Journal of Adolescent Health 61 (2017) 6–23

ELSEVIER

JOURNAL OF ADOLESCENT HEALTH

www.jahonline.org

Review article

Physicians Talking About Sex, Sexuality, and Protection With Adolescents

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Article history: Received September 6, 2016; Accepted January 29, 2017
Keywords: Adolescent; Physicians; Health communication; Sexual activity; Sexual orientation; Contraceptive methods

A B S T R A C T

Adolescent-physician communication about sexual behaviors, sexuality, and protective behaviors is vital for the support of sexual minorities and the prevention of sexually transmitted infections and unintended pregnancies. The objective of this review is to identify sexual topics that physicians and adolescents discuss during medical encounters and examine the quantity and quality of that communication. We performed a systematic literature review of major databases through May 2016. We identified 33 papers that focused on adolescent-physician communication about three major sexual health topics: coital or noncoital sexual behaviors, sexual orientation or attractions, and sexually protective or preventative behaviors. Communication between adolescents and physicians about these sexual topics is infrequent and coincides with calls for improvement in clinical sex communication. Communication about sexual attractions, sexual orientation, and noncoital sexual behaviors were the rarest in practice, whereas mentions of contraception were more frequent. The review also highlights substantial limitations with this body of research, and more advanced research designs are warranted. Associations between clinical sexual communication and sexual health outcomes (e.g., contraceptive use and sexually transmitted infection occurrence) would improve knowledge of the effectiveness of communication in practice.

IMPLICATIONS AND CONTRIBUTION

This review establishes the infrequency and inconsistency with which physicians talk to adolescents about sex and highlights the need for improvements in future research designs. The study addresses a unique range of sexual topics and provides alternative approaches for physicians who regularly counsel adolescents about sexual health.

Physicians have an opportunity to help adolescents learn about sexuality and sexual health, and the American Academy of Pediatrics recommends confidential sexuality discussions and education during annual health maintenance visits [1]. Reviews of physician-adolescent communication about sexual topics focus on randomized controlled trials for prevention of sexually transmitted infections (STIs) [2] or review provider communication about human papillomavirus vaccination [3]. To our knowledge, reviews have not addressed physician-adolescent communication about diverse sexual topics (e.g., sexual identity and sexual function) or sexual behaviors that include both coital and noncoital behaviors. Although recent commentaries suggest that physician-adolescent communication about sex needs improvement [4,5], lack of systematic understanding of the content and quality of physician-adolescent sex communication impedes effective training and quality improvement efforts. The importance of such a review is based on increasing emphasis on early identification and health care support of gender and sexual minorities and adds to long-standing clinical roles in prevention of unintended pregnancy

Conflicts of Interest: The authors have no conflicts of interest to disclose.

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1054-139X/
http://dx.doi.org/10.1016/j.jadohealth.2017.01.017

and STIs. Therefore, the goal of this article was to review the existing physician-adolescent sex communication literature and identify the sexual topics physicians may be discussing with adolescents to determine areas of success and room for improvement.

Method

We performed a systematic literature review using the following search terms: "adolescent" AND "physician-patient communication" OR "doctor-patient" OR "physician-patient relations" AND each of the following search terms "sex," "sexuality," "sexual behavior," "noncoital," "extragenital," "intercourse," "coital," "contraception," "sexual history," "sexual attractions," "sexual orientation," and "LGB" (lesbian, gay, bisexual) and located 4,780 potentially relevant papers. We included digital and non-digital sources and examined all English-language titles and abstracts published through May 2016. We screened these titles and/or abstracts and excluded articles based on the following criteria: a focus on nonsexual adolescent risk behaviors such as drug use, drinking, and smoking, studies that did not relate to adolescents or verbal communication (e.g., event history calendars or written sexual history forms) during health care encounters, studies of communication about sexual abuse, assault, or offenses, or communication about adolescent sexuality and fertility during cancer treatment. Studies pertaining only to adolescent communication about sex with nonphysicians were excluded as well. Studies related to human papillomavirus vaccination communication were excluded because of a recent comprehensive review of the topic [3]. Randomized controlled trials to improve physician communication about sexual health were excluded, also, because of a recent comprehensive review [6]. We read 176 potentially relevant full-text articles. We continued to exclude articles based on the previously mentioned criteria that were not apparent in titles and abstracts, with the majority excluded due to a focus on adolescent communication about sex with non-physicians. A total of 33 papers were ultimately included that focused on verbal physician-adolescent communication about sexuality, sexual behaviors, or sexually protective or preventative behaviors (see Figure 1).

Results

We extracted the following information from 33 published articles: author names and publication year, sample size, sample population, sexual topics addressed, analytic methods, communication quality assessment, and relevant findings (see Table 1). We evaluated which studies assessed the quality of physician-adolescent sex communication, but there was no systematic method by which authors assessed quality across studies. Therefore, we have defined the assessment of sex communication quality as aspects of the communicative encounter that could potentially increase or decrease the disclosure or discussion of sexual information or that could potentially improve or worsen the visit overall, or outcomes that were of interest to the respective authors. These included, but were not limited to, aspects of the visit such as comfort discussing sexual topics, confidentiality assurance, engagement in the visit, and so forth (see Table 1 for full range of quality assessment tactics.).

Most studies (n = 22) included self-reported data from adolescents, eight included self-reported data from physicians or other health care providers, and three included audio-recorded physician-adolescent interactions. Samples included single-practice sites as well as nationally representative samples, ranging in size from 27 to 6,728. Four studies included qualitative analysis, including one that used both qualitative and

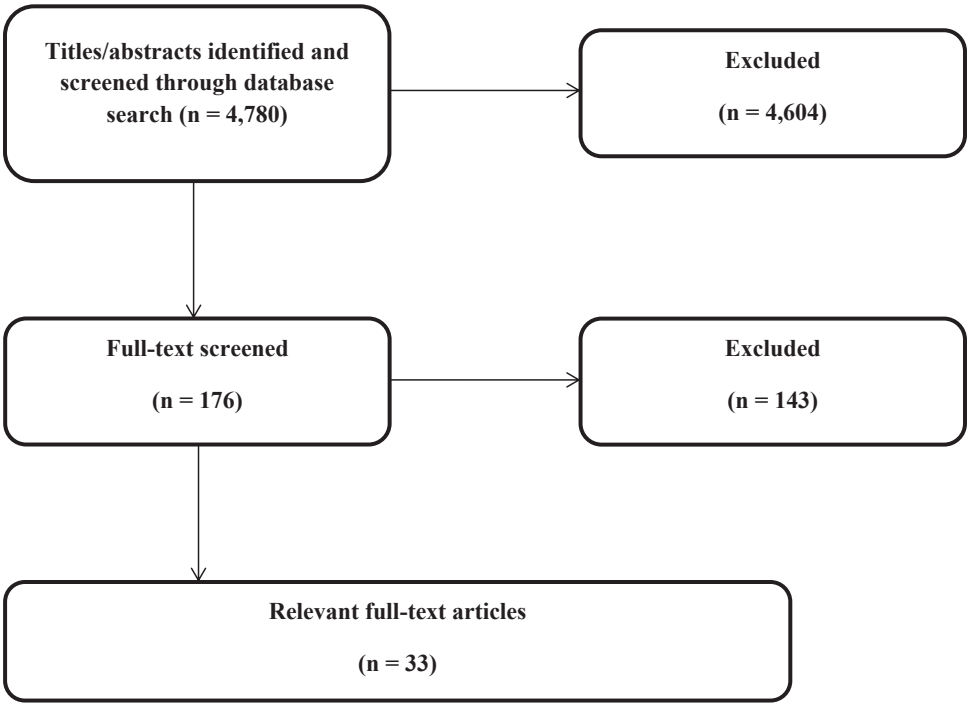

Figure 1. Flow diagram of articles identified and screened for review.

Table 1
Literature table for all reviewed papers

Authors, year	N	Sample population	Sexual topic(s)	Analytic method	Communication quality assessment	Main findings
Ackard and Neumark-Sztainer, 2001 [7]	6,728	Adolescents (5th–12th grade)	Attractions Protective/preventative behaviors*	Descriptives	Yes; comfort	• 57% of boys and 65% of girls thought a provider should discuss how to prevent STIs with someone their age, but only 24% of boys and 28% of girls had actually discussed the topic with their own provider. • 41% of boys and 59% of girls thought a provider should discuss how to prevent pregnancy, but only 15% of boys and 26% of girls had actually discussed it with their own provider. % of boys and girls too uncomfortable to discuss each topic with MD (% boys | % girls): ○ Sexual preferences 44% | 50% ○ Contraception 23% | 40% ○ Pregnancy 21% | 30% ○ STIs 26% | 25%
Alexander et al., 2014 [8]	253; 49	Adolescents' (aged 12–18 y) interactions with 49 MDs	Sexual behaviors	Descriptives Logistic regression	Yes; confidentiality; adolescent participation/engagement in conversation	• 65% of conversations contained sexuality talk, which were all initiated by MD. • Average time of sex discussions was 36 seconds. • African-American adolescents were 60% more likely to participate in sex talk. • Asian MDs were 90% less likely to participate in sex talk. • Older adolescent age, female adolescent gender, confidentiality discussions, and longer visit time significantly predicted time talking about sex. • Older adolescent age, female adolescent gender, and confidentiality discussions were associated with higher likelihood of increased levels of adolescent participation in sex conversations, while seeing an Asian MD was associated with a decreased likelihood of more engaged participation in sex conversations.

Table 1
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Authors, year	N	Sample population	Sexual topic(s)	Analytic method	Communication quality assessment	Main findings
Alexander et al., 2014 [9]	393; 49	Adolescents' (aged 12–18 y) interactions with 49 MDs	Attractions/orientation	Descriptives Analysis of variance Qualitative analysis	Yes; inclusivity of MD language	• 63% of conversations contained some type of sexuality talk. Within these: ○ 3.3% contained sexually inclusive language ○ 48.1% contained direct noninclusive language ○ 48.6% contained indirect noninclusive language • There were no significant differences in inclusivity of language based on adolescent gender, age, race, or visit length, indicating that all adolescents are experiencing noninclusive sexuality conversations. • Physician communication strategies identified qualitatively: ○ Inclusive: Conversations were initiated by focusing on attraction and asking about friends. Conversations were maintained by normalizing/legitimizing different attractions, emphasizing nonjudgment, allowing for additional discussion. ○ Noninclusive: These discussions were characterized by pauses/hesitations and rapid topic changes.
Alexander et al., 2015 [10]	245; 42	Adolescents' (aged 12–18 y) interactions with 42 MDs	Sexual behaviors (intercourse, noncoital) Protective/preventative behaviors	Latent class analysis	None	• Four types of sexuality conversation classes emerged which were characterized by: ○ sexual knowledge and protection talk ○ short/simple questions about sex, dating, body development, and so forth. ○ discussions of puberty, genital intercourse, and protective behaviors ○ discussions with sexually inexperienced adolescents

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Table 1
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Authors, year	N	Sample population	Sexual topic(s)	Analytic method	Communication quality assessment	Main findings
						• Overall, discussions about genital intercourse behaviors (74%) and protection behaviors (54%) were most frequent
Allen, Glicken, Beach, and Naylor, 1998 [11]	102	LGB adolescents/young adults (aged 18–23 y)	Orientation	Descriptives	Yes; confidentiality	• Retrospective reports of sexual orientation discussions during age 14–23 y: ○ 78% never discussed orientation ○ 13% discussed orientation and disclosed their own ○ 7% discussed orientation but did not disclose their own • Being informed of confidentiality rights significantly increased odds of orientation disclosure.
Bilney and D'Ardenne, 2001 [12]	48	Adolescents and adults (aged 16–60 y; M age = 29)	Sexual behaviors (sex broadly, sexual history)	Descriptives	None	• Females were more likely than males to withhold information from MD. • 73% of participants stated it would be harder to discuss sexual things with a general practitioner than the genitourinary MD they saw at the clinic that day.
Boekeloo et al., 1991 [13]	961	MDs (internal medicine, family, general, obstetrics and gynecology)	Sexual behaviors	Descriptives	None	• 59.9% of MDs reported they regularly asked new adolescent patients about sexual practices • 47.5% of MDs reported they regularly asked continuing adolescent patients about sexual practices
Boekeloo, Schamus, Cheng, and Simmens, 1996 [14]	221	Adolescents (aged 12–15 y)	Sexual behaviors (intercourse, noncoital) Protective/preventative behaviors	Descriptives Linear regression	Yes; comfort	• % of adolescents who reported discussing topic immediately after visit: ○ 68% STIs ○ 63% sex ○ 57% HIV/AIDS ○ 51% condoms ○ 36% delaying intercourse ○ 19% limiting partners ○ 17% correct condom use ○ 7% nonpenetrative sexual activity ○ 6% masturbation

Table 1
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Authors, year	N	Sample population	Sexual topic(s)	Analytic method	Communication quality assessment	Main findings
						• Adolescent comfort with discussions about sexual problems with MD was significantly predicted by: amount MD discussed sexual issues, perceived susceptibility of contracting STI during unprotected sex, self-esteem, and seeing their usual MD
Brown and Wissow, 2009 [15]	358	Adolescents (aged 11–16 y)	Sexual behavior Protective behaviors	Descriptives Logistic regression	None	• 29% of visits included sexuality or birth control conversations. • 77% of visits had discussions of one or more "sensitive topics" (sexuality/birth control, mood, getting along with others, problem behaviors, parent mood, drugs/alcohol) • When a visit included discussion of a sensitive topic, adolescents were significantly more likely to report that their provider understood their problems, and that their provider eased their worries.
Burd, Nevadunsky, and Bachmann, 2006 [16]	78	Obstetricians and gynecologists, family practitioners, pediatricians, surgeons	Sexual behaviors (sexual history)	Descriptives	Yes; comfort	• 88% reported collecting sexual histories • Patient age (under 18 y and over 60 y) was a reported cause of experiencing discomfort during sexual history collection
Croft and Asmussen, 1993 [17]	599	Adolescents (aged 12–19 y)	Sexual behaviors	Qualitative analysis	Yes; comfort; confidentiality	• Adolescents thought MDs were a good source of info about sexuality or AIDS but were hesitant to ask moral questions. • Confidentiality and comfort were a concern for most. • Adolescents wished MDs were more open and available for questions. • Adolescents did not prefer to receive pamphlets about sensitive health issues.
Donaldson, Lindberg, Ellen, and Marcell, 2013 [18]	1,901	Heterosexually experienced adolescents (aged 15–19 y)	Protective/preventative behaviors	Descriptives	None	• 27% of females and 22% of males reported receiving advice/counseling/info about birth control from an HCP in the last year.

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Table 1
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Authors, year	N	Sample population	Sexual topic(s)	Analytic method	Communication quality assessment	Main findings
						• 27% of females and 21% of males reported receiving advice/counseling/info/ testing for STIs/HIV from an HCP in the last year. • 31.5% of females and 28.7% of males that received birth control info from an HCP also received info from both parents and teachers, as well. • 29.5% of females and 23.5% of males that received STI/HIV info from an HCP also received info from both parents and teachers as well.
East & El Rayess, 1998 [19]	200	Pediatricians and adolescent specialists	Orientation Sexual behaviors (sexual history)	Descriptives	None	• 68% reported they do not ask about orientation during sexual history collection • 90% were hesitant about addressing orientation with 35% reporting they did not know how to ask questions about orientation and 33% indicating they did were not informed of LGB youth needs
Ford, Millstein, Eyre, and Irwin, 1996 [20]	27	Adolescent female virgins (grades 11–12)	Orientation Sexual behaviors (sex broadly, sexual history)	Descriptives	None	• 33% of adolescents free-listed HCPs as someone they might talk with about dating or sex. (HCPs were listed as adolescents' fifth choice for these conversations, on average.) • 81% thought HCPs should initiate dating/sex discussions. • Adolescents most commonly free-listed pregnancy or STI prevention, as well as physician counseling as sexuality discussion topics with HCPs. Orientation was reported by 7% of adolescents and sex history by 15%. • Most commonly listed perceived benefits of sex conversations with HCPs were information about: ○ pregnancy/STIs/prevention (70%), ○ expertise (59%) ○ positive relationship with HCP (52%)

Table 1
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Authors, year	N	Sample population	Sexual topic(s)	Analytic method	Communication quality assessment	Main findings
Ford, Millstein, Halpern-Felsher, and Irwin, 1997 [21]	562	Adolescents (grades 9–11)	Orientation Sexual behaviors (intercourse) Protective behaviors	(Adolescents randomized to listen to audiotapes of MD who assured "unconditional confidentiality," "conditional confidentiality," or did not mention confidentiality) Descriptives Linear regression	Yes; confidentiality	• At last routine visit % asked about: ○ If they had sex 41% ○ If they needed condoms 16% • When confidentiality (both conditional and unconditional) about sensitive health topics (e.g., sex [uality], substance use, mental health) was assured (conditional or unconditional group), adolescents' reported willingness to disclose sensitive topics to the audiotaped MD significantly increased.
Fuzzell et al., 2016 [22]	40	LGB and heterosexual adolescents and young adults (aged 12–31 y)	Attractions/orientation Sexual behaviors (intercourse, noncoital) Protective/preventative behaviors	Qualitative analysis	Yes; suggested strategies to improve quality; comfort; confidentiality	• Five themes identified: ○ Need for quantity of sex communication ○ Confidentiality/privacy ○ Comfort (MD discomfort and physical space) ○ Inclusivity (language use, gender-fluid patients, and office environment) ○ Need for increased quality of sex communication
Gilliam and Hernandez, 2007 [23]	27	Health care workers (MDs, midwives, medical assistants, case managers, and office staff) who see African-American adolescents in practice	Protective/preventative behaviors	Qualitative analysis	Yes; suggested strategies to improve quality	• Tactics for working with teens: ○ Establishing strong relationships via acceptance and use of teen speak and awareness of body language ○ Drawing on common background ○ Honesty ○ Spending more time with adolescents ○ Strategies for increasing contraceptive adherence: ○ Closely spaced appointments ○ Collective contraceptive care that involves office staff • Strategies for providing contraceptives to adolescent males: ○ High availability/visibility of condoms ○ Contraceptive conversations at every visit

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Table 1
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Authors, year	N	Sample population	Sexual topic(s)	Analytic method	Communication quality assessment	Main findings
						○ Distributing condoms in community
Gomez, Hartofelis, Finlayson, and Clark, 2015 [24]	382	Adolescent and young adult females (aged 18–29 y)	Protective/preventative behaviors	Descriptives Logistic regression	None	• 35% of participants reported MDs as a source of information about IUDs • Adolescents who reported MDs as a source of information about IUDs were significantly more likely to indicate interest in ever using an IUD.
Goyal, McCutcheon, Hayes, and Mollen, 2011 [25]	327	Adolescent females (aged 14–19 y) presenting to emergency department with genitourinary symptoms	Sexual behaviors (sexual history) Preventative behaviors	Descriptives Logistic regression	None	• 82% of adolescents had their sexual history collected during their emergency department visit • Adolescents ≥ 15 y/o and black adolescents were significantly more likely to have a sexual history collected. • Sexual history collection and documentation of sexual activity were significantly associated with STI testing
Hingson, Strunin, and Berlin, 1990 [26]	963	Adolescents (aged 16–19 y)	Sexual behaviors (intercourse) Protective/preventative behaviors	Descriptives/chi-square	None	• Of the 80% of adolescents who visited an MD in the last year, 13% talked about AIDS • Adolescents who had talked about AIDS with MD were significantly more likely to: ○ Ask partners about potential risk of prior HIV transmission ○ Refuse sex for fear of HIV ○ Use condoms ○ Ask partners to use condoms
Kelts, Allan, and Klein, 2001 [27]	179	MDs (family practice)	Orientation Sexual behaviors (intercourse) Protective behaviors	Descriptives Linear regression	Yes; confidentiality	• MDs reported that they ask adolescent patients about: ○ Contraceptive use 79% ○ Condom use 73% ○ Sexual relationships 72% ○ Sexual behaviors 61% ○ Situations in which adolescent thought sex was appropriate 36% ○ Sexual orientation 30% • MD reproductive preventative care performance (i.e., average score of screening/counseling about reproductive/sexual topics) was significantly predicted by: ○ MD gender (female) ○ Confidentiality discussions

Table 1
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Authors, year	N	Sample population	Sexual topic(s)	Analytic method	Communication quality assessment	Main findings
						○ More recent Med School Graduation ○ Read Centers for Disease Control immunization guidelines ○ Read American Academy of Pediatrics guidelines ○ Placing high value on American Academy of Family Physicians recs • When MDs thought patients were sexually active, they were significantly more likely to talk with patients about: ○ Contraceptive use ○ Condom use ○ STD risks
Kitts, 2010 [28]	184	Resident and attending MDs in pediatrics, internal medicine, obstetrics and gynecology, psychiatry, emergency medicine, and family practice	Attractions/orientation Sexual behaviors (sexual history)	Descriptives	None	• 64% would be likely to ask about gender of partners during sexual history taking • 29% about orientation • 11% about attraction • 8.5% about gender identity • The most commonly indicated reason for not discussing orientation was "It was not significant" (42%) • When seeing an adolescent with depression, 48% would be unlikely to ask about orientation, 14% would ask about orientation, 22% sometimes would.
Klein and Wilson, 2002 [29]	6,728	Adolescents (grades 5–12)	Protective/preventative behaviors	Descriptives Logistic regression	None	• 61% of adolescents reported that they wanted to discuss STIs with MDs. • 17.5% were at risk for unprotected sex, but only 30.5% of those adolescents had talked about sex without contraception with their MD. • Adolescents were significantly more likely to discuss eight risk behaviors with MDs if they: ○ Spoke to MD privately ○ Had a higher number of risks ○ Saw a female MD ○ Obtained health care info from MD ○ Obtained health care info from Internet

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Table 1
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Authors, year	N	Sample population	Sexual topic(s)	Analytic method	Communication quality assessment	Main findings
Lena, Wiebe, Ingram, and Jabbour, 2002 [30]	29	Pediatric residents	Orientation Sexual behaviors (sexual history)	Descriptives	None	• 37% reported that they would not include orientation when collecting sexual history • When approaching orientation: ○ 53% ask directly ○ 5% use questionnaires ○ 16% use nonverbal cues ○ 37% ascertain from patients' questions/comments • Most residents felt that they were not educated about LGB youth health (68%)
Lewis, Matheson, and Brimacombe, 2011 [31]	56	Adolescents and young adults (aged 17–29 y) attending birth control clinics	Protective/preventative behaviors	Descriptives/chi-square	Yes; level of disclosure/truthfulness	• 46.4% reported limiting/altering info that they provided to their MD. • Participants reported limiting/altering: ○ Condom use history 21.4% ○ Reason for visit 16.1% ○ Drug use history 16.1% ○ Smoking history 12.5% ○ Medical history 3.6% • Limited disclosure participants reported talking about where to purchase oral contraceptives with more communication partners than full disclosure participants. • Limited disclosure participants reported that it would be easier to be honest with: ○ Female MDs ○ MDs who were not in a rush ○ MDs who gave their first name during introductions ○ MDs who seemed friendly
Meckler et al., 2006 [32]	131	LGB adolescents (aged 14–18 y)	Orientation	Descriptives Logistic regression	Yes; confidentiality	• 35% reported MD knowledge of their orientation • 21% of those adolescents said physician initiated orientation discussion • 57% of those who disclosed reported improved care as a result • 4% reported worse care as a result

Table 1
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Authors, year	N	Sample population	Sexual topic(s)	Analytic method	Communication quality assessment	Main findings
						• Privacy/confidentiality was barrier to disclosure, more so with females. • Orientation disclosure is significant more likely when MD talked about sex, participants thought it was important for MD to know, and when they were "out" to others.
Merzel et al., 2004 [33]	313	Adolescents (aged 11–21 y)	Sexual behaviors Protective/preventative behaviors	Descriptives Logistic regression	Yes; comfort	• At last visit, % of adolescents that discussed each topic: ○ Sexual behavior 67% ○ STI prevention 61% ○ Birth control 39% ○ All three topics 32% ○ None of three sexual topics 27% • Adolescent aged 15–17 y, absence of parents at visit, and positive attitudes about communication with MD about sex significantly increased odds of discussion of any of the three sex topics. • Expected comfort for talk talking about sex with an MD was associated with a higher likelihood of talking about the three sexual topics.
Rawitscher, Saitz, and Friedman, 1995 [34]	845	Adolescents (grades 9–12)	Orientation Sexual behaviors (intercourse) Protective/preventative behaviors	Descriptives Logistic regression	Yes; comfort	• 30% reported ever talking about sex with an MD • % of adolescents who wanted info about each topic from MD: ○ STIs 82% ○ Condoms 73% ○ Sex 70% ○ Safe sex 80% ○ HIV 85% • Discomfort initiating conversation about each topic: ○ Safe sex 59% ○ Condoms 67% ○ Sex 69% ○ Homosexuality 78% • Older adolescents (grade 12), having a female MD, and previous discussions about sex with MD significantly predicted wanting an MD to ask about personal experience with: STIs, condoms, and safe sex

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Authors, year	N	Sample population	Sexual topic(s)	Analytic method	Communication quality assessment	Main findings
Rosenthal et al., 1999 [35]	113	Adolescents (M age = 16 y)	Sexual behaviors (sexual history and intercourse) Protective/preventative behaviors	Descriptives	Yes; comfort	• % of adolescents who reported they would ask HCPs about each topic: ○ Intercourse 50% ○ Birth control/contraception 48% ○ STIs 66% ○ Pregnancy 57% • 77% felt that HCPs should ask adolescents direct questions about sexual knowledge/experiences, but 19% thought that the HCP should hint and wait for adolescent reaction and 14% thought that the adolescent should bring it up.
Same, Bell, Rosenthal, and Marcell, 2014 [36]	346	Males (aged 16–35 y)	Protective/preventative behaviors	Descriptives Poisson regression	None	• Participants reported ~3 past sexual and reproductive health conversations with a provider. • % who had each type of sexual and reproductive health discussion: ○ Ways to decrease STI risk 55% ○ How to use condom correctly 38% ○ HPV vaccine 32% ○ Female birth control methods 23% ○ Getting someone pregnant 28% ○ Emergency contraception 21% ○ Sexual performance 17% ○ Being a father 18% • Participants were most concerned about decreasing STI risk (25%). • Participants were significantly more likely to prefer that providers bring up sexual and reproductive health topics if they had past discussions on how to use a condom correctly, female birth control, concerns about sexual performance, or about getting someone pregnant.
Schuster, Bell, Petersen, and Kanouse, 1996 [37]	2,026	Adolescents (grades 9–12)	Attractions Sexual behaviors (intercourse) Protective behaviors	Cross-tabulations Logistic regression	Yes; trust; helpfulness	• Adolescent reports of communication with physicians: ○ 39% AIDS prevention ○ 37% condoms for vaginal intercourse

Table 1
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Authors, year	N	Sample population	Sexual topic(s)	Analytic method	Communication quality assessment	Main findings
						○ 13% how to use condoms ○ 15% adolescent's sex life ○ 13% saying no to unwanted sex ○ 8% attractions ○ 49% discussed ≥ 1 of these topics ○ 51% did not discuss any topics • Adolescents significantly more likely to discuss ≥ 1 topic if female, Latino, English speaking, and higher grade
Thrall et al., 2000 [38]	1,715	Adolescents (grades 9–12)	Sexual behaviors Protective/preventative behaviors	Logistic regression	Yes; confidentiality	• Adolescents who were assured of confidentiality were 2.7 times as likely to discuss sex-related topics (STIs, pregnancy prevention, and facts about sex) with MD in last year, than those not assured of confidentiality
Torkko et al., 2000 [39]	576	Primary care providers (MD, physician's assistant, and nurse practitioner) who provided any gynecological care	Sexual behaviors (sexual history, intercourse) Protective/preventative behaviors	Descriptives Logistic regression	Yes; comfort	• 71.9% of providers reported obtaining a sexual history from adolescent females always or often • Providers who regularly obtained a sexual history were significantly more likely to test females for chlamydia • Each of the following was significantly associated with regularly collecting a sexual history: female provider, MD, knows adolescent females are highest STI risk group, initiates STI discussion, comfortable talking about sex, regularly discusses prevention, regularly discusses condom use, regularly discusses limiting number of partners, > 5% of patients eligible for Medicaid • Female providers were significantly more likely to discuss STIs, sex, STI prevention, abstinence, condom use, and limiting partners, than male providers

HCP = health care provider; HPV = human papillomavirus; IUD = intrauterine device; LGB = lesbian gay bisexual; MD = medical doctor; STI = sexually transmitted infection.

* Protective = discussion of condoms or any form of birth control; preventative = discussion of the occurrence or prevention of sexually transmitted infections and testing for infections, or the prevention of pregnancy.

quantitative analysis. The remaining 29 studies used quantitative methods. Twelve studies relied only on descriptive statistics to relay information to readers. Logistic regression was a common analytic method (n = 12), whereas linear (n = 3) and Poisson (n = 1) regression were less common. All studies relied on cross-sectional designs. Most studies used reports of sexual conversations as dependent variables (n = 8), three used sex communication as an independent variable, and six studies looked at sex communication behaviors as both independent and dependent variables.

The 33 included articles addressed three main topics: attractions/orientation, sexual behaviors (subtopics of coital and noncoital sexual behaviors, generic sex communication, and sexual history collection), and protective/preventative behaviors. Five studies assessed all three of the main sexual topics, 13 studies focused on two of the sexual topics, and 15 studies looked at just one of the main sexual topics. These topics are outlined in more detail in the following section and findings about each conversation topic are summarized.

Sexual attractions and orientation

Thirteen papers examined communication about sexual attractions, sexual orientation, or both. Most touched on orientation (n = 8), rather than attractions (n = 2), and three papers examined both. Most studies addressed self-reports from either physicians or adolescents on frequency of attraction or orientation conversations. Most adolescents in each study reported that conversations about attractions or orientation never occurred with their physicians [11,32,37]. Physicians reported that discussions of attractions/orientation were unlikely [19,28], and both adolescents and physicians reported discomfort when talking about sexual attraction and orientation [7,19,34]. A single study showed that most adolescents who reported orientation disclosure to physicians felt their care improved as a result of disclosure [32]. Two studies found that physicians report that they do not feel educated enough about LGB health to speak about the topic with adolescents [19,30].

Only two studies addressed physicians' approaches to communication about sexual orientation and sexual attraction. One study showed that physicians most commonly approach these discussions by asking directly about orientation [30]. The second study used audio-recorded physician-adolescent conversations to examine the use of sexually inclusive, gender-neutral language [9]. In this exemplary assessment of communication quality, only 3% of conversations used sexually inclusive language, while 48% contained direct noninclusive language (specific reference to adolescent as heterosexual), and 49% included indirect noninclusive language (which passively assumes heterosexuality without explicit identification of it).

Coital and noncoital behaviors and sexual history

Coital behaviors. Nine studies examined communication about penile-vaginal intercourse, reflecting the substantial heterosexual bias of this research. No studies specifically addressed communication about anal intercourse behaviors, either with same- or different-sex partners. Much of this research on intercourse discussions appears to focus on reports of lifetime or recent occurrences. In audio-recorded conversations, physicians and adolescents discussed intercourse in 74% of coded sex conversations [10]. Self-reports from adolescents vary, though, from 15% [37] and 30% ever discussing intercourse with a physician [34] to 41% [21] and 63% [14] reporting discussions of intercourse at last visit, and 50% saying they would potentially ask their physician about intercourse [35]. Only one study used advanced statistical techniques (logistic regression) to examine intercourse communication as a predictor and an outcome [39]. Female providers were significantly more likely to discuss sexual intercourse with adolescents than male providers. This same study found that providers were significantly more likely to collect a sexual history from adolescents if the providers reported they were comfortable talking about sex [39].

Noncoital sexual behaviors. Only two studies included communication about noncoital sexual behaviors. One study used postvisit interviews with 221 adolescents: 7% of adolescents reported discussing nonpenetrative sexual activities and 6% reported discussing masturbation during the visit [14]. Physician-adolescent communication about extragenital intercourse behaviors (arousal or pleasure outside the genital areas) was identified in 12% of audio-recorded sex conversations [10].

Generic sex communication. Eight studies assessed communication about sexual topics without defining specific content. These studies used terms such as "sexual activity," "sexual practices," "sex-related topics," or "sexuality." These studies relay that a majority of physicians report inquiry about sexual behaviors or relationships [13,27], but fewer adolescents report the same [15]. Assurances of confidentiality, reported either by the physician or the adolescent, are associated with increased likelihood of discussions of sex-related topics [8,38]. In addition, adolescent age, female gender, absence of parents, longer visit, and positive attitudes about sex communication with physicians have been associated with sex conversations [8,33]. In the only audio recordings of routine health maintenance visits, 63%–65% of interactions contained some type of sex talk [8,9], and this sex talk lasted for an average of 36 seconds. In these visits, discussions of confidentiality were associated with increased likelihood of adolescent participation or engagement in the sex conversation [8].

The sexual history as sexual communication. Eight studies addressed obtaining sexual histories. In primary care settings, physicians reported obtaining a sexual history in 72%–88% of visits [16,39]. Sexual history was obtained in 82% of emergency department visits for genitourinary concerns [25]. Studies utilized the sexual history collection period during a visit as the context for communication about sex more broadly [12,35] or for discussing communication about particular topics like orientation [19,28,30]. Obtaining a sexual history was also associated with testing for STIs [25,39]. Adolescents aged 15 years and older, black adolescents [25], and provider characteristics like female gender, medical degree, knowledge of adolescent females as the highest risk group for STIs, initiation of STI discussion, comfort talking about sex, and regular discussions of prevention, condom use, and limiting the number of partners [39] were associated with a higher likelihood of obtaining a sexual history.

Contraceptive, protective, and preventive behaviors

Twenty studies addressed physician-adolescent communication about contraception, preventative, or protective behaviors. These included conversations about contraception, birth control,

condoms, general education about or protecting oneself from pregnancy, or STIs. Adolescent reports of past communication about STIs or STI protection range widely from 13% to 68% [7,14,18,26,29,33,36]. Adolescent reports of communication about condoms, birth control, or contraception, range from 13% to 51% [14,18,21,33,36,37]. However, a higher percentage of physicians (between 73% and 79%) reported asking their adolescent patients about contraception and condom use [27]. Only two studies asked adolescents about discussions about correct condom use, at 38% and 17%, respectively [14,36]. Adolescents who were assured of confidentiality were more than two times as likely to discuss sensitive topics like STIs and pregnancy prevention with a physician in the last year, than those who were not assured of confidentiality [38]. Adolescents who reported physicians as a source of information about intrauterine devices (IUDs) were significantly more likely to report interest in ever using an IUD [24]. Adolescents who talked about AIDS with their physician were more likely to use condoms and ask partners to use condoms [26]. This was the only study in the entirety of our review that examined adolescent sexual health behaviors in association with sexual communication. This study also reported that adolescents who talked about AIDS with physicians were more likely to ask partners about the potential of past risk for HIV transmission and refuse sex due to the fear of HIV [26].

Physician knowledge of adolescent sexual activity significantly increased the odds of discussing contraceptive use, condom use, and STI risk [27]. Older adolescent age, having a female physician, and previous discussions about sex with a physician significantly predicted wanting a physician to ask about personal experiences with STIs, condoms, and safe sex [34]. In one study, female providers were significantly more likely to discuss STI prevention and condom use when compared with male providers [39]. Qualitatively, one study focused on communicative and relational strategies for having contraceptive conversations, which centered on relationship building, using teen-friendly language, and discussing contraceptives at every visit.

Discussion

Physician-adolescent communication about sexual attractions and orientation, coital and noncoital sexual behaviors, and STI/HIV prevention and contraceptive behaviors are central elements of a developmentally informed sexual history. Moreover, these discussions can inform a supportive and educational approach that focuses on adolescents' overall sexual well-being, rather than sexual risk alone [40]. Our review demonstrates the relative infrequency and substantial inconsistency of sexuality content and resonates with calls for improvements in communication during primary care visits [4,5]. Our review also shows the substantial limitations of this body of research. All of the extant research is cross-sectional, and most is based on self-report of physicians, of adolescents, or both. Longitudinal panel designs, broader use of audio records, and analytic techniques such as discourse analysis would bring new insights into this typically hidden physician-patient interaction. There was no wide-ranging or consistent method for assessing quality of sexual communication, but researchers who did assess quality often focused on comfort of discussing sexual topics or confidentiality assurances as a means for enhancing or impeding communication.

Implications for physicians

We found that the most room for improvement in physician-adolescent communication was associated with the topics of sexual attractions, sexual orientation, and noncoital sexual behaviors. Physician-adolescent communication about attractions and orientation was rare, and in most cases, it was focused on LGB populations. This may be problematic for many adolescents because attractions can be fluid during this developmental period and same sex behaviors do occur even for adolescents who identify as completely heterosexual [41]. Physicians may be able to develop a communicative approach to adolescents that is independent of categorical distinctions such as "heterosexual" and "homosexual" (or any of its associated sexual identity labels, unless teens explicitly identify themselves with those labels) [42,43]. Moving away from these binary distinctions and emphasizing the normalcy of fluidity can help make adolescents more comfortable during visits.

Physicians can make an effort to use alternative approaches during these conversations, which could include discussions of flexibility of attractions, a range of potential partners, and preventative behaviors tailored to one's choice of partners. Therefore, using sexually inclusive language may be a good technique for talking with adolescents about all sexual topics (e.g., Are you interested in boys, girls, or both? Have you been dating anyone?). With inclusive language, physicians may be less likely to isolate sexual minority adolescents, while still communicating effectively with heterosexual adolescents.

Communication about noncoital sexual behaviors appears to be even more sparse (occurring in only 6%–12% of visits [10,14]), but limited literature on this topic reduces our ability to determine the consistency and quality of discussions about noncoital behaviors in practice. The frequency with which adolescents engage in noncoital behaviors [44], as well as our emerging understanding of the relevance of nongenital STIs makes these discussions important to clinical decisions about STI testing and interpretation of results.

Communication about intercourse and other ambiguous terms that appear to reference coital sex seem to be more common than other topics, although these conversations still appear to be short-lived. As a result, discussions that include a range of potential sexual behaviors may be helpful in creating ongoing sexual health discussions. Physicians may be able to maintain these conversations over time by asking open-ended questions that delve deeper into romantic relationships and the quantity and quality of sexual behavior. As an example of potentially important omissions in physician-adolescent communication, we located no studies that addressed communication about anal sex. Anal sex experiences with both same- and different-sex partners is a relatively common component of adolescents' sexual repertoires, and its identification has implications for sexual health counseling as well as provision of appropriate testing for STIs [45–49].

Physician-adolescent communication about contraception was more common compared with other topics. Relative clinical emphasis on contraception perhaps reflects the long social, clinical, and public health focus on prevention of adolescent pregnancy. Moreover, contraception focused discussions may feel less interpersonally challenging, as adolescents and parents generally endorse this type of physician-adolescent communication. Coitus-dependent methods such as condoms conversations appear to occur with some frequency, but only one study

could be identified that included assessments of discussions about other contraceptive options (IUDs) [24].

Future directions for researchers

It is clear that more research is needed on communication about attractions and noncoital sexual behaviors, as well as communication about anal sex and contraceptives other than condoms. These gaps represent a heterosexual bias in the literature, which researchers could improve upon by assessing physician-adolescent conversations about fluidity of attractions, sexual behaviors other than penile-vaginal intercourse, and a range of contraceptive options.

Studies typically focused on the quantity of physician-adolescent sex communication. Assessments of sex communication quality were less frequent. Because there was no systematic method for assessing communication quality across studies, it was necessary that we conceived of our own definition of sex communication quality. Within our defined guidelines, researchers most commonly assessed confidentiality and comfort. Although confidentiality is a fundamental element of any medical encounter, when adolescents are not aware of or assured of confidentiality, sex communication quality is sacrificed. Comfort discussing sexual topics is subjective for each adolescent, but this perceived comfort, along with related ability and willingness to talk about sex with physicians are ultimately central to communication quality. From our perspective, the most successful assessments of quality were focused analyses of conversational elements, such as use of language [9] or adolescent engagement in the conversation [8]. There is more room for these focused approaches to assessing mechanisms that may influence physician-adolescent sex communication quality. By continuing these focused quality assessments, we can make incremental improvements in our understanding of factors that contribute to quality. It is also necessary that researchers conceive of a commonly accepted method for assessing sex communication quality that includes recognition of a wider range of communicative elements, with special attention to factors that touch upon the sensitive nature of sexual topics for adolescents in development.

Similarly, the field would benefit from more research that examines the actual conversations that physicians and adolescents are having during health care visits. More specifically, researchers could assess how physicians initiate sex discussions effectively or ineffectively, how physicians' words or phrases are useful in beginning and sustaining conversations, how physicians encourage adolescents to elaborate on particular topics, and how physicians verbal or nonverbal behaviors result in more lengthy and wide-ranging sex conversations. Relating to quality, researchers may also wish to assess how physicians may urge adolescents to embrace uncomfortable conversation topics, and what factors improve physician and adolescent comfort with these topics. Although more cumbersome to implement, researchers must consider the use of audio and video recording clinical encounters, which have been implemented effectively in pediatric settings with little influence on clinical outcomes [50].

Researchers have adequately addressed communication about protective and preventative behaviors, although reports of frequency vary across studies. Almost half of studies we reviewed examined correlates and predictors of clinical sex communication, and surprisingly, only one study addressed communication in relation to adolescent sexual health outcomes like condom use [26]. Researchers should continue these efforts and may wish to target types of sex conversations and specific communicative behaviors that are associated with concrete contraceptive, STI, and unintended pregnancy outcomes. In addition, continued attention to behavioral intervention studies, in which researchers modify physician and/or adolescent behavior through communication training, would give us insight into what approaches may lead to the highest quality communication and best sexual health outcomes for adolescents [6].

Limitations

To our knowledge, ours is the first review to address observational and correlational studies of physician-adolescent sexual communication. Although we used a broad and inclusive range of search terms, we may have unintentionally omitted relevant studies from our review. Our search terms revealed many studies that did not precisely match our original topic of interest: sexual communication between physicians and adolescents. Due to space limitations, we could not review all these peripherally related topics, which included communication about puberty, dating and romantic relationships, dating violence, and confidentiality and privacy of adolescent clinical interactions.

In addition, most of the studies we located were based on self-reports from adolescents and physicians, which may be subject to self-report bias and selective recall. Some articles were dated and attempts to find more up-to-date research on specific topics were futile. These limitations are more of a reflection of the current state of the literature, rather than issues with our methods, although we acknowledge that our own biases could have skewed the studies that we located and reviewed. The variety of methods and outcomes precluded conducting a meta-analysis. We believe our literature review offers a view of the state of the science of communication between physicians and their adolescent patients about sex.

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