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Attitudes to sexual health in the United States: results from a national survey of youth aged 15–25 years

Matthew Hogben^{A,D}, Christopher Harper^B, Melissa A. Habel^A, Kathryn Brookmeyer^A, and Allison Friedman^C

^ADivision of STD Prevention, Centers for Disease Control and Prevention, Atlanta, GA 30030, USA.

^BDivision of Adolescent and School Health, Centers for Disease Control and Prevention, Atlanta, GA 30030, USA.

^CDivision of Global Migration and Quarantine, Centers for Disease Control and Prevention, Atlanta, GA 30030, USA.

Abstract

Background: Several common global definitions of sexual health refer to physical, emotional and social well-being, with respect to sexuality, and also to the need for this well-being to be reflected for all individuals in relationships. How well sexual health definitions fit US youths' attitudes to sexual health, and associations between these attitudes, sexual behaviours and sexual health care were assessed.

Methods: In total, 4017 youth aged between 15 and 25 years via an online survey panel, weighted to be representative of the US population, were surveyed. Respondents reported their attitudes towards seven dimensions of sexual health that we abstracted from existing global definitions (emotional fulfillment, social connectedness, spirituality, overall pleasure, physical intimacy, mental fulfillment, reciprocal benefits). Respondents also reported on sexual health-related discussions with partners, sexual behaviours, and their use of sexual health care. Outcomes through weighted frequency estimates and ordinal regression models were reported.

Results: Youth generally construed all seven dimensions as important to sexual health, with the emotional dimension rated most favourably. Attitudes to the dimensions of overall pleasure, physical intimacy and spirituality were most consistently related to sexual health discussions and behaviours. The behaviours most consistently related to sexual health attitudes were going for a sexual health check-up, discussing birth control/pregnancy and discussing risk before sex without a condom.

^DCorresponding author. mhogben@cdc.gov.

Conflicts of interest

None declared.

The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Conclusions: Youth construal of sexual health fits well with global sexual health definitions. Attitudes to dimensions of sexual health were related to some sexual health-related behaviours, especially healthcare use and complex discussions.

Introduction

The World Health Organization (WHO) defines sexual health as ‘a state of physical, emotional, mental and social well-being in relation to sexuality’ and further specifies that sexual health is a ‘positive and respectful approach to sexuality and sexual relationships.’¹ The Centers for Disease Control and Prevention (CDC)/Health Services Research Administration (HRSA) Advisory Committee uses the same terminology of ‘well-being in relation to sexuality’ and a ‘positive, equitable and respectful approach to sexuality [and] relationships’, while the United States (US) Surgeon-General’s *Call to Action* cites ‘the ability to understand and weigh the risks, responsibilities, outcomes and impact of sexual action’ and ‘the ability of individuals to integrate their sexuality into their lives [and] derive pleasure from it.’^{2,3} A recent review concluded that interventions incorporating these sexual health principles for adults yielded positive results, such as increased knowledge, greater use of health care, more tolerant attitudes around sexuality and reduced sexual risk behaviours.^{4,5}

Sexual health, including sexual identities and healthy relationships, is an important part of youth health and development.⁶ This assertion is reflected in US and international policies,^{7–11} and there is research centred on conceptualisations of youth sexual health and the correlates of sexual health and behaviour.^{12–15} For example, attitudes towards sexuality are positively correlated with sexual health and satisfaction among college students,^{16,17} and researchers have shown that structural interventions can improve sexual health service provision for school-age children.^{18,19} Moreover, population-level surveys in the UK and Australia suggest youths’ (16–24 years) attitudes about sex and sexuality are not dramatically different from those of older people, albeit slightly more liberal in some respects (e.g. attitudes to homosexuality).^{20,21} However, prevailing sexual health definitions are not specific to youth, and limited research has examined their relevance to youth or associations with youth risk or protective behaviours. One exception is a study that described a model of sexual health for youth based on social, mental, emotional and physical domains, using the WHO definition as part of the foundation.²² They found that the model was ‘empirically coherent’ in that variables representing the domains (e.g. sexual communication scores in the social domain) were good indicators of a single underlying construct. Moreover, close affinity with this operationalisation of sexual health was correlated with protective sexual behaviours such as condom use and abstinence among female adolescents.

In this paper, we extended that research by assessing US youths’ attitudes towards dimensions of sexual health, using a nationally representative sample. Our goals were: (1) to understand how well sexual health definitions fit youth perceptions of sexual health; and (2) to examine associations between these perceptions, sexual behaviours and sexual health care.

Methods

Procedures

We sampled 4017 youth aged 15–25 years from an existing online panel designed to be representative of the US population.²³ Members of the panel completed Internet-based surveys using either their own computers or computers provided by the company operating the panel. The primary purpose for this survey was to measure the reach and correlates of a sexual health-oriented campaign (*Get Yourself Tested: GYT*).²⁴ Potential respondents who were 18 years or older were solicited directly; 51% of those solicited completed the survey. For those aged 15–17 years, we requested parental assent; 53% of respondents solicited in this manner completed the survey. An institutional review board of the CDC provided an ethical review of procedures and content.

Measures

Respondents provided age, gender, educational status, household characteristics and chose categories of racial and ethnic identity, as well as sexual orientation or identity (Table 1). The primary survey question on sexual health (see Box 1 for the full wording) captures attitudes towards seven dimensions that we abstracted from global definitions of sexual health;^{1–3} that is, six of the seven dimensions were named in the WHO definition and generally in at least one of the other two definitions (we added spirituality from the CDC/HRSA Advisory Committee definition). The items were measured on four-point scales (very important to me – not at all important to me).

In assessing potential correlates of sexual health attitudes, we chose three main content areas: (1) sexual health-related discussions with sex or romantic partners; (2) sexual risk and protective behaviours; and (3) health-seeking behaviours. Each domain is a common feature of sexual health research,^{4,22} without essentially repeating the content of global definitions. Within these domains, we constructed variables that would reflect pro-health behaviours (e.g. going for a sexual health check-up) and others that would not (e.g. not using a condom due to being drunk or high). For talking to partners about sexual health, we asked if respondents had discussed HIV, STD or pregnancy with their most recent sex partners. For sexual behaviour, we asked about sexual experience (any anal or vaginal sex), sex without a condom and reasons for sex without a condom (drunk or high, discussed risk). Finally, we asked if respondents had sought sexual health care (seen a doctor or nurse for a sexual health check-up) and if they had been tested for HIV or other sexually transmitted diseases (STDs).

Data analyses

The sample was weighted against the 2010 US Census for sociodemographic factors (e.g. race, age, household income), as well as for Internet access and non-response rates. We present basic descriptive data via weighted frequencies. Except as noted, all calculations were performed via the *Complex Samples* function of SPSS v21 (Chicago, IL, USA).

We ran a principal components analysis (performed in R to account for the sample weights) to test whether attitudes about the seven dimensions cohered with one another. Results yielded a single component that accounted for 77.6% of the total variance among the seven

items. We then scaled the seven items, which had a weighted mean = 16.26 (95% CI = 16.07–16.44) and composite reliability = 0.91 (0.70 is a general standard for adequate reliability).²⁵ We analysed overall scores for the seven dimensions using the General Linear Model function. Outcomes include *F* tests and *P* values, along with estimated means and 95% confidence intervals for subgroups.

We retained analyses of individual items because each item has unique conceptual meaning. To look at associations between sexual health attitudes and other measures, we ran ordinal regressions of the weighted data. The seven dimensions served as outcome variables in separate equations with partner discussions and behaviours as predictors. We also assessed the associations between sexual health attitudes and demographic variables via odds ratios and used demographics as covariates in other equations. Finally, the nature of the exploratory matrix (i.e. seven dimensions by three domains, each with sub-variables) raises the issues of α inflation from multiple comparisons. We therefore emphasised patterns of findings in the results over individual associations.

Results

As shown in Table 1, the sample weighting techniques returned a population for analysis that reasonably represented US national demographic characteristics in gender and race/ethnicity for 15–25 year olds. We also found that most respondents reported living with one or more people: parents (62.8%), friends or roommates (13.6%), a fiancé or spouse (10.8%) or a boyfriend/girlfriend (7.4%). Approximately three in four respondents had health insurance, either private (59.4%) or public (14.1%). The remaining one in four were split between not having insurance (13.0%) and not knowing (11.4%). Approximately half the sample (51.9%, 95% CI = 49.6–54.1%) had ever had vaginal or anal sex and, of those who were sexually active, 75.9% (95% CI = 73.0–78.6%) had ever had sex without a condom. The mean number of partners among those sexually active was 5.73 (95% CI = 5.12–6.33), and the median (unweighted) was 3.0 partners. Sexual experience and condom use were closely related to age. Compared with 15–17 year olds, 18–21 year olds and 22–25 year olds were more likely to be sexually experienced; OR = 4.14 (95% CI = 3.20–5.37) and OR = 9.96 (95% CI = 7.72–12.84), respectively. Likewise, 18–21 year olds and 22–25 year olds were more likely to have had sex without a condom; OR = 5.24 (95% CI = 3.86–7.10) and OR = 14.12 (95% CI = 10.57–18.94), respectively and to have used other forms of birth control. For example, 18–21 year olds [or their partners], OR = 4.20 (95% CI = 2.82–6.24) and 22–25 year olds, OR = 5.64 (95% CI = 3.90–8.16)] were more likely to use birth control pills than 15–17 year olds.

Sexual health attitudes

Respondents generally reported that they found the dimensions to be important or very important (Fig. 1). The emotional dimension (68.1%, 95% CI = 66.0–70.2%) was most likely to be rated very important, followed by pleasure (57.8%, 95% CI = 55.5–60.0%). Mental (49.7%, 95% CI = 47.5–52.0%) and mutual (48.1%, 95% CI = 45.9–50.4%) dimensions were next, then the physical (39.8%, 95% CI = 37.6–42.1%) and spiritual (39.2%, 95% CI = 37.0–41.5%) dimensions. The social dimension was the least likely to be

rated very important (34.3%, 95% CI = 32.1–36.5%). Less than 10% of the sample rated any dimension as not at all important.

We assessed age, gender, sexual orientation (heterosexual vs other), Hispanic/Latino ethnicity and race identification as demographic covariates of sexual health attitudes (Table 2). For the purposes of these analyses, we derived a composite race and ethnicity variable to enter into the ordinal regressions. Respondent gender (male vs female) and age were consistently related to sexual health attitudes; for example, female respondents and older respondents were more likely to report that dimensions of sexual health were important to them. In contrast, neither sexual orientation nor race/ethnicity was associated with sexual health attitudes, except for the spiritual dimension. Here, Hispanic and Black (non-Hispanic) respondents were more likely than White respondents to rate spirituality as important, which was associated with the importance of religion to respondents (OR = 11.56, 95% CI = 8.59–15.55). In subsequent regression analyses, we used gender and age as covariates. We did not use race or ethnicity because adding this as a covariate to spirituality as an outcome did not affect the findings.

Youth sexual health behaviours and associations with sexual health dimensions

Discussions with sex partners.—Discussions with partners about prevention varied by topic. Only 12.3% (95% CI = 10.9–13.9%) of the sample discussed HIV and AIDS, and 16.1% (95% CI = 14.6–17.9%) had discussed other STDs. Larger proportions had discussed condom use, 36.6% (95% CI = 34.4–38.9%) and what to do if the respondent or partner became pregnant, 29.5% (95% CI = 27.4–31.6%). Discussions about HIV or STDs were not associated with sexual health attitudes, with adjusted odds ratios (AORs) mostly close to 1.0 (Table 3). The overall score was only associated with discussing how to manage pregnancy; estimated M = 17.1 (95% CI = 16.8–17.4) for ‘yes’ and 16.3 (95% CI = 16.0–16.6) for ‘no’. However, the physical dimension was associated with discussions about condom use, other methods of birth control and how to manage pregnancy. The pleasure dimension was associated with discussions of the latter two of these three topics. The spiritual dimension was also associated with discussions of all three topics, but those who perceived this dimension as important were *less* likely than others to have discussions about condom use or other methods of birth control (Table 3).

Sexual risk and protective behaviours.—We then examined whether sexual health attitudes were associated with being sexually experienced (any vaginal or anal sex) and with condom use (Table 4). Overall scores were positively associated with most behaviours, including sexual experience, any sex without a condom, discussing risk before having sex without a condom and going for a sexual health check-up. In regressions of sexual experience onto specific sexual health attitudes, controlling for age and gender, most sexual health attitudes were associated with sexual experience (Table 4). Perceived importance of physical and pleasure dimensions were associated with greater likelihood of being sexually experienced, whereas perceived importance of social and spiritual dimensions were associated with lower likelihoods of being sexually experienced. Perceived importance of the physical and pleasure dimensions was also associated with reduced odds of sex without a condom, in contrast to the overall scores.

Among the 1998 respondents who reported ever having sex without a condom, we looked for associations with different reasons for doing so (Table 4). Generally, being drunk or high was the exception (15.6%, 95% CI = 13.2–18.4%) and less common a reason than discussing risk with a partner (34.2%, 95% CI = 31.0–37.6%). Getting drunk or high and then not using a condom was unrelated to perceived importance of most sexual health dimensions, with exception of the spiritual dimension, but perceived importance of four dimensions (emotional, pleasure, mental and mutual) was positively associated with discussing risk – STD, HIV or what to do if pregnant.

Sexual health care.—Less than one-quarter of the respondents had sought a sexual health check-up (21.2%, 95% CI = 19.4–23.1%) or had a STD test (23.4%, 95% CI = 21.6–25.4%) or HIV test (23.3%, 95% CI = 21.4–25.3%). Four dimensions (emotional, social, mental and physical) were positively associated with going for a sexual health check-up (Table 4). STD and HIV testing, when also controlling for sexual activity, tended not to vary by perceived importance of sexual health dimensions, except that the physical dimension was positively associated with both STD and HIV testing.

Discussion

We found dimensions of sexual health derived from existing definitions of sexual health^{1–3} to be generally important to US youth and that they formed a cohesive group of attitudes about sexual health. Findings suggest that the population-level definitions have convergent validity and resonate with youth. In the remainder of this discussion, we address the nuances of the individual dimensions with respect to their relevance to youth, as well as what patterns of correlations reveal about how sexual health attitudes are reflected in relationships, sexual behaviours and healthcare use.

Most youth rated sexual health dimensions as highly important. Nevertheless, we observed some differences among ratings. Findings suggest that emotional fulfilment (the contribution of a relationship to happiness), followed by pleasure (overall enjoyment from a relationships), mental satisfaction and a sense of mutual benefits within a relationship are more salient aspects of sexual health to youth than are broader social connectedness or physical fulfilment (sexual intimacy). This is perhaps a more sophisticated vision of sexual health than is often credited to youth and suggests that those involved in STD prevention might incorporate this understanding when designing research or programs.

We observed the greatest differences in perceived importance of dimensions by age, with older respondents more likely than younger respondents to rate them as important. The difference was most pronounced for the physical dimension, which likely reflects the growing salience of sexual intimacy in relationships between the ages of 15 and 25 years. Female respondents were more likely to construe dimensions of sexual health as very important, compared with males, except for the physical and social dimensions. Neither sexual orientation nor race or ethnicity affected most attitudes towards dimensions of sexual health. Although we defined spirituality independently of religious belief in this paper, the two constructs were closely associated. Therefore, the extent to which respondents differed

in this respect might be reflected in attitudes towards the importance of spirituality in sexual health.

Associations of attitudes to sexual health dimensions with sexual health discussions and behaviours

The associations between attitudes to dimensions and the collection of discussions and behaviours we assessed were complex, but two major patterns are visible in the results. We also noted some examples of where overall scores could mask differences among the individual dimensions.

For the first pattern, and consistent with previous youth sexual health research,²² we found that the attitudes to the pleasure and physical dimensions were positively associated with discussing condom use, birth control and how to manage pregnancy. These discussions might reflect the importance of pregnancy relative to STD/HIV prevention for many youth, especially in longer-term relationships.^{26,27} We also found that the overall scores were associated with increased likelihood of sexual experience and increased likelihood of sex without a condom. The importance of pleasure and physical dimensions, however, were associated with increased likelihood of sexual experience and decreased likelihood of sex without a condom. Moreover, among those who had had sex without a condom, those who rated pleasure highly were more likely than others to have discussed the risk of doing so ahead of time. These findings suggest that, for those who rate overall pleasure highly and for whom sexual intimacy is important, sexual activity is thoughtful. That is, respondents reported sexual experience, but were more likely than others to mitigate risk with condom use. Even for 'risky' sexual experience (sex without condoms), they tended to discuss the prospects ahead of time. These findings were controlled for age and gender, and show the value of looking at ratings for both overall and individual items.

In contrast, those who rated spirituality as important were least likely to discuss condom use or birth control, although they did discuss pregnancy. These respondents were also less likely to be sexually experienced than others. We lack the data to make firm inferences, but the pattern of results is consistent with a subset of respondents who value the dimensions of sexual health and who also value abstinence from intercourse. This subset, however, was equally likely overall to have had sex without a condom, and more likely to report being drunk as a reason for having sex without a condom. This pattern of results deserves further exploration; evidence is consistent with respect to reduced sexual activity among youth for whom religion is important,^{28,29} but some researchers have also found that condom use is reduced,³⁰ while others have not.²⁹

The second pattern is a function of which discussion topics and behaviours were most consistently associated with sexual health attitudes. For sexual health discussions, the most notable point is that birth control and pregnancy as topics very much outweighed HIV and STD, both in absolute terms (i.e. a larger proportion of respondents discussed the topics with partners) and in terms of being correlated with sexual health attitudes. Aside from the possibility that youth might put considerations about pregnancy ahead of considerations about infection,^{26,27} youth might simply not construe STD as a salient factor in sexual

health, akin to the WHO definition of sexual health as ‘...not merely the absence of disease...’.¹

The three behaviours that were most consistently correlated with sexual health attitudes were sexual experience, discussing risk before sex without a condom and going for a sexual health check-up. We note here that discussing risk before taking it in the form of sex without a condom is one of the more complex discussions in a relationship, and that going for a sexual health check-up is one of the more complex and resource-consuming behaviours. Going for a sexual health check-up was also associated with four dimensions, as well as with overall scores. Sexual health attitudes were not generally associated with STD/HIV testing, possibly because testing is less dependent than is seeking care on individual action (e.g. as part of routine screening), and possibly because STD testing rates in the US are not especially high.³¹ In summary, the more complex and involved the sexual health behaviours, the more relevant were attitudes to sexual health dimensions.

Limitations and future directions

The data are susceptible to socially desirable responding, recall bias for behaviours and other limitations of survey data. Although the response rate of ~52% is not unusually low for online surveys,³² youth interested in the topic might have been more likely to complete the survey. Particular to this paper, we lacked some nuance in relationship quality measures, being limited to sexual health discussions only. This limitation made it difficult to disentangle interpretations of sexual health attitudes from the possible overriding topic of pregnancy in relationships. We also used a relatively crude comparison for sexual orientation or affiliation (heterosexual vs other) to generate analytic power.

Conclusions

Dimensions of sexual health, as derived from major population-level definitions, are salient to US youth, and youth appear to have a reasonably cognitively complex construal of sexual health. Individual happiness, overall enjoyment and reciprocal benefits trump a larger sense of social connectedness and even sexual intimacy (the latter increased in importance with age). Those who rated sexual intimacy and pleasure as important tended to approach sexual activity with thoughtfulness. Some patterns of sexual activity and risk management were consistent with previous research on youth sexual attitudes and behaviours. Future research could expand the sample to youth in other countries or cultures to see what is globally robust and where cultural variance exists.

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Box 1.**Dimensions of sexual health definitions**

$n = 4017$. Respondents endorsed each dimension on a four-point scale: very important to me; important to me; not very important to me; and not at all important to me

Different people have different opinions about what they value in relationships. Which of the following possible aspects of relationships are important to you, either in a relationship you have or would like to have?

Emotional

- How your relationship helps you feel good about or happy with yourself and your life.

Social

- How your relationship helps you feel connected to others in your world.

Pleasure

- The overall level of enjoyment you get from the relationship. Spiritual
- How your relationship adds to a deeper sense of meaning and purpose in life.

Mutual

- How your relationship benefits everyone in it.

Mental

- How your relationship satisfies you on an intellectual level.

Physical

- How your relationship meets your needs for sexual intimacy (e.g. kissing, sex).

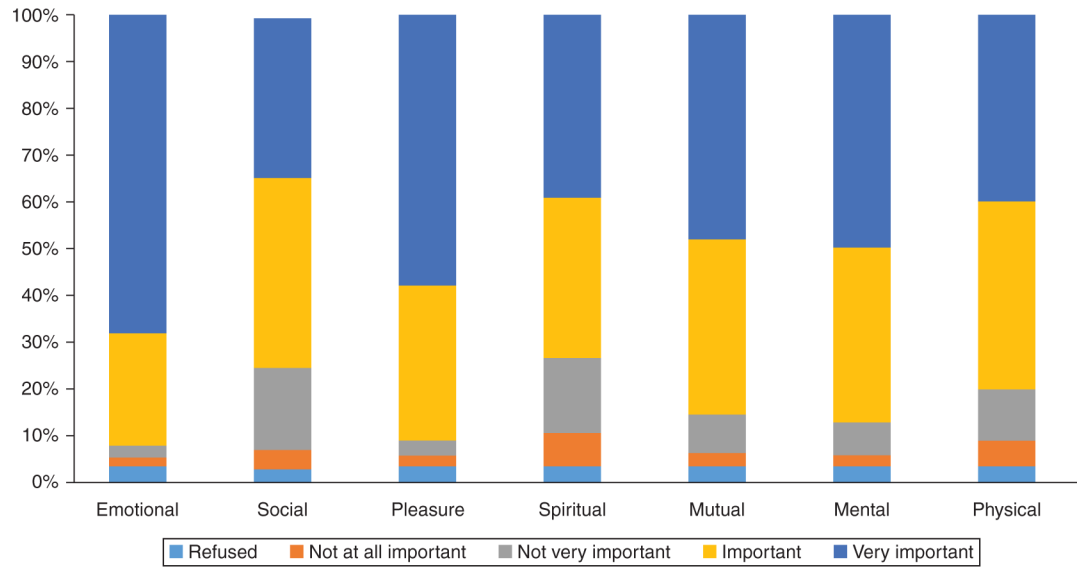


Fig. 1. Distribution of responses on attitudes to sexual health dimensions. $n = 4017$. Refused 3.5% of responses for any dimension.

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Table 1.
Respondent demographic characteristics

n = 4017. CI, confidence interval

Variable	Weighted estimate, % (95% CI)
Age (years)	
15–17	28.4 (26.6–30.3)
18–21	33.7 (31.5–36.1)
22–25	37.9 (35.7–40.1)
Gender	
Male	51.0 (48.7–53.3)
Female	49.0 (46.7–51.3)
Race/ethnicity	
Hispanic	18.8 (17.0–20.8)
Black, non-Hispanic	13.2 (11.6–15.0)
White, non-Hispanic	59.6 (57.3–61.9)
2+ races, non-Hispanic	2.7 (2.2–3.4)
Other, non-Hispanic	5.6 (4.5–7.0)
Education	
In high school	27.8 (26.0–29.8)
High school graduate	18.3 (16.5–20.3)
2-year college	7.9 (6.8–9.2)
Some college	21.9 (20.0–23.9)
College graduate	12.7 (11.3–14.3)
Post-graduate education	5.1 (4.2–6.2)
Health insurance access	
Private	59.5 (57.2–61.7)
Medicaid or other government plan	14.1 (12.6–15.8)
None	13.0 (11.6–14.7)
Don't know or not sure	11.4 (10.0–13.1)
Household composition	
Live alone	5.6 (4.6–6.7)
Live with friends	4.0 (3.2–4.9)
Live with roommate	9.6 (8.3–11.1)
Live with boyfriend or girlfriend	7.4 (6.3–8.7)
Fiancé(e) or spouse	10.8 (9.5–12.3)
Parent(s)	62.8 (60.6–65.0)
Other family members	10.8 (9.5–12.4)
Language spoken in household (all)	
English	95.2 (94.1–96.2)
Spanish	7.5 (6.3–8.8)
Other	3.1 (2.3–4.1)
Sexual orientation/affiliation	

Variable	Weighted estimate, % (95% CI)
Straight or heterosexual	90.0 (88.5–91.3)
Gay or lesbian	2.0 (1.4–2.8)
Bisexual	3.3 (2.6–4.1)
Transgender	0.1 (0.0–0.4)
Other term	1.5 (0.9–2.7)
Not sure	1.0 (0.6–1.5)

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Table 2.
Demographic correlates of attitudes towards sexual health dimensions

Odds ratios (OR) in bold are different from 1.0 with $P < 0.05$. CI, confidence interval

Sexual health dimensions	Gender		Age		Sexual orientation		Race or ethnicity	
	Male = referent	Female	15-17 = referent	18-21 years	Heterosexual = referent	Other	White = referent	Black Other
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Emotional	1.93 (1.58-2.37)		1.24 (0.96-1.61)	1.47 (1.18-1.84)	0.78 (0.50-1.22)		0.80 (0.54-1.16)	0.97 (0.51-1.85)
Social	1.08 (0.91-1.28)		1.04 (0.83-1.29)		0.87 (0.62-1.24)		1.06 (0.67-1.67)	1.01 (0.78-1.30)
			1.15 (0.95-1.39)				1.13 (0.83-1.54)	1.59 (1.00-2.54)
							0.97 (0.65-1.45)	1.20 (0.95-1.51)
Pleasure	1.48 (1.23-1.79)		1.44 (1.13-1.83)		0.75 (0.50-1.13)		0.94 (0.66-1.35)	1.05 (0.59-1.86)
			1.81 (1.47-2.22)				0.99 (0.67-1.47)	1.32 (1.04-1.68)
Spiritual	1.54 (1.30-1.83)		1.24 (1.00-1.55)		0.51 (0.36-0.73)		1.98 (1.47-2.66)	1.79 (1.09-2.92)
			1.25 (1.03-1.51)				1.47 (0.99-2.17)	1.41 (1.14-1.74)
Mutual	1.38 (1.15-1.65)		1.41 (1.12-1.78)		0.72 (0.47-1.09)		1.03 (0.74-1.44)	1.25 (0.76-2.05)
			1.47 (1.21-1.79)				1.34 (0.89-2.03)	0.88 (0.68-1.12)
Mental	1.84 (1.53-2.21)		1.38 (1.09-1.74)		0.86 (0.57-1.29)		1.20 (0.83-1.73)	0.81 (0.52-1.27)
			1.66 (1.36-2.02)				1.31 (0.88-1.95)	1.21 (0.96-1.53)
Physical	1.16 (0.98-1.39)		2.07 (1.65-2.61)		0.73 (0.50-1.07)		1.18 (0.83-1.67)	

	Gender Male = referent Female	Age 15–17 = referent 18–21 years 22–25 years	Sexual orientation Heterosexual = referent Other	Race or ethnicity White = referent Black Other Multiple races Hispanic ethnicity
Sexual health dimensions	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
		3.03 (2.49–3.68)		0.96 (0.60–1.54)
				1.18 (0.94–1.49)
				1.20 (0.78–1.84)

Table 3.

Partner sexual health discussions

$n = 4017$. Adjusted odds ratios in bold are different from 1.0 with $P < 0.05$. AOR, adjusted odds ratio; CI, confidence interval. Effect sizes are adjusted for other variables in the equations as well as age and gender as covariates

Sexual health attitudes	Partner discussions					
	HIV/AIDS	STD other than HIV ^A	Using condoms	Using birth control other than condoms	How to manage pregnancy	
	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	
Emotional	1.11 (0.76–1.62)	1.30 (0.90–1.86)	0.79 (0.62–1.02)	1.16 (0.89–1.51)	1.09 (0.87–1.38)	
Social	1.06 (0.77–1.46)	1.25 (0.94–1.66)	0.98 (0.79–1.21)	0.84 (0.67–1.05)	0.94 (0.77–1.16)	
Pleasure	1.18 (0.82–1.69)	1.02 (0.73–1.43)	0.95 (0.76–1.19)	1.36 (1.06–1.75)	1.26 (1.02–1.56)	
Spiritual	1.35 (0.94–1.92)	1.02 (0.74–1.41)	0.77 (0.62–0.95)	0.68 (0.54–0.86)	1.28 (1.04–1.57)	
Mental	1.16 (0.79–1.71)	1.21 (0.83–1.74)	0.87 (0.70–1.08)	1.16 (0.93–1.47)	1.08 (0.87–1.33)	
Mutual	1.17 (0.83–1.66)	0.97 (0.71–1.31)	1.01 (0.82–1.26)	0.92 (0.72–1.16)	1.18 (0.96–1.46)	
Physical	0.83 (0.59–1.18)	1.26 (0.92–1.71)	1.25 (1.03–1.52)	1.43 (1.16–1.78)	1.35 (1.11–1.65)	
Overall score			<i>F</i> (<i>P</i> -value)			
	0.26 (0.61)	2.05 (0.15)	1.89 (0.17)	0.50 (0.48)	13.80 (<0.001)	

^AExamples were chlamydia and gonorrhoea for bacterial sexually transmitted disease (STD) and genital herpes and human papillomavirus (HPV) for viral STD.

Table 4.

Sexual behaviours and healthcare use

$n = 4017$, except as noted below. AOR, adjusted odds ratio; CI, confidence interval; M, mean; STD, sexually transmitted disease; F , Wald test (for overall scores). Bold indicates AORs with CIs not including 1.0 or P values < 0.05 . Variables for sexual behaviours and healthcare use were entered in separate equations and have Yes/No values, with No as the referent unless stated otherwise. Effect sizes are adjusted for age and gender as covariates; testing variables are also adjusted for sexual experience

	Sexual behaviours				Health care use			
	Any sexual Experience (vaginal or anal)	Any sex without a condom (vaginal or anal) ^A	Sex without a condom (drunk or high) ^A	Sex without a condom (discussed risk) ^{A,B}	Went for a sexual health check-up	Was tested for STD	Was tested for HIV	
	AOR 95% CI	AOR 95% CI	AOR 95% CI	AOR 95% CI	AOR 95% CI	AOR 95% CI	AOR 95% CI	
Emotional	0.96 (0.75–1.22)	0.86 (0.68–1.09)	1.17 (0.77–1.77)	1.62 (1.17–2.26)	1.35 (1.01–1.80)	1.10 (0.83–1.45)	0.92 (0.72–1.19)	
Social	0.81 (0.67–0.99)	1.13 (0.93–1.37)	1.03 (0.73–1.44)	1.09 (0.82–1.45)	1.39 (1.08–1.78)	1.01 (0.80–1.28)	1.03 (0.82–1.29)	
Pleasure	1.44 (1.15–1.79)	0.64 (0.52–0.80)	0.88 (0.59–1.30)	1.56 (1.15–2.11)	1.28 (0.98–1.69)	1.15 (0.89–1.48)	1.11 (0.87–1.40)	
Spiritual	0.67 (0.56–0.82)	1.15 (0.94–1.41)	1.73 (1.25–2.40)	1.28 (0.98–1.67)	1.02 (0.80–1.29)	0.93 (0.75–1.15)	1.17 (0.95–1.45)	
Mental	1.08 (0.88–1.34)	0.81 (0.66–1.01)	1.34 (0.93–1.92)	1.67 (1.25–2.23)	1.32 (1.01–1.72)	1.05 (0.82–1.35)	1.11 (0.87–1.41)	
Mutual	0.90 (0.73–1.11)	0.91 (0.74–1.13)	1.34 (0.94–1.91)	1.41 (1.06–1.86)	1.27 (0.98–1.65)	1.05 (0.82–1.34)	1.16 (0.92–1.47)	
Physical	2.15 (1.74–2.66)	0.43 (0.35–0.53)	0.75 (0.52–1.08)	1.30 (0.97–1.74)	1.74 (1.37–2.22)	1.32 (1.05–1.67)	1.40 (1.12–1.73)	
Overall score								
	$F(P\text{-value})$				$F(P\text{-value})$			
	Estimated mean (95% CI)				Estimated mean (95% CI)			
Yes	13.58 (<0.001)	4.80 (0.03)	2.49 (0.12)	11.90 (0.001)	6.61 (0.01)	>0.01 (0.96)	2.58 (0.11)	
No	M=16.7 (16.4–16.9)	M=17.0 (16.7–17.2)	M= 16.8 (16.3–17.3)	M = 17.4 (17.1–17.8)	M = 16.8 (16.5–17.2)	M= 16.6 (16.3–16.9)	M= 16.8 (16.4–17.2)	
	M=15.8 (15.5–16.2)	M = 16.4 (15.9–16.8)	M= 17.3 (17.0–17.5)	M = 16.6 (16.3–17.0)	M = 16.2 (15.9–16.5)	M= 16.6 (16.2–16.9)	M= 16.4 (16.1–16.7)	

^A $n = 1998$, based on responses from those who gave reasons why they had sex without a condom.

^B Risk discussion refers to *a priori* discussion of STD, HIV or what to do if the respondent or partner becomes pregnant.