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Adolescent-Parent Relationships and Communication: consequences for pregnancy knowledge and family planning service awareness

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Abstract

Purpose: We explore three dimensions of parent-adolescent relationships (sexual and reproductive health (SRH) communications, connectedness, and parental monitoring) from the perspective of young adolescents as they relate to pregnancy knowledge and family planning service awareness in four diverse geographic areas ranging from low to high income settings and stratified by sex.

Methods: Analyses utilized baseline data from four Global Early Adolescent Study sites (Shanghai, China; Kinshasa, Democratic Republic of the Congo; Denpasar and Semarang, Indonesia; and New Orleans, United States). Multiple linear regressions were conducted to assess the relationships between key characteristics of parent-adolescent relationships and pregnancy knowledge. Multiple logistic regressions were also conducted to assess relationships between key characteristics of parent-adolescent relationships and family planning service awareness.

Results: Across all four sites, communication with a parent about SRH matters was significantly associated with increased pregnancy knowledge among female respondents. Futher, girls in in Shanghai and New Orleans and boys in Kinshasha who had ever communicated with a parent about SRH matters were significantly more likely to know where to get condoms. Finally, girls who communicated with a parent about any SRH matter were significantly more likely to know where to get other forms of contraception across all four study sites.

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Conflicts of Interest

None to report.

Implications and contributions statement: Analyses strongly support the importance of SRH communications between young adolescents and their parents. Early, accurate and concrete conversations about SRH issues matter for young people. Adolescent SRH programming should seek to facilitate such conversations.

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Conclusions: Findings strongly support the importance of SRH communications between young adolescents and their parents. Our findings also suggest that while parental connectedness and monitoring are beneficial they are not replacements for quality parent-adolescent communications about SRH issues that begin early in adolescence before sexual intercourse is initiated.

Keywords

adolescents; parents; caregivers; pregnancy prevention; communication; sexual and reproductive health; adolescent health

Introduction:

Over the past decade there has been growing interest in interventions and services to reduce unintended pregnancy and concurrently increase family planning knowledge and utilization among adolescents [1]. Possessing appropriate knowledge of conception, sexually transmitted infections (STIs) and contraceptive mechanisms and services for prevention is an important component in taking control of one's sexual and reproductive health (SRH) [2–5]. Provision of SRH knowledge is particularly important for adolescents, who face increased health risks during pregnancy and childbirth. Approximately 777,000 births worldwide occur annually to young adolescent girls under age 15 years and an additional 12 million births occur to girls ages 15 to 19 years [6]. The health, educational and social consequences of such early child-bearing have been well documented [7,8].

Adolescent sexual and reproductive health (ASRH) interventions generally focus on the adolescents themselves. Few interventions have taken on a multilevel approach and included influences like parents. Parents are notable as they tend to be primary agents of adolescent socialization and important influences on adolescent health and well-being. For example, adolescents who feel close and comfortable with their parents or who feel loved and paid attention to by their parents may be more likely to seek their parents out if they have a question or want advice [9–12]. Thus, we are limited in our understanding of the potential benefits of including parents in ASRH interventions to promote healthy sexual development. Evidence on the influences that parents have on their ASRH behaviors is growing, but most studies rely on small samples, and suffer from poorly defined adolescents-parent relationships or interactions. For example, Gunawardena et al. found in their systematic review that "*poor parenting and low parental communication"* predicted pregnancy risk for young people in sub-Saharan Africa in five of the studies analyzed [13]; however, the operationalization of those terms was not described. Another study in the Caribbean also found that in comparison with their less connected peers, boys who "*felt connected"* to their parents were more likely to use condoms and girls were significantly less likely to initiate sexual intercourse [14]. Further, using the Global School Health Survey in Malaysia, Ahmad et al. reported that both "*parental connectedness and parental bonding"* were positively associated with delay of sexual debut [15]. On the other hand, poor "*parent-daughter interactions"* was reported to be associated with adolescent pregnancy in Ethiopia [16].

However, for every article that affirms parent-adolescent communication and connectedness as key factors in condom use or delayed sexual debut there are numerous others that

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challenge that perspective. Biddlecom et al., for example, found that in four sub-Saharan countries, communication about SRH issues was associated with earlier sexual debut in a population of 15 to 19 year-olds [17]. Muthengi et al., in their study on adolescent-parental communication in Tanzania, observed mixed results on family planning use and sexual debut depending on the content of the SRH discussion [18]. In their analysis of Add Health data from the United States, Sieving et al. observed that expressed maternal expectations regarding ASRH and mother-child connection had positive influences on delaying sexual debut, but significant questions were raised about the timing and content of such conversations [5].

To further our understanding of parental influences on ASRH, we seek to examine how parental communication and connection relate to young adolescent SRH knowledge. Our assessment will take place among young adolescent boys and girls (10–14 years), as this developmental stage is a critical juncture for knowledge acquisition, behavior formation, and decision making [19–22]. Further, we will explore this query across a diversity of socio-cultural settings countries. Through this assessment we aim to close key gaps in the literature by discerning the relationship of parental communication and connection with pregnancy knowledge and family planning service awareness and offering clearly defined parameters to this end. These findings are essential in guiding the development of parental components for ASRH programming, to expand the reach of comprehensive sexuality education inside the homes.

Methods

The Global Early Adolescent Study:

This analysis utilizes baseline survey data from the Global Early Adolescent Study (GEAS). GEAS is a multisite study that seeks to address critical knowledge gaps regarding early adolescence through assessing gender norms and their influence on a number of adolescent health outcomes, including SRH. The following four GEAS sites: Shanghai, China; Kinshasa, Democratic Republic of the Congo (DRC); Denpasar and Semarang, Indonesia; and New Orleans, United States (US) were selected due to their vast geographic, linguistic and cultural diversity. The GEAS sites shared the same study protocol and survey instruments. GEAS baseline data collection took place between 2017 and 2018. While sampling and data collection approaches varied across sites (described elsewhere [23,24]), each site collected data from convenience sample of adolescents through a two-hour long survey. The GEAS survey instrument is available at https://www.geastudy.org.

Ethical approval was obtained from the Institutional Review Boards at the Johns Hopkins Bloomberg School of Public Health and the relevant partners' ethics review committees. All adolescent respondents provided assent and received parent consent in order to participate.

Measures:

A description of outcome variables, key independent and covariate measures are presented in Table 1. Given that few adolescents in the under 15 years age group report ever having initiated sexual intercourse, the outcome measures include pregnancy knowledge, knowledge

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of where to get condoms, and awareness of where to get other forms of contraception besides condoms. The later two indicators represent family planning service awareness. These outcome measures were assessed among all participants, with the exception of knowledge of where to get other forms of contraception; at the recommendation of our collaborating partners, in Kinshasa, Indonesia, and New Orleans, this question was asked only of female respondents. Five dimensions of the parent-adolescent relationship were considered as key predictors of pregnancy prevention knowledge and family planning service awareness: closeness with parent, level of comfort discussing worries with parent, parent knowledge of friends, parent knowledge of whereabouts, and parent SRH communication.

For these analyses, a range of individual, household, and peer factors were also included as covariates. At the individual level, variables included: age, age-appropriate grade level, religiosity, and romantic and sexual engagement of respondents. For the household level, variables included: the sex of the parent and household composition. Peer factors included: average time spent with peers each week, peer group composition, and youth perceptions of peer romantic and sexual engagement. All nine of these variables were considered except in New Orleans where questions pertaining to youth's romantic and sexual behavior were disallowed by the local IRB.

Analysis:

Exploratory data analysis was first conducted to examine the distribution of and correlations among all covariates, key independent, and outcome variables by sex (i.e. male or female) and site. Further, bivariate regressions by sex and site were run to assess the relationships between covariates and key independent variables, covariates and outcome variables, and key independent and outcome variables.

Next, we conducted multiple linear regressions to assess the relationships between parent-adolescent relationships and pregnancy knowledge, and multiple logistic regressions to assess the relationships between parent-adolescent relationships and family planning service awareness. The multiple linear and logistic regressions were adjusted for covariates and all stratified by sex and study site.

The analytical sample was restricted to young people who reported being between the ages of 10 and 14 years, identified as male or female, had a parental caregiver, and were currently enrolled in school. Further, the sample was restricted to participants with complete responses. Non-responses (i.e. "Don't understand the question", "Don't know", or "Refuse to answer") were treated as missing responses for all questions, except those pertaining to pregnancy knowledge. Prior to removing missing responses, the analytic sample included 1414 adolescents in Shanghai, 1690 in Kinshasa, 2852 in Denpasar and Semarang, and 1049 in New Orleans. Missing across the included variables ranged from 0.1–13.5% for religiosity, 0.1–3.0% for romantic and sexual engagement of youth respondents, 0.0–0.91% for household composition, 0.1–1.2% for average time spent with peers each week, 0.1–8.8% for peer group composition, 1.3–9.5% for youth perception of peer romantic and sexual engagement, 0.4–2.5% for closeness with parent, 0.1–1.0% for level of comfort discussing worries with parent, 0.0–3.4% for parent knowledge of friends, 0.0–1.1% for

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parent knowledge of location, 6.5–35.3% for parent SRH communication, 19.5–41.0% for knowledge of where to get condoms, and 23.1–52.1% for knowledge of where to get other birth control. The final analytic sample included 938 adolescents in Shanghai, 1539 in Kinshasa, 1694 in Denpasar and Semarang, and 640 in New Orleans.

To mitigate concerns of selection bias, inverse probability weights were calculated for each outcome by site. Patterns of missingness were assessed by comparing characteristics between the included versus the excluded group of observations. Variables that differed between the two groups were used in generating weights. These weights were then applied to the sample to account for those whose responses may have been excluded from this assessment due to non-response.

All analyses were performed using Stata Version 14 (StataCorp, LLC, Texas).

Results

The sociodemographic characteristics of adolescents in each site are reported in Table 2. The mean age of adolescent respondents across sites ranged from 11.88 to 12.93 years; and the majority of adolescents in each site had attained an education level appropriate for their age. In Shanghai, Kinshasa, and Indonesia, the majority of participants resided with both parents (ranging from 71.4% to 91.9%), while in New Orleans, 54.2% lived with only one parent. In Shanghai, Indonesia, and New Orleans, most participants identified their parental caregiver to be their mother (ranging from 84.22% to 93.33%), while in Kinshasa about 63.2% of young people identified their parental caregiver as father.

The majority of young people across sites indicated that they were close with their parent(s) (ranging from 59.0% to 64.8%). Nearly all participants were also comfortable discussing things that worried them with at least one parent (ranging from 89.6% to 96.9%). Parental awareness of their child's friends' names varied across sites; in Shanghai nearly 63.3% of adolescents reported that it was "very true" that their parents' knew their friends by name, but in Kinshasa, Indonesia, and New Orleans, around half of respondents indicated that this was only "somewhat or not very true" (50.6%, 57.0%, 49.5%, respectively). Across all sites, most young people reported that it was "very true" that their primary parent caretaker usually knew of their whereabouts (ranging from 54.7% to 83.9%). Females tended to report greater parental oversight than their male counterparts (with "very true" responses ranging from 61.02–88.17% for females and 45.94–75.12% for males). Communication with a parent about SRH matters varied across sites with 21.6% of participants in Shanghai, 10.1% in Kinshasa, 29.0% in Indonesia and 54.2% in New Orleans indicating that they had ever spoken about such subjects. More female than male respondents reported having had such conversations about SRH with their parent (13.8–55.9% for females vs. 6.4–50.7% for males).

Mean pregnancy knowledge varied from scores of 2.23 to 3.98 across sites (on a score ranging from 0 to 6), with the highest average knowledge score in New Orleans. Males had greater pregnancy knowledge mean scores than females, except in New Orleans (with mean scores ranging from 2.34–3.82 and 1.90–4.05 for male and female respondents respectively).

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Most male respondents in Shanghai, Kinshasa, Indonesia, and New Orleans (66.9, 51.1, 62.5 and 79.5%, respectively) and female respondents in Shanghai and New Orleans (66.9 and 73.4%, respectively) reported that they knew where to get condoms. In Shanghai, Kinshasa and New Orleans, most female respondents (51.4, 62.2 and 56.3%, respectively) knew where to get other forms of contraception whereas, in Indonesia, the majority (59.3%) did not know where to acquire contraception.

Stratified by sex and site, Table 3 depicts the adjusted multiple linear regression between key characteristics of parent-adolescent relationships and pregnancy knowledge and the adjusted multiple logistic regressions between key characteristics of parent-adolescent relationships and family planning service awareness, as represented by knowledge of where to get condoms and other forms of contraception.

Across all four sites, communication with a parent about SRH was significantly associated with increased pregnancy knowledge among female respondents at a p-value of less than 0.05 (Shanghai: Adj. ß: 0.64, 95% CI: 0.34, 0.93; Kinshasa: Adj. ß: 0.31, 95% CI: 0.02, 0.60; Indonesia: Adj. ß: 0.51, 95% CI: 0.32, 0.70; and New Orleans: Adj. ß: 0.54, 95% CI: 0.29, 0.79). Among males in Indonesia parental communication was significantly associated with increased pregnancy knowledge (Adj. ß: 0.27, 95% CI: 0.01, 0.53). In Shanghai, being close with a parent was significantly associated with lower pregnancy knowledge among male respondents (Adj. ß: −0.41, 95% CI: −0.76, −0.06). Among female respondents, in Shanghai there was a significant increase in pregnancy knowledge who reported that it was “very true” (Adj. ß: 0.77, 95% CI: 0.11, 1.43) and “somewhat/not very true” (Adj. ß: 0.74, 95% CI: 0.07, 1.41) that their parents knew their friends by name. In Indonesia, there was a significant increase in pregnancy knowledge among male respondents who reported that it was “somewhat/not very true” (Adj. ß: 0.70, 95% CI: 0.05, 1.34) that their parents were usually aware of their whereabouts. Finally, in New Orleans, there was a significant increase in pregnancy knowledge among female respondents who reported that such parental awareness of their whereabouts was “somewhat/not very true” (Adj. ß: 0.53, 95% CI: 0.06, 1.00) and “very true” (Adj. ß: 0.59, 95% CI: 0.15, 1.02).

Young adolescent female respondents who had ever communicated with a parent about SRH matters were significantly more likely to know where to get condoms in Shanghai and New Orleans (Shanghai: AOR: 2.17, 95% CI: 1.15, 4.11 and New Orleans: AOR: 2.12, 95% CI: 1.19, 3.78). In Kinshasa, this relationship was true of male respondents at a p-value of less than 0.05 (AOR: 2.36, 95% CI: 1.13, 4.94). Female youth in New Orleans who were close with a parent were significantly less likely to know where to get condoms (AOR: 0.53, 95% CI: 0.30, 0.92). Female adolescents who communicated with a parent about any SRH matters were significantly more likely to know where to get other forms of contraception across all four study sites (Shanghai: AOR: 1.99, 95% CI: 1.16, 3.43; Kinshasa: AOR: 1.70, 95% CI: 1.01, 2.87; Indonesia: AOR: 2.32, 95% CI: 1.61, 3.34 and New Orleans: AOR: 2.35, 95% CI: 1.46, 3.80). Finally, in New Orleans, female young adolescents who reported being close with a parent, were significantly less likely to possess this knowledge (AOR: 0.55, 95% CI: 0.33, 0.90).

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Discussion

This manuscript explores three dimensions of parent-adolescent relationships (SRH communications, connectedness (e.g. closeness/ comfort talking with a parent) and parental monitoring (e.g. awareness of friends by name, where children are most of the time)) from the perspective of young adolescents as they relate to pregnancy knowledge and family planning service awareness in four diverse geographic areas ranging from low to high income settings.

What emerges from these findings is that adolescents, particularly female adolescents, who communicate with their parents about SRH matters tend to have significantly greater pregnancy knowledge and family planning service awareness than their peers. As noted in the introduction, most research on parent-adolescent communications focus on older adolescents and the relationship between parental engagement and sexual behaviors. While the present study cannot comment on the sexual behaviors of study participants, what we see is that our results regarding knowledge and awareness are consistent with those of other studies that looked at behavioral outcomes. For example, the present findings are consistent with what Sieving et al. found in the United States and with the research of Peck and Pablos in Mexico City [5,25].

However, other research challenges these findings. For example, in a four-country sub-Saharan Africa study of parent-adolescent communications and relationships (Burkina Faso, Ghana, Malawi and Uganda), Biddlecom et al. reported that greater SRH dialogue was positively associated with initiating sexual intercourse [26]. Similar findings were initially seen in the United States in analyses done by McNeely and colleagues [22]; however, this raises methodological issues for as McNeely et al. note, when survival analyses were done it appears that mother-daughter SRH communication increased when mothers believed their child was about to initiate sexual activity. It is beyond the present data to explore either the content of parent-adolescent dialogue or parental motivations for having discussions on pregnancy and contraception with their adolescent children. However, putting our findings together with those of McNeely et al., starting discussions early in adolescence appear to have greatest impact. What is clear is that SRH communications between adolescent and parent, when it occurs in young adolescence, is strongly associated with greater pregnancy knowledge and family planning service awareness for adolescent girls across geographically and culturally diverse communities. So too, the associations hold between parental SRH communications and pregnancy knowledge among boys in Indonesia and between parental SRH communications and knowledge of where to access condoms among boys in Kinshasa.

For knowledge of where to get condoms, the discussion is more nuanced. As previously noted, our study found that girls who reported greater parental SRH communication were significantly more likely to know where to get condoms in Shanghai and New Orleans, whereas, for boys this was only true in Kinshasa. Wideman and colleagues found in the United States parental communication was associated with safer sex (reported condom and contraception use) with the associations moderated by sex of the parent and adolescent [22]. Taken together, our findings suggest that parental communication about condoms does not immediately translate to greater adolescent male knowledge of where to access them.

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That said, in the few research studies that have explored parent-adolescent communications about condoms, findings suggest that discussions about condoms are rare. For example, in a study from Ghana, Manu et al. reported that only 5.6% of parents discussed condoms while abstinence was the primary topic reported by 73.6% of adolescents [27]. The same conclusion was echoed by Bastien et al. in their review of parent-child communications in sub-Saharan Africa, where they explored a number of communication dynamics (e.g. frequency of dialogue, content, style, and tone of discussions) [28]. They conclude that SRH communications tend to be unidirectional (parent to child) with content primarily oriented toward warnings and admonishment rather than providing youth with concrete information such as where to access condoms.

Some authors suggest that parental monitoring of adolescent behaviors is more critical than communications. For example, Mlundi et al. concluded that in Tanzania greater parental monitoring was directly associated with condom use among high school males while there was no association seen with parental communications and condom use [29]. Nappi et al. found similar results in the United States for African American male adolescents where parental monitoring moderated the relationship between parental communication and condom use [30].

Findings from the present study do not support that previous research. Specifically, we operationalized monitoring as parental awareness of: a) who adolescent friends are by name, and b) where the adolescent is most of the time. What we saw is that parental monitoring was associated with increased pregnancy knowledge for girls in Shanghai and boys in Indonesia. The differences in findings between the present study and the literature might be attributable to different definitions of parental monitoring, which like many other aspects of parent-adolescent relationships are often left undefined in published research. Alternatively, these differences may be attributable to nuances between knowledge-based and behavioral outcomes.

Closely linked with communications and monitoring is parental connectedness; and, again, there are numerous references in the literature that the stronger the parent-adolescent relationship the later the age of sexual debut or the greater likelihood that contraception would be used. Using the National Longitudinal Study of Adolescent Health (Add Health) in the United States Sieving et al. concluded that high levels of mother-adolescent connectedness were associated with delay of sexual debut [5]. In the Caribbean, Lerand and colleagues found that males who reported greater connectedness with parents were less likely to engage in sexual activity without a condom (AOR: 0.46, 95% CI: 0.32, 0.66) and girls were 1.5 times less likely to report early sexual debut when compared with less connected peers (AOR: 0.57, 95% CI: 0.40, 0.80) [14]. Similar conclusions were drawn by Tsala Dimbuene and Defo from their research in Cameroon and in Kenya for male condom use and parental connectedness [31,32]; however, studies in Nigeria and Zambia failed to show similar effects [33,34]. But like parental monitoring, parental connectedness often goes undefined.

The present study operationalized parental connectedness as: a) closeness to parent; and b) comfort talking with parent about worries. What we found was that with the exception

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of female respondents in New Orleans, there were no significant associations between connectedness and condom or other birth control method awareness for either males or females. In New Orleans, the associations were negative but statistically significant. What distinguishes New Orleans? It may be that there are unique relationships between the adolescent and parent given that more than half of study participant youth are raised by a single parent. Or it may be that contraceptive communications in New Orleans had a greater impact given that girls there were more than twice as likely than peers in other sites to report communications with their parent on SRH issues.

In summary, the present analyses strongly support the importance of SRH communications between young adolescents and their parents. The evidence suggests that it impacts pregnancy knowledge and contraceptive access awareness. The work of others, however, raises warnings. When conversations are unidirectional, dogmatic, or based on fear and admonishments they are less likely to have an impact. So too, when such conversations are initiated when parents suspect that their adolescents have begun or are about to initiate sexual intercourse, the evidence is that it is counterproductive. There is also good evidence from other research that parental knowledge about SRH matters influences parental comfort and the quality of dialogue [34]. Our findings also suggest that while parental connectedness and monitoring are beneficial they are not replacements for quality parent-adolescent communications about SRH issues that begin early in adolescence before sexual intercourse is initiated. These findings offer valuable lessons and insights that can be channeled into ASRH programming.

Limitations

The present study uses adolescent reports as the basis for observations and conclusions. This failure to take into consideration parental perspectives may be a limitation. However, research strongly suggests that behaviors are strongly influenced by individual attitudes, beliefs and perceptions, so adolescent perceptions of parental behaviors may be just as important as parent's self-report of their actual behaviors in predicting outcomes. So too, as previously noted, the present study did not collect data on the content of parental discussions or their timing in relationship to onset of behaviors. Likewise, while most research focuses on adolescent behaviors (e.g. sexual debut or condom use) the present study focuses on knowledge. But as different from most other research, which disproportionally focus on older adolescents, the present analyses are based on data from early adolescents; and as is noted above, sexual behaviors are less prevalent in this age group.

It should also be noted that the questions pertaining to knowledge of where to access condoms and other forms of contraception were self-reported, not based on an objective assessment of accurate knowledge. Therefore, it is possible that the young adolescent respondents may have reported that they knew where to access, but this knowledge was not accurate, and vice versa. However, youth's perception of and confidence in their knowledge to this end offers valuable insights, particularly as this query is one that can have a variety of "correct" responses. Further, our findings for these outcomes were consistent with those regarding the objective measure of pregnancy knowledge.

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It is important to point out some challenges of doing cross site research which impact data quality. For example, we were constrained in New Orleans by being disallowed from asking any questions about sexual and reproductive behaviors. Secondly, there is wide variation across sites in some responses which precluded using some variables for analyses as originally planned. Additionally, in some sites, there was very low response to certain response categories (see the *not true at all* response category for parent awareness). Finally, with regard to sensitive questions related to SRH or parental relationships, there tended to be a notable amount of non-meaningful responses (e.g. “Don’t understand the question”, “Don’t know”, or “Refuse to answer”) from the young adolescent respondents that may reflect a lack of understanding or knowledge on the part of the respondent or that the respondent did not wish to share their response. The later may reflect a social desirability bias, dsespite efforts on the part of the study team to minimize such bias through use of Audio-Computer Assisted Self- Interview (ACASI).

That said, this is the largest multi-country study of parent-adolescent relationships from the perspective of young adolescents and it adds to our understanding of the important role that parent-child communication plays in increasing SRH knowledge.

Conclusions

Given the importance that parent-adolescent communications play in both pregnancy knowledge and contraceptive access awareness for young adolescents, it cannot be overstressed that early, accurate and concrete conversations about SRH issues matter for young people. While it is beyond the scope of the present paper to discuss strategies that enhance such communications, there are a number of programs that have been well researched in countries around the world [35–39]. It is incumbent upon us as parents, providers and youth advocates to encourage and model such straight talk between parents and their young adolescents. Adolescent SRH programs can play an instrumental role in facilitating such straight talk.

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Abbreviations

ACASI	Audio-Computer Assisted Self- Interview
ASRH	Adolescent Sexual and Reproductive Health

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DRC	Democratic Republic of the Congo
GEAS	the Global Early Adolescent Study
SRH	Sexual and Reproductive Health
STIs	Sexually Transmitted Infections
US	United States

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Table 1.

Measurement Details

Type	Variable	Measurement Details
Outcome Variable	**Pregnancy Knowledge (continuous)**	Pregnancy knowledge is comprised of six true or false questions that were asked of youth respondents. These questions included: *a) A girl can get pregnant the first time that she has sexual intercourse (T);* *b) A girl can get pregnant after kissing or hugging (F);* *c) A girl can swallow a pill every day to protect against pregnancy (T);* *d) Using a condom can protect against pregnancy (T);* *e) A girl can have a shot or injection that will protect against pregnancy (T); and* *f) A girl can use herbs to prevent a pregnancy (F).* A continuous score (ranging from 0 to 6) was generated for each youth respondent reflecting the sum of correct responses. Respondents were able to indicate that they "don't know" or "refuse" to answer the question, such non-response was considered as an incorrect response.
	Knowledge of where to get condoms (binary)	Knowledge of where to get condoms was captured by the single question: *"Tell us if you think the following is true for you: I know where to go to get condoms".* Yes or no responses were considered, while non-responses (i.e. "Don't understand the question", "Don't know", or "Refuse to answer") were treated as missing responses.
	Knowledge of where to get other birth control (binary)	Knowledge of where to get other birth control was captured by the single question *"Tell us if you think the following is true for you: I know where to go if I needed to get contraception (birth control) other than condoms".* Again, yes or no responses were considered, while non-responses were treated as missing.
Key Predictor Variable	**Closeness with parent (binary)**	Closeness with parent was assessed by the question "*Do you feel close to your main caregiver? (By close, we mean that you can talk to that person and tell them about personal and important things)".* Response options for this variable were dichotomized into (1) A lot/somewhat and (2) Not much/not at all.
	Level of comfort discussing worries with parent (binary)	Level of comfort discussing worries with parent was captured by the question: *"How comfortable do you feel talking with your main caregiver about things that worry you?".* Response options for this variable were collapsed into (1) Comfortable and (2) Not at all comfortable.
	Parent knowledge of friends (categorical)	Parent knowledge of friends was reflected by the extent to which youth reported that their main caregiver "*knows who [their] friends are by name".* Response options were collapsed into three categories: (1) Very true, (2) Somewhat/not very true, and (3) Not true at all.
	Parent knowledge of location (categorical)	Parent knowledge of location was captured by youth's report of the degree to which their main caregiver *"usually knows where [they are]".* Response options were collapsed into three categories: (1) Very true, (2) Somewhat/not very true, and (3) Not true at all.
	Parent SRH communication (binary)	A dichotomous variable was created to capture whether youth respondents had ever discussed sexual relationships, pregnancy, or contraception with their parent. This variable was generated based on six categorical variables that respectively captured if the respondent had ever discussed any of these subjects and, if so, with whom (i.e. mother/female parent, father/male parent). An affirmative response for this composite variable was recorded if respondents indicated that they had discussed any of the aforementioned topics with a parent.
Control Variable	**Age (continuous)**	Continuous variable, 10–14 years
	Age appropriate grade level (binary)	Dichotomous variable reflecting whether or not the youth is currently enrolled in the appropriate grade level for their age
	Religiosity (binary)	Dichotomous variable capturing whether religion is (1) very important vs. (2) less important/ have no religion
	Romantic and sexual engagement of youth respondents (binary)	Dichotomous variable reflecting whether or not the youth had ever engaged in either kissing, touching, sexual intercourse, or a romantic relationship.
	Household composition (categorical)	Categorical variable reflecting whether the youth lives with (1) neither, (2) one, or (3) both parents
	Sex of the parent (binary)	Dichotomous variable, male or female
	Average time spent with peers each week (categorical)	Categorical variable reflecting how often the youth sees their peers each week on average: (1) never/rarely, (2) 1–4 days per week, or (3) daily
	Peer Group Composition (binary)	Dichotomous variable reflecting whether a youth's peer group is composed of (1) members of the same-sex or (2) a mix of both male and female youth.

Type	Variable	Measurement Details
	Youth perception of peer romantic and sexual engagement (binary)	Dichotomous variable reflecting whether or not youth believe that any of their peers have ever engaged in kissing, touching, sexual intercourse, or a romantic relationship.

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Table 2.

Overview of Sample

	Shanghai, China			Kinshasa, DRC			Denpasar and Semarang, Indonesia			New Orleans, US		
	Total n (%) n = 938	**Male n (%) n = 446**	**Female n (%) n = 492**	**Total n (%) n = 1539**	**Male n (%) n = 772**	**Female n (%) n =767**	**Total n (%) n = 1694**	**Male n (%) n = 714**	**Female n (%) n = 980**	**Total n (%) n = 640**	**Male n (%) n = 209**	**Female n (%) n = 431**
Age												
Mean (SD +/−)	12.53 (0.03)	12.60 (0.05)	12.46 (0.04)	11.88 (0.04)	11.95 (0.05)	11.82 (0.05)	12.16 (0.01)	12.21 (0.02)	12.13 (0.02)	12.93 (0.03)	12.89 (0.06)	12.95 (0.04)
10	6 (0.64%)	2 (0.45%)	4 (0.81%)	323 (20.99%)	153 (19.82%)	170 (22.16%)	2 (0.12%)	0	2 (0.20%)	-	-	-
11	146 (15.57%)	65 (14.57%)	81 (16.46%)	339 (22.03%)	163 (21.11%)	176 (22.95%)	78 (4.60%)	31 (4.34%)	47 (4.80%)	6 (0.94%)	3 (1.44%)	3 (0.70%)
12	288 (30.70%)	130 (29.15%)	158 (32.11%)	330 (21.44%)	166 (21.50%)	164 (21.38%)	1273 (75.15%)	517 (72.41%)	756 (77.14%)	188 (29.38%)	71 (33.97%)	117 (27.15%)
13	344 (36.67%)	160 (35.87%)	184 (37.40%)	286 (18.58%)	148 (19.17%)	138 (17.99%)	323 (19.07%)	153 (21.43%)	170 (17.35%)	291 (45.47%)	80 (38.28%)	211 (48.96%)
14	154 (16.42%)	89 (19.96%)	65 (13.21%)	261 (16.96%)	142 (18.39%)	119 (15.51%)	18 (1.06%)	13 (1.82%)	5 (0.51%)	155 (24.22%)	55 (26.32%)	100 (23.20%)
Education Level (Appropriate for Age)												
Lower than age expected grade	31 (3.30%)	18 (4.04%)	13 (2.64%)	289 (18.78%)	152 (19.69%)	137 (17.86%)	18 (1.06%)	13 (1.82%)	5 (0.51%)	16 (2.50%)	10 (4.78%)	6 (1.39%)
Age expected grade or higher	907 (96.70%)	428 (95.96%)	479 (97.36%)	1250 (81.22%)	620 (80.31%)	630 (82.14%)	1676 (98.94%)	701 (98.18%)	975 (99.49%)	624 (97.50%)	199 (95.22%)	425 (98.61%)
Religiosity												
Less than very important or no religion	881 (93.92%)	413 (92.60%)	468 (95.12%)	53 (3.44%)	29 (3.76%)	24 (3.13%)	1100 (64.94%)	437 (61.20%)	663 (67.65%)	415 (64.84%)	143 (68.42%)	272 (63.11%)
Very important	57 (6.08%)	33 (7.40%)	24 (4.88%)	1486 (96.56%)	743 (96.24%)	743 (96.87%)	594 (35.06%)	277 (38.80%)	317 (32.35%)	225 (35.16%)	66 (31.58%)	159 (36.89%)
Romantic and Sexual Activity												
Has not engaged at all	780 (83.16%)	348 (78.03%)	432 (87.80%)	1353 (87.91%)	653 (84.59%)	700 (91.26%)	950 (56.08%)	360 (50.42%)	590 (60.20%)	-	-	-
Has engaged at all	158 (16.84%)	98 (21.97%)	60 (12.20%)	186 (12.09%)	119 (15.41%)	67 (8.74%)	744 (43.92%)	354 (49.58%)	390 (39.80%)	-	-	-

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	Shanghai, China			Kinshasa, DRC			Denpasar and Semarang, Indonesia			New Orleans, US		
	Total n (%) n = 938	**Male n (%) n = 446**	**Female n (%) n = 492**	**Total n (%) n = 1539**	**Male n (%) n = 772**	**Female n (%) n =767**	**Total n (%) n = 1694**	**Male n (%) n = 714**	**Female n (%) n = 980**	**Total n (%) n = 640**	**Male n (%) n = 209**	**Female n (%) n = 431**
Household Composition												
Neither Parent	7 (0.75%)	3 (0.67%)	4 (0.81%)	73 (4.74%)	35 (4.53%)	38 (4.95%)	32 (1.89%)	19 (2.66%)	13 (1.33%)	10 (1.56%)	5 (2.39%)	5 (1.16%)
One Parent	97 (10.34%)	40 (8.97%)	57 (11.59%)	368 (23.91%)	186 (24.09%)	182 (23.73%)	106 (6.26%)	37 (5.18%)	69 (7.04%)	347 (54.22%)	104 (49.76%)	243 (56.38%)
Both Parent	834 (88.91%)	403 (90.36%)	431 (87.60%)	1098 (71.35%)	551 (71.37%)	547 (71.32%)	1556 (91.85%)	658 (92.16%)	898 (91.63%)	283 (44.22%)	100 (47.85%)	183 (42.46%)
Parent Sex												
Male	148 (15.78%)	87 (19.51%)	61 (12.40%)	972 (63.16%)	548 (70.98%)	424 (55.28%)	113 (6.67%)	54 (7.56%)	59 (6.02%)	52 (8.12%)	28 (13.40%)	24 (5.57%)
Female	790 (84.22%)	359 (80.49%)	431 (87.60%)	567 (36.84%)	224 (29.02%)	343 (44.72%)	1581 (93.33%)	660 (92.44%)	921 (93.98%)	588 (91.88%)	181 (86.60%)	407 (94.43%)
Time spent with peers												
Never/rarely	327 (34.86%)	158 (35.43%)	169 (34.35%)	37 (2.40%)	7 (0.91%)	30 (3.91%)	140 (8.26%)	58 (8.12%)	82 (8.37%)	95 (14.84%)	22 (10.53%)	73 (16.94%)
1–4 x per week	547 (58.32%)	252 (56.50%)	295 (59.96%)	752 (48.86%)	345 (44.69%)	407 (53.06%)	1019 (60.15%)	352 (49.30%)	667 (68.06%)	368 (57.50%)	123 (58.85%)	245 (56.84%)
Daily	64 (6.82%)	36 (8.07%)	28 (5.69%)	750 (48.73%)	420 (54.40%)	330 (43.02%)	535 (31.58%)	304 (42.58%)	231 (23.57%)	177 (27.66%)	64 (30.62%)	113 (26.22%)
Peer group composition												
Same-sex	406 (43.28%)	156 (34.98%)	250 (50.81%)	836 (54.32%)	401 (51.94%)	435 (56.71%)	533 (31.46%)	181 (25.35%)	352 (35.92%)	96 (15.00%)	27 (12.92%)	69 (16.01%)
Mixed	532 (56.72%)	290 (65.02%)	242 (49.19%)	703 (45.68%)	371 (48.06%)	332 (43.29%)	1161 (68.54%)	533 (74.65%)	628 (64.08%)	544 (85.00%)	182 (87.08%)	362 (83.99%)
Perceived peer engagement in romantic and sexual activity												
None	487 (51.92%)	205 (45.96%)	282 (57.32%)	959 (62.31%)	442 (57.25%)	517 (67.41%)	110 (6.49%)	45 (6.30%)	65 (6.63%)	40 (6.25%)	11 (5.26%)	29 (6.73%)
Any	451 (48.08%)	241 (54.04%)	210 (42.68%)	580 (37.69%)	330 (42.75%)	250 (32.59%)	1584 (93.51%)	669 (93.70%)	915 (93.37%)	600 (93.75%)	198 (94.74%)	402 (93.27%)
Closeness with parent												

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	Shanghai, China			Kinshasa, DRC			Denpasar and Semarang, Indonesia			New Orleans, US		
	Total n (%) n = 938	**Male n (%) n = 446**	**Female n (%) n = 492**	**Total n (%) n = 1539**	**Male n (%) n = 772**	**Female n (%) n =767**	**Total n (%) n = 1694**	**Male n (%) n = 714**	**Female n (%) n = 980**	**Total n (%) n = 640**	**Male n (%) n = 209**	**Female n (%) n = 431**
Somewhat/ not much/ not at all	385 (41.04%)	198 (44.39%)	187 (38.01%)	564 (36.65%)	285 (36.92%)	279 (36.38%)	596 (35.18%)	273 (38.24%)	323 (32.96%)	258 (40.31%)	90 (43.06%)	168 (38.98%)
A lot	553 (58.96%)	248 (55.61%)	305 (61.99%)	975 (63.35%)	487 (63.08%)	488 (63.62%)	1098 (64.82%)	441 (61.76%)	657 (67.04%)	382 (59.69%)	119 (56.94%)	263 (61.02%)
Level of comfort talking to parent about things that worry you												
Not at all comfortable	56 (5.97%)	29 (6.50%)	27 (5.49%)	160 (10.40%)	76 (9.84%)	84 (10.95%)	137 (8.09%)	60 (8.40%)	77 (7.86%)	20 (3.12%)	8 (3.83%)	12 (2.78%)
Comfortable at all	882 (94.03%)	417 (93.50%)	465 (94.51%)	1379 (89.60%)	696 (90.16%)	683 (89.05%)	1557 (91.91%)	654 (91.60%)	903 (92.14%)	620 (96.88%)	201 (96.17%)	419 (97.22%)
Parent awareness of friends by name												
Not true at all	8 (0.85%)	7 (1.57%)	1 (0.20%)	149 (9.68%)	84 (10.88%)	65 (8.47%)	12 (0.71%)	6 (0.84%)	6 (0.61%)	20 (3.12%)	8 (3.83%)	12 (2.78%)
Somewhat/not very true	336 (35.82%)	187 (41.93%)	149 (30.28%)	778 (50.55%)	402 (52.07%)	376 (49.02%)	1013 (59.80%)	407 (57.00%)	606 (61.84%)	317 (49.53%)	115 (55.02%)	202 (46.87%)
Very true	594 (63.33%)	252 (56.50%)	342 (69.51%)	612 (39.77%)	286 (37.05%)	326 (42.50%)	669 (39.49%)	301 (42.16%)	368 (37.55%)	303 (47.34%)	86 (41.15%)	217 (50.35%)
Parent awareness of whereabouts												
Not true at all	15 (1.60%)	10 (2.24%)	5 (1.02%)	88 (5.72%)	58 (7.51%)	30 (3.91%)	14 (0.83%)	12 (1.68%)	2 (0.20%)	1 (0.16%)	0	1 (0.23%)
Somewhat/not very true	223 (23.77%)	125 (28.03%)	98 (19.92%)	471 (30.60%)	295 (38.21%)	176 (22.95%)	754 (44.51%)	374 (52.38%)	380 (38.78%)	102 (15.94%)	52 (24.88%)	50 (11.60%)
Very true	700 (74.63%)	311 (69.73%)	389 (79.07%)	980 (63.68%)	419 (54.27%)	561 (73.14%)	926 (54.66%)	328 (45.94%)	598 (61.02%)	537 (83.91%)	157 (75.12%)	380 (88.17%)
Parent communication about SRH matters												
No	735 (78.36%)	375 (84.08%)	360 (73.17%)	1384 (89.93%)	723 (93.65%)	661 (86.18%)	1202 (70.96%)	547 (76.61%)	655 (66.84%)	293 (45.78%)	103 (49.28%)	190 (44.08%)
Yes	203 (21.64%)	71 (15.92%)	132 (26.83%)	155 (10.07%)	49 (6.35%)	106 (13.82%)	492 (29.04%)	167 (23.39%)	325 (33.16%)	347 (54.22%)	106 (50.72%)	241 (55.92%)
Pregnancy knowledge												

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	Shanghai, China			Kinshasa, DRC			Denpasar and Semarang, Indonesia			New Orleans, US		
	Total n (%) n = 938	**Male n (%) n = 446**	**Female n (%) n = 492**	**Total n (%) n = 1539**	**Male n (%) n = 772**	**Female n (%) n =767**	**Total n (%) n = 1694**	**Male n (%) n = 714**	**Female n (%) n = 980**	**Total n (%) n = 640**	**Male n (%) n = 209**	**Female n (%) n = 431**
Mean (+/− SD)	2.23 (0.05)	2.34 (0.08)	2.14 (0.07)	3.00 (0.04)	3.08 (0.05)	2.91 (0.05)	2.15 (0.04)	2.49 (0.06)	1.90 (0.05)	3.98 (0.05)	3.82 (0.09)	4.05 (0.06)
Know where to get condoms *A*												
No	186 (33.10%)	88 (33.08%)	98 (33.11%)	495 (53.11%)	262 (48.88%)	233 (58.83%)	360 (49.04%)	149 (37.53%)	211 (62.61%)	138 (29.73%)	38 (20.11%)	100 (26.60%)
Yes	376 (66.90%)	178 (66.92%)	198 (66.89%)	437 (46.88%)	274 (51.12%)	163 (41.16%)	374 (50.95%)	248 (62.47%)	126 (37.39%)	427 (70.27%)	151 (79.89%)	276 (73.40%)
Know where to get other contraception *A*												
No	160 (48.63%)	-	160 (48.63%)	230 (37.77%)	-	230 (37.77%)	345 (59.33%)	-	345 (59.33%)	159 (43.68%)	-	159 (43.68%)
Yes	169 (51.37%)	-	169 (51.37%)	379 (62.23%)	-	379 (62.23%)	229 (40.67%)	-	229 (40.67%)	205 (56.32%)	-	205 (56.32%)

A. Total differs from that noted above due to missing and non-meaningful responses for family planning service awareness outcomes. Missing and non-meaningful responses were excluded from the regression analyses (including multiple linear and logistic regressions).

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Table 3A.

Multiple Linear Regressions: Pregnancy knowledge

	Shanghai, China		Kinshasa, DRC		Denpasar and Semarang, Indonesia		New Orleans, US	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
	Adj. ß (95% CI)	**Adj. ß (95% CI)**	**Adj. ß (95% CI)**	**Adj. ß (95% CI)**	**Adj. ß (95% CI)**	**Adj. ß (95% CI)**	**Adj. ß (95% CI)**	**Adj. ß (95% CI)**
Closeness with parent								
Somewhat/ a lot	−0.41 (−0.76, −0.06)*	−0.25 (−0.53, 0.03)	0.09 (−0.13, 0.31)	−0.10 (−0.31, 0.11)	0.00 (−0.23, 0.24)	−0.05 (−0.25, 0.16)	0.20 (−0.18, 0.57)	−0.16 (−0.40, 0.09)
Not much/ not at all	-	-	-	-	-	-	-	-
Level of comfort talking to parent about things that worry you								
Not at all comfortable	-	-	-	-	-	-	-	-
Comfortable at all	-0.03 (−0.66, 0.60)	-0.35 (−0.88, 0.19)	0.31 (−0.06, 0.69)	-0.07 (−0.40, 0.26)	0.07 (−0.37, 0.48)	0.01 (−0.33, 0.34)	-0.43 (−1.20, 0.34)	-0.09 (−0.74, 0.55)
Parent awareness of friends by name								
Not true at all	-	-	-	-	-	-	-	-
Somewhat/not very true	−0.19 (−1.24, 0.86)	0.74 (0.07, 1.41)*	−0.04 (−0.42, 0.35)	0.24 (−0.11, 0.59)	−0.54 (−2.03, 0.95)	−0.60 (−1.63, 0.44)	−0.54 (−1.60, 0.52)	−0.58 (−1.26, 0.10)
Very true	−0.25 (−1.33, 0.84)	0.77 (0.11, 1.43)*	−0.02 (−0.41, 0.37)	0.30 (−0.06, 0.65)	−0.46 (−1.96, 1.03)	−0.75 (−1.79, 0.29)	−0.42 (−1.48, 0.64)	−0.64 (−1.33, 0.04)
Parent awareness of where youth is								
Not true at all	-	-	-	-	-	-	-	-
Somewhat/not very true	0.56 (−0.21, 1.34)	0.81 (−0.70, 2.32)	0.19 (−0.30, 0.68)	0.43 (−0.13, 0.99)	0.61 (−0.02, 1.25)	0.36 (−1.59, 2.31)	NA	0.53 (0.06, 1.00)*
Very true	0.73 (−0.05, 1.51)	0.77 (−0.75, 2.30)	0.18 (−0.30, 0.66)	0.39 (−0.16, 0.94)	0.70 (0.05, 1.34)*	0.34 (−1.61, 2.30)	−0.09 (−0.47, 0.28)	0.59 (0.15, 1.02)*
Parent communication about SRH matters								
Yes	0.38 (−0.04, 0.81)	0.64 (0.34, 0.93)*	0.35 (−0.08, 0.79)	0.31 (0.02, 0.60)*	0.27 (0.01, 0.53)*	0.51 (0.32, 0.70)*	0.13 (−0.23, 0.50)	0.54 (0.29, 0.79)*
No	-	-	-	-	-	-	-	-

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Table 3B.

Multiple Logistic Regressions: Knowledge of where to get condoms

	Shanghai, China		Kinshasa, DRC		Denpasar and Semarang, Indonesia		New Orleans, US	
	Male	Female	Male	Female	Male	Female	Male	Female
	Adj. OR (95% CI)	Adj. OR (95% CI)	Adj. OR (95% CI)	Adj. OR (95% CI)	Adj. OR (95% CI)	Adj. OR (95% CI)	Adj. OR (95% CI)	Adj. OR (95% CI)
Closeness with parent								
Somewhat/ a lot	0.58 (0.30, 1.12)	0.68 (0.37, 1.24)	0.89 (0.58, 1.35)	1.24 (0.76, 2.03)	1.32 (0.82, 2.12)	1.02 (0.60, 1.75)	1.22 (0.47, 3.13)	0.53 (0.30, 0.92)*
Not much/ not at all	-	-	-	-	-	-	-	-
Level of comfort talking to parent about things that worry you								
Not at all comfortable	-	-	-	-	-	-	-	-
Comfortable at all	0.23 (0.05, 1.01)	0.63 (0.20, 2.00)	1.40 (0.73, 2.66)	1.05 (0.55, 2.00)	0.88 (0.37, 2.10)	1.05 (0.33, 3.40)	4.29 (0.38, 48.66)	2.01 (0.45, 8.98)
Parent awareness of friends by name								
Not true at all	-	-[A]	-	-	-	-[B]	-	-
Somewhat/not very true	0.73 (0.02, 31.02)	0.75 (0.39, 1.44)	1.15 (0.63, 2.10)	2.24 (0.95, 5.27)	1.55 (0.19, 12.90)	1.29 (0.76, 2.19)	0.08 (0.00, 1.49)	2.41 (0.56, 10.38)
Very true	0.71 (0.02, 30.47)	NA[C]	0.89 (0.47, 1.70)	1.37 (0.57, 3.30)	1.24 (0.15, 10.43)	NA[C]	0.10 (0.01, 1.78)	2.36 (0.55, 10.07)
Parent awareness of where youth is								
Not true at all	-	-[A]	-	-	-	-	-	-[A]
Somewhat/not very true	2.92 (0.24, 35.90)	1.17 (0.57, 2.38)	1.50 (0.67, 3.35)	0.96 (0.32, 2.92)	0.58 (0.04, 7.65)	0.80 (0.48, 1.33)	-	2.86 (0.92, 8.92)
Very true	2.77 (0.23, 33.90)	NA[C]	1.63 (0.73, 3.64)	0.75 (0.26, 2.17)	0.46 (0.03, 6.02)	-	0.53 (0.18, 1.62)	NA[C]
Parent communication about SRH matters								
Yes	1.71 (0.78, 3.75)	2.17 (1.15, 4.11)*	2.36 (1.13 4.94)*	1.59 (0.89, 2.83)	1.21 (0.71, 2.06)	1.56 (0.96, 2.54)	1.57 (0.65, 3.78)	2.12 (1.19, 3.78)*
No	-	-	-	-	-	-	-	-

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Table 3C.

Multiple Logistic Regressions: Knowledge of where to get other contraception

	Shanghai, China		Kinshasa, DRC		Denpasar and Semarang, Indonesia		New Orleans, US	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
	Adj. OR (95% CI)	**Adj. OR (95% CI)**	**Adj. OR (95% CI)**	**Adj. OR (95% CI)**	**Adj. OR (95% CI)**	**Adj. OR (95% CI)**	**Adj. OR (95% CI)**	**Adj. OR (95% CI)**
Closeness with parent								
Somewhat/ a lot	-	0.62 (0.36, 1.08)	-	1.22 (0.83, 1.78)	-	0.93 (0.62, 1.40)	-	0.55 (0.33, 0.90)*
Not much/ not at all	-	-	-	-	-	-	-	-
Level of comfort talking to parent about things that worry you								
Not at all comfortable	-	-	-	-	-	-	-	-
Comfortable at all	-	0.42 (0.14, 1.25)	-	0.61 (0.33, 1.13)	-	1.38 (0.68, 2.80)	-	1.31 (0.34, 5.01)
Parent awareness of friends by name								
Not true at all	-	-A	-	-	-	-	-	-
Somewhat/not very true	-	0.69 (0.38, 1.27)	-	1.63 (0.87, 3.04)	-	0.62 (0.07, 5.28)	-	1.46 (0.32, 6.75)
Very true	-	NAC	-	1.78 (0.93, 3.41)	-	0.67 (0.08, 5.88)	-	1.30 (0.28, 6.01)
Parent awareness of where youth is								
Not true at all	-	-	-	-	-	-A	-	-B
Somewhat/not very true	-	2.69 (0.27, 26.96)	-	0.70 (0.24, 2.05)	-	1.21 (0.82, 1.79)	-	1.21 (0.59, 2.47)
Very true	-	2.46 (0.24, 25.77)		0.73 (0.26, 2.07)	-	NAC	-	NAC
Parent communication about SRH matters								
Yes	-	1.99 (1.16, 3.43)*	-	1.70 (1.01, 2.87)*	-	2.32 (1.61, 3.34)*	-	2.35 (1.46, 3.80)*
No	-	-	-	-	-	-	-	-

*p-value <0.05

A. Null as it predicted success perfectly

B. Null as it predicted failure perfectly

C. Omitted due to collinearity