	29.3 (24.6–34.3)	25.9 (19.9–32.7)	21.4 (15.3–28.6)	24.1 (19.8–29.0)
Vietnam	22.9 (12.0–37.3)	19.4 (8.2–36.0)	22.6 (14.2–33.0)	8.3 (2.3–20.0)	11.1 (3.1–26.1)	8.3 (3.4–16.4)	14.6 (6.1–27.8)	27.8 (14.2–45.2)	20.2 (12.3–30.4)
Wallis and Futuna	73.6 (64.4–81.6)	35.1 (22.9–48.9)	60.5 (52.6–67.9)	60.9 (51.1–70.1)	28.1 (17.0–41.5)	49.7 (41.9–57.5)	35.5 (26.6–45.1)	50.9 (37.3–64.4)	40.7 (33.2–48.6)
Pooled estimates	*40.5 (30.6–50.5)*	*26.9 (18.7–35.1)*	*36.3 (27.2–45.5)*	*33.6 (24.8–42.3)*	*16.1 (11.8–20.5)*	*28.1 (20.9–35.2)*	*30.2 (23.2–37.2)*	*24.9 (17.7–32.2)*	*29.3 (22.8–35.8)*
Overall estimate†	**55.0 (50.0–60.1)**	**40.1 (34.7–45.5)**	**49.7 (44.7–54.6)**	**45.2 (40.6–49.8)**	**26.3 (21.9–30.7)**	**38.7 (34.3–43.1)**	**29.2 (26.1–32.3)**	**26.8 (24.0–29.6)**	**28.7 (26.1–31.4)**

*Country-specific sampling weights were used to yield country representative estimates.
†Random-effect meta-analysis was used to calculate the pooled estimates.

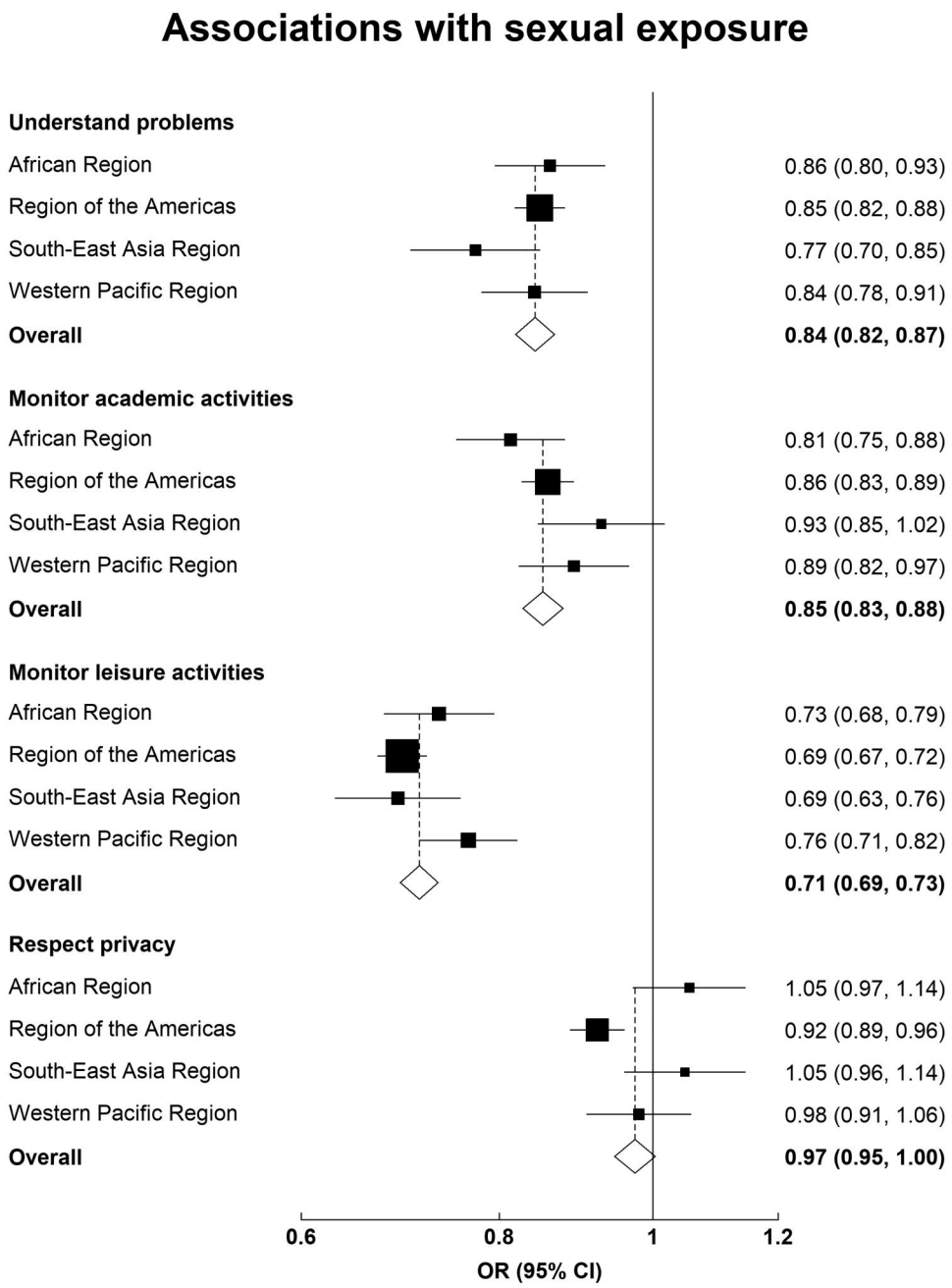

Figure 2. Associations of parents-adolescents relationship with sexual exposure among adolescents. Multi-level mixed-effect logistic regressions were adjusted for age, sex, low socioeconomic status, survey year, region, close friend, being bullied, loneliness, anxiety, suicide ideation, peer support, cigarette smoking, physical activity, and overweight. Odds ratios (ORs) are represented by squares, and their corresponding 95% CIs are represented by lines. The area of each square is inversely proportional to the variance of the logarithm of the corresponding OR estimates, which shows the amount of statistical information involved with the estimates.

sexual initiation, while 38.7% reported having multiple sexual partners and 28.7% reported about not using a condom during their last sexual intercourse. We found that parents-adolescent relationship factors (e.g., parental understanding of problems, monitoring academic activities, monitoring leisure time activities, and parental respect of privacy) were strongly associated not only with lower likelihood of sexual exposure among adolescents but also with lower likelihood of sexual risk behaviors among those who were sexually active. The relationships between parents-adolescent relationship factors and sexual risk behaviors were strong and consistent across most of the WHO regions and gender.

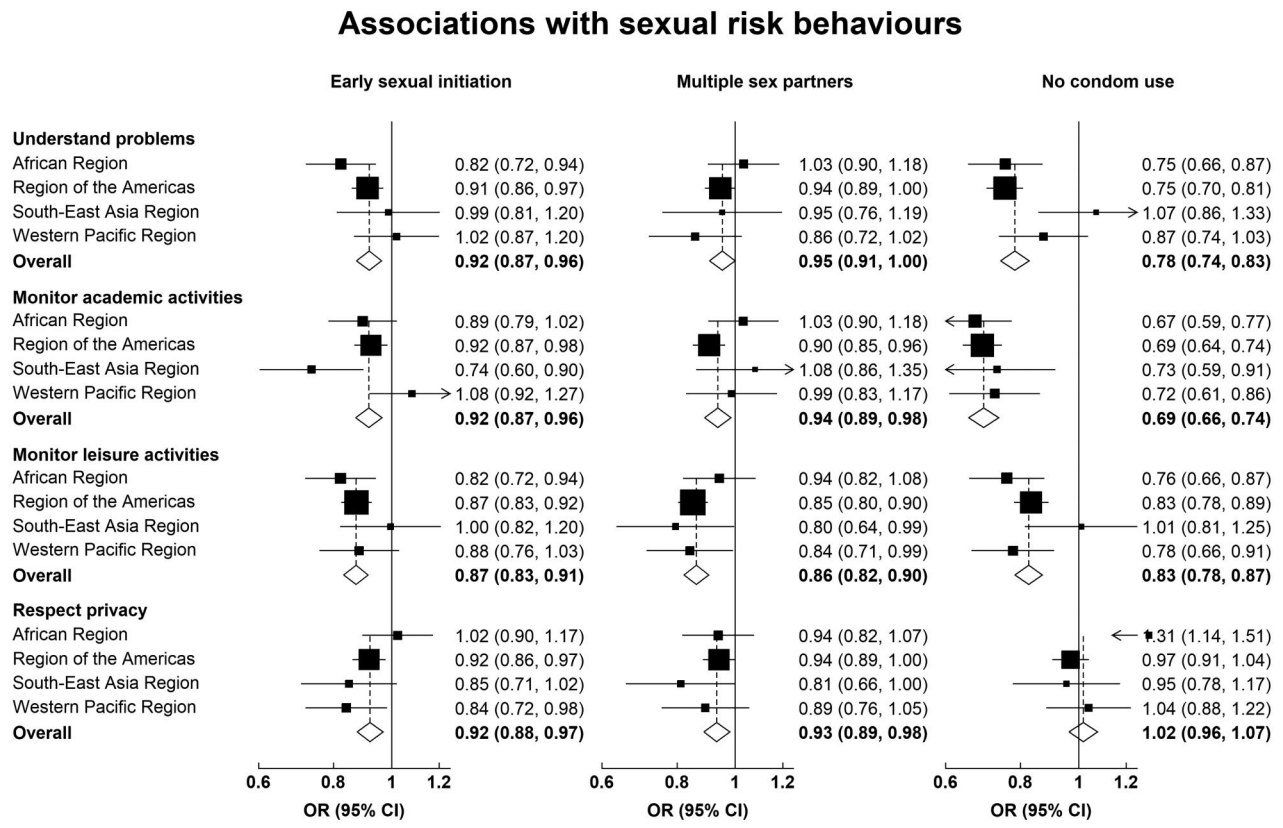

Figure 3. Associations of parents-adolescents relationship with sexual risk behaviors among sexually active adolescents. Multi-level mixed-effect logistic regressions were adjusted for age, sex, low socioeconomic status, survey year, region, close friend, being bullied, loneliness, anxiety, suicide ideation, peer support, cigarette smoking, physical activity, and overweight. Odds ratios (ORs) are represented by squares, and their corresponding 95% CIs are represented by lines. The area of each square is inversely proportional to the variance of the logarithm of the corresponding OR estimates, which shows the amount of statistical information involved with the estimates.

Our findings align with previous research, indicating a higher prevalence of sexual activity and risk behaviors among boys compared to girls (Carver et al., 2014; Peltzer & Pengpid, 2016; Pengpid & Peltzer, 2020, 2021; Seff et al., 2021; Smith et al., 2020). The observed gender differences may be attributable to prevailing cultural norms emphasizing masculinity, which often promote early sexual engagement among males across various cultures, religions, and ethnicities (Khumalo et al., 2020). Additionally, the pervasive societal double standard, which rewards males for sexual activity while stigmatizing females for similar behaviors, plays a crucial role (Kreager et al., 2016). However, the relationship between gender and sexual exposure among adolescents becomes more complicated in communities with unequal gender power dynamics which limit women's ability to negotiate sexual activities (Muldoon et al., 2018). It is also important to note that in most cultural settings, girls typically under-report their involvement in sexual activities compared to boys, owing to gender stereotype norms and low bodily autonomy (Wiederman, 1997); however, studies employing qualitative data collection techniques have revealed a much higher prevalence of sexual activity among girls than what is reported in school-based surveys or face-to-face community interviews (Flanagan et al., 2015).

Many previous studies have focused on specific countries or regions when investigating adolescent sexual risk behaviors (Alawode et al., 2021; Kushal et al., 2022; Nield et al., 2014; Pengpid & Peltzer, 2020, 2021; Seff et al., 2021; Smith et al., 2020; Yaya & Bishwajit, 2018). Our study, however, is one of the first large-scale studies to examine a diverse adolescent population from four WHO regions, and we observed that a significant portion of sexually active adolescents engaged in risky sexual behaviors. We observed that a substantial proportion of adolescents

Table 4. Factors related to parents-adolescent relationship, by sex, region and overall.

Region	Prevalence (95% CI)*			
	Understand problems	Monitor academic activities	Monitor leisure activities	Respect privacy
African Region				
Boys	40.0 (36.4–43.6)	46.9 (42.4–51.4)	37.6 (35.2–40.1)	65.1 (57.5–72.7)
Girls	40.7 (37.1–44.3)	47.6 (40.5–54.7)	44.4 (41.4–47.3)	65.3 (58.5–72.0)
Total	40.4 (37.0–43.8)	47.3 (41.5–53.1)	40.9 (38.2–43.5)	65.2 (58.1–72.3)
Region of Americas				
Boys	40.8 (37.5–44.1)	40.9 (37.3–44.5)	46.3 (42.0–50.6)	71.2 (68.1–74.2)
Girls	39.0 (36.1–41.9)	39.3 (34.9–43.8)	51.6 (47.9–55.4)	71.5 (68.9–74.1)
Total	39.8 (36.9–42.8)	40.1 (36.1–44.1)	49.1 (45.2–53.1)	71.3 (68.5–74.0)
South-East Asia Region				
Boys	34.2 (22.3–46.0)	38.9 (31.0–46.9)	36.4 (29.3–43.5)	63.6 (51.7–75.5)
Girls	39.7 (26.3–53.2)	39.0 (29.7–48.3)	44.7 (36.4–52.9)	64.1 (50.4–77.8)
Total	36.9 (24.4–49.4)	38.9 (30.3–47.5)	40.6 (33.4–47.9)	63.8 (51.4–76.1)
Western Pacific Region				
Boys	27.8 (23.0–32.6)	34.8 (26.4–43.1)	37.3 (31.2–43.4)	71.2 (65.1–77.2)
Girls	28.7 (23.5–33.9)	34.0 (24.8–43.3)	39.7 (34.5–45.0)	73.1 (67.5–78.7)
Total	28.4 (23.5–33.3)	34.6 (25.9–43.3)	38.6 (33.0–44.1)	72.1 (66.4–77.8)
All regions				
Boys	36.5 (33.6–39.4)	40.3 (36.8–43.7)	41.1 (38.1–44.0)	69.0 (66.0–72.0)
Girls	36.8 (33.9–39.7)	39.6 (35.7–43.5)	46.3 (43.6–49.0)	69.7 (66.8–72.7)
Total	36.6 (33.8–39.4)	40.0 (36.3–43.6)	43.7 (40.9–46.5)	69.3 (66.4–72.2)

*Country-specific sampling weights were used to yield country representative estimates and random-effect meta-analysis was used to calculate the pooled prevalence estimates.
*Country-specific prevalence estimates are given in Supplementary Tables S2–S5.

reported early sexual exposure, multiple sexual partners, or not using condom during the last sexual encounter. There were also notable differences in the prevalence of these risky sexual behaviors across regions and countries. Previous studies, primarily from sub-Saharan Africa, and the Caribbean, have also documented a high prevalence of such behaviors, including early sexual initiation and multiple partners, with varying degrees of prevalence (Carver et al., 2014; Kushal et al., 2022; Owoaje & Uchendu, 2009; Peltzer & Pengpid, 2016; Pengpid & Peltzer, 2020, 2021). For instance, a study conducted using Violence Against Children Surveys from Kenya, Malawi, Nigeria, Tanzania, and Uganda found the prevalence of early sexual initiation to range from 8.6 to 17.7%, with boys generally having a higher prevalence than girls (Seff et al., 2021). Our study and others (Pengpid & Peltzer, 2021; Shayo & Kalomo, 2019) have shown that boys are more likely to have multiple sexual partners, whereas girls are more prone to inconsistent condom use. Another recent study reported that about two-thirds of adolescents had been exposed to sexual activity, with half of these engaging in at least one risky sexual behavior (Yimer & Ashebir, 2019).

It is important to note that societal and religious norms greatly influence the prevalence of these sexual risk behaviors across different regions. Early sexual initiation is naturally lower in societies where sexual activity before marriage is strictly prohibited (Kassahun et al., 2019). On the other hand, regions where early marriage and the coercion of adolescent girls into sexual activity are commonplace, see a potentially higher prevalence of early sexual initiation, some of which may be forced or coerced (Howard et al., 2021). Boys exhibit a higher prevalence of risky sexual behaviors due to their greater inclination toward risk-taking behaviors, such as substance abuse, alcohol consumption, and smoking (Li et al., 2013). The observed gender differences in sexual exposure and risky sexual behaviors may be due to the theory of female erotic plasticity, suggesting that female sexuality is generally more influenced by social factors and adaptable according to circumstances than male sexuality, which is more directly linked to biological factors (Baumeister, 2000; de Graaf et al., 2012). These findings, altogether, underscore the importance of adopting gender-sensitive strategies in sexual education and overall adolescent health.

Our study provides a comprehensive examination of the relationship between parents and adolescents, exploring various facets such as parental understanding of adolescents' issues, monitoring of academic and free-time activities, and

respect for privacy. The results reveal diverse patterns of parental behavior toward adolescents across different countries and regions, potentially reflecting a variety of parenting practices shaped by unique sociocultural, political, and economic contexts (Bornstein, 2012). Notably, parents of girls were found to monitor their free-time activities more than parents of boys, although there were no substantial differences in other aspects of parental behavior between genders. Although several previous studies (de Graaf et al., 2010; Gazendam et al., 2020; Ishida et al., 2011; Kincaid et al., 2012) explored parents-adolescents relationship, direct comparisons of our findings with them are challenging due to differences in definitions and measures of parental relationship with adolescent.

We found that specific parental behaviors, such as understanding problems, monitoring academic activities, and monitoring free time activities, were independently and strongly linked to lower odds of sexual exposure in adolescents. Moreover, our findings confirm that these parents-adolescents relationship factors play a pivotal role in adolescents' engagement with risky sexual behaviors. A previous meta-analysis of 30 studies suggested that increased parental monitoring corresponded to a lower likelihood of sexual activity among adolescents (Dittus et al., 2015). Another study conducted in Northeast Ethiopia reported that better parent-adolescent relationships and parental knowledge were associated with lower odds of involvement in risky sexual behaviors (Yimer & Ashebir, 2019). A recent literature review brings together findings from 24 studies to investigate the role of parenting on adolescent sexual risk behavior (Kincaid et al., 2012). According to this study, parental monitoring may be more protective against sexual risk behavior for boys than girls, but parental warmth and emotional connection might play a crucial role for girls (Kincaid et al., 2012).

Moreover, we noted regional variations in the associations between parental behavior and sexual risk behaviors across WHO regions. In the South-East Asia region, these associations were either non-significant or less robust compared to other WHO regions. This could be reflective of the region's prevailing sociocultural conservatism, religious beliefs, and cultural variations in parenting styles and beliefs (Mmari et al., 2016). Furthermore, the influence of parents-adolescent relationship factors on adolescent sexual behavior appeared to be less in low-income countries, suggesting that the impacts of parenting might differ in societies where basic subsistence is a struggle compared to more affluent societies (Wamoyi et al., 2015). Extended family is quite common in Asian and African countries and family structure can play pivotal roles on adolescents' sexual behavior. We could not examine the roles of family structure, prevailing parenting styles, political issues, religious beliefs, and economic factors in our study and therefore, future research should examine these associations considering these potential confounding factors.

Our study's findings have substantial public health implications. While many factors influencing adolescents' risky sexual behaviors are not directly changeable, improving parents-adolescent relationship presents an opportunity for intervention. The disparities in the prevalence of risky sexual behaviors between boys and girls across different regions highlighted the role of gender in the context of parenting and adolescent sexual risk behaviors cannot be overlooked. Therefore, there is an immense need for public health programs focusing on sexual and reproductive health to adopt gender-specific curriculums and family-centered interventions for optimal effectiveness. However, additional research on family intervention programmes is vital to inform policies and subsequent actions.

The strengths of our study include using large and nationally representative samples of adolescents from 50 different countries across various WHO regions. Moreover, by conducting weighted analyses to account for the probability of selection and population distribution by sex and age, we were able to produce estimates that are generalizable to whole country populations. The utilization of standardized methods for participant selection, questionnaire development, and data collection by the GSHS ensures comparability of results across different countries and regions (World Health Organization (WHO), 2023b). Finally, in our examination of the associations between parents-adolescent relationship

factors and sexual risk behaviors among adolescents, we adjusted for a wide range of covariates.

However, there are several limitations in our study. The self-reported nature of data collection could have influenced the validity of responses, with factors such as adolescents' comprehension of questions, sociocultural backgrounds, and recall issues playing a part (Kushal et al., 2021). Possible biases in prevalence estimates might have arisen due to missing data, potential data entry errors, and substantial heterogeneity between country-specific estimates. Sociocultural taboos around discussing sexual risk behaviors in certain countries and cultures could lead to under-reporting of such behaviors (Kushal et al., 2022). Additionally, our study relies on GSHS datasets between 2009 and 2018, a period witnessing increasing burden of poor adolescent health, necessitating cautious interpretation of our findings. The GSHS data are based on school-attending adolescents in low- or middle-income countries, who may not reflect the attributes of those not in school as well as those from high income countries. The conceptualization of parents-adolescent relationship, represented by four variables in our study, is a complex phenomenon that necessitates further, more detailed evaluation. Another limitation of our study is the absence of data on family structure and presence of senior family members, potentially leading to an overestimation of the association of parent-adolescent relationships with risky sexual behaviors, as it fails to capture the positive influence from senior household members, particularly in the Asian and African contexts where the joint family system may allow adolescents more freedom than with their parents (Young et al., 1991). Our study's cross-sectional design also raises issues of temporality in interpreting the associations between parents-adolescent relationships and sexual risk behaviors. Despite adjusting for multiple variables, residual confounding from unmeasured factors like access to sex education could persist. Additionally, endogeneity between parent-child interactions and sexual behaviors may compromise the study's causal inference.

In this large-scale study covering adolescents from 50 countries across various WHO regions, we found that one in four adolescents were sexually active, with a significant proportion engaging in risky sexual behaviors. Parental involvement in adolescents' lives, including understanding their problems, monitoring academic and leisure activities, and respecting their privacy, showed a strong association with lower likelihood of sexual exposure and risky sexual behavior. Our findings underline the crucial role of parental behavior toward adolescents in mitigating adolescent risky sexual behaviors thereby informing public health strategies, resource allocation, and policymaking for adolescent sexual health across diverse regions.

Acknowledgements

The authors would like to thank the US Centers for Disease Control and Prevention and the World Health Organization for making the Global School-based Student Health Survey (GSHS) data publicly available for analysis. We thank the GSHS country coordinators and other staff members, and the participating students and their parents.

Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

Funding

The author(s) reported there is no funding associated with the work featured in this article.

Data availability statement

Data availability statement: Global School-based Student Health Survey (GSHS) datasets used in this study are publicly available at this link: (https://extranet.who.int/ncdsmicrodata/index.php/home).

References

Alawode, O. A., Ogunwemimo, H., Bolorunduro, M.-E., & Awoleye, A. F. (2021). Age at sexual debut and multiple sexual partnerships among adolescents in Nigeria: An assessment of the mediating role of the knowledge of sexually transmitted infections. *Adolescents*, *1*(4), 421–432. https://doi.org/10.3390/adolescents1040032

Baumeister, R. F. (2000). Gender differences in erotic plasticity: The female sex drive as socially flexible and responsive. *Psychological Bulletin*, *126*(3), 347–374. https://doi.org/10.1037/0033-2909.126.3.347

Blum, R. W., Halcón, L., Beuhring, T., Pate, E., Campell-Forrester, S., & Venema, A. (2003). Adolescent health in the Caribbean: Risk and protective factors. *American Journal of Public Health*, *93*(3), 456–460. https://doi.org/10.2105/ajph.93.3.456

Bornstein, M. H. (2012). Cultural approaches to parenting. *Parenting, Science and Practice*, *12*(2–3), 212–221. https://doi.org/10.1080/15295192.2012.683359

Bronfenbrenner, U. J. A. p. (1979). Contexts of child rearing: Problems and prospects. *American Psychologist*, *34*(10), 844–850. https://doi.org/10.1037/0003-066X.34.10.844

Carver, J. W., Dévieux, J. G., Gaston, S. C., Altice, F. L., & Niccolai, L. M. (2014). Sexual risk behaviors among adolescents in Port-au-Prince, Haiti. *AIDS and Behavior*, *18*(8), 1595–1603. https://doi.org/10.1007/s10461-013-0689-4

Centers for Disease Control and Prevention (CDC). (2018). GSHS *data user's guide*. Retrieved 10 June 2023 from https://www.cdc.gov/gshs/index.htm.

de Graaf, H., van de Schoot, R., Woertman, L., Hawk, S. T., & Meeus, W. (2012). Family cohesion and romantic and sexual initiation: a three wave longitudinal study. *Journal of Youth and Adolescence*, *41*(5), 583–592. https://doi.org/10.1007/s10964-011-9708-9

de Graaf, H., Vanwesenbeeck, I., Woertman, L., Keijsers, L., Meijer, S., & Meeus, W. (2010). Parental support and knowledge and adolescents' sexual health: Testing two mediational models in a national Dutch sample. *Journal of Youth and Adolescence*, *39*(2), 189–198. https://doi.org/10.1007/s10964-008-9387-3

Dittus, P. J., Michael, S. L., Becasen, J. S., Gloppen, K. M., McCarthy, K., & Guilamo-Ramos, V. (2015). Parental monitoring and its associations with adolescent sexual risk behavior: A meta-analysis. *Pediatrics*, *136*(6), e1587-1599–e1599. https://doi.org/10.1542/peds.2015-0305

Fishbein, M., & Ajzen, I. (2011). *Predicting and changing behavior: The reasoned action approach*. Taylor & Francis.

Flanagan, S. M., Greenfield, S., Coad, J., & Neilson, S. (2015). An exploration of the data collection methods utilised with children, teenagers and young people (CTYPs). *BMC Research Notes*, *8*(1), 61. https://doi.org/10.1186/s13104-015-1018-y

Gazendam, N., Cleverley, K., King, N., Pickett, W., & Phillips, S. P. (2020). Individual and social determinants of early sexual activity: A study of gender-based differences using the 2018 Canadian Health Behaviour in School-aged Children Study (HBSC). *PLOS One*, *15*(9), e0238515. https://doi.org/10.1371/journal.pone.0238515

Howard, A. L., Pals, S., Walker, B., Benevides, R., Massetti, G. M., Oluoch, R. P., Ogbanufe, O., Marcelin, L. H., Cela, T., Mapoma, C. C., Gonese, E., Msungama, W., Magesa, D., Kayange, A., Galloway, K., Apondi, R., Wasula, L., Mugurungi, O., Ncube, G., … Patel, P. (2021). Forced sexual initiation and early sexual debut and associated risk factors and health problems among adolescent girls and young women - violence against children and youth surveys, nine PEPFAR countries, 2007–2018. *Morbidity and Mortality Weekly Report*, *70*(47), 1629–1634. https://doi.org/10.15585/mmwr.mm7047a2

Ishida, K., Stupp, P., & McDonald, O. (2011). Prevalence and correlates of sexual risk behaviors among Jamaican adolescents. *International Perspectives on Sexual and Reproductive Health*, *37*(1), 6–15. https://doi.org/10.1363/3700611

Kassahun, E. A., Gelagay, A. A., Muche, A. A., Dessie, A. A., & Kassie, B. A. (2019). Factors associated with early sexual initiation among preparatory and high school youths in Woldia town, northeast Ethiopia: A cross-sectional study. *BMC Public Health*, *19*(1), 378. https://doi.org/10.1186/s12889-019-6682-8

Khumalo, S., Taylor, M., Makusha, T., & Mabaso, M. (2020). Intersectionality of cultural norms and sexual behaviours: A qualitative study of young Black male students at a university in KwaZulu-Natal, South Africa. *Reproductive Health*, *17*(1), 188. https://doi.org/10.1186/s12978-020-01041-3

Kincaid, C., Jones, D. J., Sterrett, E., & McKee, L. (2012). A review of parenting and adolescent sexual behavior: The moderating role of gender. *Clinical Psychology Review*, *32*(3), 177–188. https://doi.org/10.1016/j.cpr.2012.01.002

Kreager, D. A., Staff, J., Gauthier, R., Lefkowitz, E. S., & Feinberg, M. E. (2016). The double standard at sexual debut: Gender, sexual behavior and adolescent peer acceptance. *Sex Roles*, *75*(7), 377–392. https://doi.org/10.1007/s11199-016-0618-x

Kurtz, S. P., Douglas, K. G., & Lugo, Y. (2005). Sexual risks and concerns about AIDS among adolescents in Anguilla. *AIDS Care*, *17*(sup1), S36–S44. https://doi.org/10.1080/09540120500121250

Kushal, S. A., Amin, Y. M., Reza, S., Hossain, F. B., & Shawon, M. S. R. (2022). Regional and sex differences in the prevalence and correlates of early sexual initiation among adolescents aged 12–15 years in 50 countries. *The Journal of Adolescent Health*, *70*(4), 607–616. https://doi.org/10.1016/j.jadohealth.2021.10.027

Kushal, S. A., Amin, Y. M., Reza, S., & Shawon, M. S. R. (2021). Parent-adolescent relationships and their associations with adolescent suicidal behaviours: Secondary analysis of data from 52 countries using the global school-based health survey. *EClinicalMedicine*, *31*, 100691. https://doi.org/10.1016/j.eclinm.2020.100691

Lee, R. L. T., Yuen Loke, A., Hung, T. T. M., & Sobel, H. (2018). A systematic review on identifying risk factors associated with early sexual debut and coerced sex among adolescents and young people in communities. *Journal of Clinical Nursing*, *27*(3–4), 478–501. https://doi.org/10.1111/jocn.13933

Li, S., Huang, H., Xu, G., Cai, Y., Huang, F., & Ye, X. (2013). Substance use, risky sexual behaviors, and their associations in a Chinese sample of senior high school students. *BMC Public Health*, *13*(1), 295. https://doi.org/10.1186/1471-2458-13-295

Lohman, B. J., & Billings, A. (2008). Protective and risk factors associated with adolescent boy's early sexual debut and risky sexual behaviors. *Journal of Youth and Adolescence*, *37*(6), 723–735. https://doi.org/10.1007/s10964-008-9283-x

Mmari, K., Kalamar, A. M., Brahmbhatt, H., & Venables, E. (2016). The influence of the family on adolescent sexual experience: A Comparison between Baltimore and Johannesburg. *PLOS One*, *11*(11), e0166032. https://doi.org/10.1371/journal.pone.0166032

Muldoon, K. A., King, R., Zhang, W., Birungi, J., Nanfuka, M., Tibengana, S., Afolabi, O., & Moore, D. M. (2018). Sexual health consequences of forced sexual debut among Ugandan women in HIV serodiscordant partnerships: Results from the HAARP Study. *Journal of Interpersonal Violence*, *33*(11), 1731–1747. https://doi.org/10.1177/0886260517752155

Nield, J., Magnusson, B. M., Chapman, D. A., & Lapane, K. L. (2014). Age at sexual debut and subsequent sexual partnering in adulthood among American men. *American Journal of Men's Health*, *8*(4), 327–334. https://doi.org/10.1177/1557988313514768

Nyaga, V. N., Arbyn, M., & Aerts, M. (2014). Metaprop: A Stata command to perform meta-analysis of binomial data. *Archives of Public Health*, *72*(1), 39. https://doi.org/10.1186/2049-3258-72-39

Owoaje, E. T., & Uchendu, O. C. (2009). Sexual risk behaviour of street youths in south west Nigeria. *East African Journal on Public Health*, *6*(3), 274–279.

Peltzer, K., & Pengpid, S. (2016). Risk and protective factors affecting sexual risk behavior among school-aged adolescents in Fiji, Kiribati, Samoa, and Vanuatu. *Asia-Pacific Journal of Public Health*, *28*(5), 404–415. https://doi.org/10.1177/1010539516650725

Pengpid, S., & Peltzer, K. (2020). Prevalence and associated factors of psychological distress among a national sample of in-school adolescents in Morocco. *BMC Psychiatry*, *20*(1), 475. https://doi.org/10.1186/s12888-020-02888-3

Pengpid, S., & Peltzer, K. (2021). Sexual risk behaviour and its correlates among adolescents in Mozambique: Results from a national school survey in 2015. *Journal of Social Aspects of HIV/AIDS Research Alliance*, *18*(1), 26–32. https://doi.org/10.1080/17290376.2020.1858947

Pinyopornpanish, K., Thanamee, S., Jiraporncharoen, W., Thaikla, K., McDonald, J., Aramrattana, A., & Angkurawaranon, C. (2017). Sexual health, risky sexual behavior and condom use among adolescents young adults and older adults in Chiang Mai, Thailand: Findings from a population based survey. *BMC Research Notes*, *10*(1), 682. https://doi.org/10.1186/s13104-017-3055-1

Rogers, A. A. (2017). Parent–adolescent sexual communication and adolescents' sexual behaviors: A conceptual model and systematic review. *Adolescent Research Review*, *2*(4), 293–313. https://doi.org/10.1007/s40894-016-0049-5

Seff, I., Steiner, J. J., & Stark, L. (2021). Early sexual debut: A multi-country, sex-stratified analysis in sub-Saharan Africa. *Global Public Health*, *16*(7), 1046–1056. https://doi.org/10.1080/17441692.2020.1814833

Shayo, F. K., & Kalomo, M. H. (2019). Prevalence and correlates of sexual intercourse among sexually active in-school adolescents: an analysis of five sub-Sahara African countries for the adolescent's sexual health policy implications. *BMC Public Health*, *19*(1), 1285. https://doi.org/10.1186/s12889-019-7632-1

Smith, L., Grabovac, I., Jacob, L., López-Sánchez, G. F., Yang, L., Shin, J. I., Sohn, M., Ward, P. B., McDermott, D. T., & Koyanagi, A. (2020). Bullying victimization and sexual behavior among adolescents aged 12–15 years from 53 countries: A global perspective. *The Journal of Sexual Medicine*, *17*(11), 2148–2155. https://doi.org/10.1016/j.jsxm.2020.08.007

Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences*, *9*(2), 69–74. https://doi.org/10.1016/j.tics.2004.12.005

Szucs, L. E., Lowry, R., Fasula, A. M., Pampati, S., Copen, C. E., Hussaini, K. S., Kachur, R. E., Koumans, E. H., & Steiner, R. J. (2020). Condom and contraceptive use among sexually active high school students – youth risk behavior survey, United States, 2019. *MMWR Supplements*, *69*(1), 11–18. https://doi.org/10.15585/mmwr.su6901a2

Wamoyi, J., Wight, D., & Remes, P. (2015). The structural influence of family and parenting on young people's sexual and reproductive health in rural northern Tanzania. *Culture, Health & Sexuality*, *17*(6), 718–732. https://doi.org/10.1080/13691058.2014.992044

Widman, L., Choukas-Bradley, S., Noar, S. M., Nesi, J., & Garrett, K. (2016). Parent-adolescent sexual communication and adolescent safer sex behavior: A meta-analysis. *JAMA Pediatrics*, *170*(1), 52–61. https://doi.org/10.1001/jamapediatrics.2015.2731

Wiederman, M. W. (1997). The truth must be in here somewhere: Examining the gender discrepancy in self-reported lifetime number of sex partners. *The Journal of Sex Research*, *34*(4), 375–386. https://doi.org/10.1080/00224499709551905

World Bank. (2002). Adolescent *h*ealth at a glance. Retrieved 13 April 2023 from http://hdl.handle.net/10986/9751.

World Health Organization (WHO). (2023a). Adolescent health. Retrieved 15 May 2023 from https://www.who.int/health-topics/adolescent-health.

World Health Organization (WHO). (2023b). Global school-based student health survey. Retrieved 23 May 2023 from https://www.who.int/teams/noncommunicable-diseases/surveillance/systems-tools/global-school-based-student-health-survey.

World Health Organization (WHO). (2023c). Global *school-based student health survey* (GSHS) methodology. Retrieved 10 June 2023 from https://www.who.int/teams/noncommunicable-diseases/surveillance/systems-tools/global-school-based-student-health-survey/methodology.

Yaya, S., & Bishwajit, G. (2018). Age at first sexual intercourse and multiple sexual partnerships among women

in Nigeria: A cross-sectional analysis. *Frontiers in Medicine*, *5*, 171. https://doi.org/10.3389/fmed.2018.00171

Yimer, B., & Ashebir, W. (2019). Parenting perspective on the psychosocial correlates of adolescent sexual and reproductive health behavior among high school adolescents in Ethiopia. *Reproductive Health*, *16*(1), 66. https://doi.org/10.1186/s12978-019-0734-5

Young, E. W., Jensen, L. C., Olsen, J. A., & Cundick, B. P. (1991). The effects of family structure on the sexual behavior of adolescents. *Adolescence*, *26*(104), 977–986.