



Original article

Sexual Orientation Differences in Adolescent Health Care Access and Health-Promoting Physician Advice


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A B S T R A C T

Purpose: Physician screening and advice on health-related behaviors are an integral part of adolescent health care. Sexual minority adolescents encounter more barriers to health services; yet, no prior research has examined whether they also experience disparity in physician screening and advice. We examined possible sexual orientation disparities in health care access, physician screening, and advice on six health-related behaviors.

Methods: Data were from a national sample of U.S. adolescents who participated in wave 2 of the NEXT Generation Health Study (n = 2023). Poisson regressions were conducted separately for males and females to estimate sexual orientation differences in health care access and health-related screening and advice.

Results: Compared with heterosexual males, sexual minority males were more likely to report unmet medical needs in the past year (adjusted relative risk [ARR] = 2.23) but did not differ with respect to receiving physician advice concerning health-related behaviors. Compared with heterosexual females, sexual minority females were more likely to report no routine physical checkup in the past year (ARR = 1.67) but were more likely to receive physician advice to reduce or stop drinking, smoking, drug use, increase physical activity, and improve diet (ARRs = 1.56–1.99), even after controlling for corresponding health-related behaviors. Sexual minority females were also more likely to receive advice about risk associated with sexual behavior (ARR = 1.35) and advice to avoid sexually transmitted diseases (ARR = 1.49).

Conclusions: Both sexual minority males and females experienced disparities in some aspects of health care access. Improved health-promoting advice would better serve sexual minority males.

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IMPLICATIONS AND CONTRIBUTION

Clinical guidelines recommend physician screening and advice as part of routine care. Compared with heterosexual females, sexual minority females received more health-promoting advice and did not report greater unmet medical needs. The reverse pattern was found among males, highlighting the potential benefits of increasing health-promoting advice targeting sexual minority males.

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Compared with heterosexual adolescents, sexual minority adolescents report higher rates of substance use and disordered eating, lower rates of physical activity, as well as more sexual risk behaviors [1–3]. Sexual orientation disparities in multiple core domains of adolescent health are concerning because these

disparities may persist across development, leading to higher rates of substance use disorders, obesity, hypertension, and heart disease in adulthood [4,5]. Adequate access to health care, with appropriate routine screening and feedback on health-related behaviors, may provide one route to addressing the formation of sexual orientation health disparities. However, equal access to health care continues to be a concern among sexual orientation minorities, and it remains unknown whether sexual minority adolescents receive adequate physician screening and advice on health-related behaviors. Thus, research is needed to examine the full range of possible sexual orientation disparities from health care access to physician screening and advice on health-related behaviors among adolescents.

Barriers to health care access are well documented among sexual minority adults [6]. Compared with heterosexual adults, sexual minority adults are more likely to delay seeking health care due to cost and experience more difficulty in finding a provider [4,7]. Past research suggests that disparities in health care access are more evident among female sexual minority adults. Among young adults aged 18–26 years, unmet medical needs were higher among sexual minority females than heterosexual females, whereas unmet medical needs did not differ by sexual orientation among males [8]. Among young adults aged 24–32 years, sexual minority females were less likely to receive a physical examination than heterosexual females, even though they had higher rates of adverse health conditions [9]. Taken together, sexual minority adults, particularly females, experience disparities in various aspects of health care access.

Among adolescents, research on health care preferences suggests that sexual minority youth consider access to health care to be highly important [10]. However, relatively few studies have examined disparities in health care access among sexual minority adolescents. The most relevant investigation to date was conducted by Williams and Chapman [11]. Utilizing baseline data from the National Longitudinal Study of Adolescent Health, these researchers found that sexual minority adolescents reported higher subjective ratings of unmet medical needs despite scoring higher on indicators of physical and mental health problems. Moreover, sexual minority adolescents were more likely than their peers to have forgone medical care due to worries that their parents would know or being afraid of what their doctor would say or do. These findings suggest that sexual minority adolescents encounter more barriers to health services, but common indicators of health care access disparities such as having no health insurance coverage or routine physical checkup in the past year were not examined. Moreover, gender differences in these associations were not explored.

Health care access provides an opportunity for appropriate screening and physician advice or referral, which are critical avenues through which adolescents' developmental and medical needs could be met. Importantly, health care access alone is not sufficient as the range and quality of health care received also matter. Indeed, adolescents regardless of sexual orientation report a greater desire to discuss substance use, healthy dietary habits, exercise, and sexual behaviors with their health care providers than what they actually discuss [12–15]. This discrepancy reflects potential missed opportunities for prevention. For example, while health care providers are ideally positioned to deliver sexual risk prevention services [16–18], sexually experienced adolescents are more likely to obtain sexual health information from parents and teachers than from health care providers [19]. In addition, sexual minority adolescents may

be especially prone to experience or anticipate rejections from physicians [11,15], which may hinder access and self-disclosure of sexual orientation and sexual behaviors to providers and thus limit access to optimal care.

Screening of health-related behaviors in the primary care setting is a highly promising strategy to identify at-risk adolescents, tailor personalized health information, and engage adolescents in behavior change [20,21]. According to the American Academy of Pediatrics's policy statement on substance use, pediatricians are recommended to screen all adolescents for substance use behaviors and provide brief advice and appropriate referrals based on the indicated risk level as part of routine care [22]. Similarly, screening and prevention of obesity through promoting healthy eating patterns and encouraging increased physical activity are recommended by both the Society for Adolescent Health and Medicine (SAHM) and the American Academy of Pediatrics [23,24]. According to the position paper published by SAHM, comprehensive sexual and reproductive health information and services should be provided to all adolescents in a culturally sensitive and developmentally appropriate manner [18]. In addition, adolescent health care providers are particularly encouraged to attend to the specific needs of sexual minority adolescents, screen for possible mental health issues, and provide tailored health information and/or intervention as appropriate [25].

Although physician screening and advice are increasingly recognized as a recommended prevention approach, no prior study has examined whether physician screening and advice on health-related behaviors differ according to sexual orientation and gender. Utilizing a nationally representative sample, we examined (1) whether sexual minority adolescents were more likely to report no current health insurance coverage, no past-year routine physical checkup, and endorse past-year unmet medical needs and (2) possible sexual orientation differences in physician screening and two types of advice (advice on associated risks and health-promoting advice) about drinking, smoking, drug use, physical activity, diet, and sexual behaviors.

Method

Participants

Data were drawn from the NEXT Generation Health Study, [26] a nationally representative longitudinal study of U.S. adolescents enrolled in 10th grade between 2009 and 2010. This study utilized a three-stage stratified design to recruit a diverse sample of 2,785 adolescents enrolled in U.S. high schools from 22 states. Sexual orientation was measured at wave 2 of this study, and so we utilized data from wave 2 participants ($n = 2,439$; 87.6% of the full sample). The current analytic sample consisted of 2,023 adolescents (82.9% of wave 2 NEXT sample) who provided valid responses to all study variables. Parents provided written consent and participants provided assent to participate in this study; upon turning 18 years of age, participants provided consent. The study was approved by the Institutional Review Board of the Eunice Kennedy Shriver National Institute of Child Health and Human Development.

Measures

Sexual orientation. Past research indicated that adolescents consider sexual attraction as the core element of sexual

orientation and think that it is easier to respond to questions regarding sexual attraction than to questions on sexual behavior or identity [27–29]. Accordingly, adolescent participants in the present study were asked “Which of the following best describes your sexual orientation?” Response options were (1) “attracted to opposite gender”; (2) “attracted to same gender”; (3) “attracted to both genders”; and (4) “questioning”. Because of their relatively low frequencies, the last three categories were combined for analyses.

Disparities in health care access. Health insurance status was categorized as currently having health insurance coverage through parents or all other sources (reference group) versus currently having no health insurance coverage. Routine checkup was categorized as having a routine checkup with their pediatrician, primary care doctor, or family physician in the past year (reference group) versus not having a routine checkup in the past year. Unmet medical needs was categorized as having no past-year unmet medical needs (reference group) versus needing medical care that they did not get in the past 12 months.

Screening for health-related behaviors. Participants provided a dichotomous response to indicate whether a doctor or nurse asked them about the following health-related behaviors at their last physical examination: (1) drink alcohol, (2) smoke, (3) use drugs, (4) exercise, (5) nutrition, and (6) sexually active.

Physician advice about associated risks. Participants provided a dichotomous response to indicate whether they were given advice by a doctor or nurse about the risks associated with the following health-related behaviors at their last physical examination: (1) drinking, (2) smoking, (3) using drugs, (4) not exercise, (5) a poor diet, and (6) sexual behaviors.

Physician advice to promote health-related behaviors. Participants provided a dichotomous response to indicate whether they were given advice by a doctor or nurse at their last physical examination about: (1) reducing or stopping drinking; (2) reducing or stopping smoking; (3) reducing or stopping drug use; (4) increasing physical activity; (5) improving diet; and (6) avoiding sexually transmitted diseases.

Covariates. Age, race/ethnicity, and family affluence were included as covariates. We utilized the Health Behaviour School-Aged Family Affluence Scale [30] to measure adolescent socioeconomic inequalities using items related to family car and computer ownership, frequency of family holidays, and whether the adolescent had his/her own bedroom. For physician screening and advice on the three types of substance use behaviors, we respectively controlled for any alcohol use in the past 30 days, any cigarette smoking in the past 30 days, and any marijuana use in the past year (dichotomous variables with no substance use treated as the reference group). For physician screening and advice on exercise/physical activity, we controlled for weekly vigorous physical activity (defined as any activity that increases the participant’s heart rate and makes the participant get out of breath or sweat some of the time and was coded as 0 = “2 hours or more” vs. 1 = “less than 2 hours”). For physician screening and advice on nutrition/diet, we controlled for the number of fruit and vegetable consumption per day (0 = “5 or more times per day” vs. 1 = “less than 5 times per day”).

Data analyses

Analyses were conducted separately for males and females and utilized the survey analysis procedures in Stata 14, which accounted for clustering, weighting, and stratification of NEXT study design at wave 2. First, we obtained weighted percentages of health care access, physician screening, and physician advice variables according to sexual orientation. Next, because most outcomes in this study were common (>10%), odds ratios would overestimate relative risks [31], and so we used Poisson regression models to directly estimate unadjusted and adjusted relative risks [32]. Demographic characteristics (age, race/ethnicity, and family affluence) were controlled for in all final adjusted models. To examine whether the associations between sexual orientation and physician screening and advice were independent of health-related behaviors, substance use behaviors, physical activity, and fruit and vegetable consumption were also included as a covariate in the corresponding final adjusted models.

Results

Sample characteristics for the complete NEXT wave 2 sample and the analytic subsample were largely similar and are presented in Table 1. Participants who were included and excluded from the analytic sample differed by race/ethnicity and family affluence (African-American, Hispanic, and low affluence adolescents were more likely to be excluded) but did not vary by age, gender, or sexual orientation. Among males, 96.0% (n = 846) reported opposite gender attraction, 1.8% (n = 16) reported same gender attraction, 1.1% (n = 10) reported both genders attraction, and 1.0% (n = 9) were questioning. Among females, 89.3% (n = 1,020) reported opposite gender attraction, 1.4% (n = 16) reported same gender attraction, 7.4% (n = 84) reported both genders attraction, and 1.9% (n = 22) were questioning. In summary, 4.0% of males and 10.7% of females in the analytic sample were categorized as sexual minority adolescents.

Weighted percentages according to sexual orientation, along with the unadjusted and adjusted relative risks are presented in Table 2 for males and in Table 3 for females. For both males and females, no sexual orientation disparities were found in health insurance coverage and physician screening for all health-related behaviors. Several sexual orientation differences in other aspects of health care access and physician advice were found.

Among males, sexual minority adolescents had 2.72 times the risk of reporting unmet medical needs in the past year relative to heterosexual adolescents (47.6% vs. 17.5%; 95% confidence interval [CI] = 1.53–4.84). This difference remained significant after controlling for demographic covariates (adjusted relative risk [ARR] = 2.32, 95% CI = 1.21–4.47). Physician advice on risk associated with a poor diet was more frequently given to male sexual minority adolescents (66.5%) compared with male heterosexual adolescents (49.3%; relative risk [RR] = 1.35, 95% CI = 1.00–1.81), although this association was attenuated after covariates were controlled for (ARR = 1.21, 95% CI = .90–1.63).

Among females, sexual minority adolescents had 1.86 times the risk of having no routine checkup in the past year relative to heterosexual adolescents (32.5% vs. 17.5%; 95% CI = 1.14–3.04). This difference remained significant after controlling for demographic covariates (ARR = 1.67, 95% CI = 1.01–2.77). Moreover, associations between sexual minority status and receipt of health-promoting physician advice were consistently found. Compared with heterosexual females, sexual minority

Table 1
Sample characteristics for the complete wave 2 NEXT sample and the analytic subsample

	Wave 2 NEXT sample (n = 2,439)		Analytic subsample (n = 2,023)		t	p
	Mean	SD/range	Mean	SD/range		
Age	17.2	.53/15.0–21.0	17.2	.52/15.2–21.0	1.67	.11
	Frequency	Weighted percentage (%)	Frequency	Weighted percentage (%)	χ^2	p
Gender						
Male	1,076	44.9	881	45.1	1.17	.69
Female	1,363	55.1	1,142	54.9		
Race/ethnicity						
White	986	58.6	925	62.2	5.86	.02
African-Americans	611	17.5	367	14.2		
Hispanic	715	19.6	627	19.2		
Other	120	4.3	104	4.4		
Family affluence						
Low	775	23.1	606	21.6	5.02	.02
Medium	1,148	49.8	974	51.0		
High	516	27.1	443	28.5		
Sexual orientation						
Attracted to opposite gender	2,196	93.7	1,866	94.0	1.14	.30
Attracted to same gender	45	1.2	32	1.1		
Attracted to both genders	119	3.7	94	3.5		
Questioning	42	1.4	31	1.4		

The *t*-test and chi-square test presented on the last column represent bivariate comparisons of demographic characteristics between wave 2 participants who were included in and excluded from the analytic subsample.
SD = standard deviation.

females were more likely to receive physician advice to reduce or stop drinking (RR = 2.16, 95% CI = 1.59–2.94), smoking (RR = 2.13, 95% CI = 1.59–2.85), drug use (RR = 2.18, 95% CI = 1.64–2.90), increase physical activity (RR = 1.71, 95% CI = 1.32–2.23), and improve diet (RR = 1.63, 95% CI = 1.31–2.04). These associations remained significant after controlling for

demographics and recent substance use, physical activity, or dietary behavior (ARRs ranging from 1.56 to 1.99). In addition, sexual minority females were also more likely to receive advice about risk associated with poor diet (RR = 1.27, 95% CI = 1.01–1.59) and sexual behavior (RR = 1.36; 95% CI = 1.12–1.66), as well as advice to avoid sexually transmitted diseases (RR = 1.60, 95%

Table 2
Male adolescents' reports of health care access, physician screening, and advice by sexual orientation (n = 881)

	Weighted percentages		Unadjusted		Adjusted	
	Heterosexual (%)	Sexual minority (%)	RR	95% CI	RR	95% CI
Health care access						
No current health insurance	7.5	6.2	.83	(.21–3.34)	.92	(.22–3.87)
No routine checkup in the past year	24.5	44.5	1.82	(.80–4.12)	1.60	(.80–3.20)
Unmet medical needs in past year	17.5	47.6	2.72	(1.53–4.84)	2.32	(1.21–4.47)
Physician screening for						
Drinking	56.8	64.5	1.13	(.68–1.89)	1.07	(.63–1.84)
Smoking	60.7	65.3	1.08	(.65–1.77)	1.04	(.62–1.75)
Drug use	56.2	65.3	1.16	(.70–1.92)	1.16	(.67–1.99)
Exercise	70.5	69.4	.98	(.59–1.65)	.97	(.58–1.62)
Nutrition	67.2	62.7	.93	(.53–1.63)	.91	(.52–1.61)
Sexually active	57.4	66.8	1.16	(.68–1.99)	1.14	(.68–1.91)
Physician advised about risks of						
Drinking	43.7	41.7	.95	(.47–1.95)	.90	(.41–1.97)
Smoking	44.6	46.2	1.04	(.48–2.22)	1.01	(.45–2.26)
Drug use	43.1	43.4	1.01	(.52–1.95)	.93	(.43–2.04)
No exercise	48.6	45.0	.93	(.49–1.77)	.85	(.41–1.77)
Poor diet	49.3	66.5	1.35	(1.00–1.81)	1.21	(.90–1.63)
Sexual behavior	41.4	46.4	1.12	(.60–2.10)	1.04	(.50–2.14)
Physician advised to						
Reduce or stop drinking	19.1	10.3	.54	(.22–1.31)	.69	(.33–1.45)
Reduce or stop smoking	19.6	10.3	.53	(.23–1.21)	.64	(.32–1.30)
Reduce or stop drug use	17.9	10.3	.57	(.25–1.31)	.72	(.32–1.62)
Increase physical activity	29.7	26.8	.90	(.38–2.14)	.87	(.33–2.27)
Improve diet	31.7	25.4	.80	(.32–1.99)	.73	(.28–1.90)
Avoid sexually transmitted diseases	32.0	28.8	.90	(.40–2.03)	.84	(.33–2.14)

Age, race/ethnicity, and family affluence were included as covariates in the adjusted models. Substance use, physical activity, and fruit and vegetable consumption were also included as covariates in the corresponding adjusted models for physician screening and advice. *p* < .05 are in bold.
CI = confidence interval; RR = relative risk.

Table 3

Female adolescents' reports of health care access, physician screening, and advice by sexual orientation (n = 1,142)

	Weighted percentages		Unadjusted		Adjusted	
	Heterosexual (%)	Sexual minority (%)	RR	95% CI	RR	95% CI
Health care access						
No current health insurance	6.0	13.4	2.23	(.91–5.46)	1.79	(.67–4.79)
No routine checkup in the past year	17.5	32.5	1.86	(1.14–3.04)	1.67	(1.01–2.77)
Unmet medical needs in past year	20.3	24.0	1.18	(.71–1.97)	1.29	(.76–2.19)
Physician screening for						
Drinking	67.4	56.0	.83	(.55–1.25)	.85	(.58–1.24)
Smoking	71.1	61.4	.86	(.58–1.28)	.87	(.59–1.28)
Drug use	69.5	59.5	.86	(.58–1.27)	.88	(.60–1.31)
Exercise	70.0	59.6	.85	(.61–1.19)	.90	(.67–1.21)
Nutrition	71.6	59.7	.83	(.59–1.17)	.83	(.60–1.15)
Sexually active	71.7	75.0	1.05	(.88–1.24)	1.06	(.91–1.24)
Physician advised about risks of						
Drinking	36.4	41.4	1.14	(.78–1.65)	1.11	(.77–1.60)
Smoking	39.4	42.6	1.08	(.77–1.52)	1.03	(.75–1.42)
Drug use	37.1	41.8	1.13	(.80–1.58)	1.11	(.79–1.56)
No exercise	44.4	52.3	1.18	(.89–1.58)	1.21	(.93–1.57)
Poor diet	44.4	56.2	1.27	(1.01–1.59)	1.28	(1.04–1.57)
Sexual behavior	44.1	60.0	1.36	(1.12–1.66)	1.35	(1.10–1.66)
Physician advised to						
Reduce or stop drinking	16.8	36.3	2.16	(1.59–2.94)	1.87	(1.42–2.47)
Reduce or stop smoking	17.1	36.3	2.13	(1.59–2.85)	1.72	(1.32–2.23)
Reduce or stop drug use	15.8	34.5	2.18	(1.64–2.90)	1.99	(1.48–2.64)
Increase physical activity	30.5	52.3	1.71	(1.32–2.23)	1.60	(1.28–2.00)
Improve diet	34.0	55.3	1.63	(1.31–2.04)	1.56	(1.27–1.94)
Avoid sexually transmitted diseases	36.9	58.9	1.60	(1.21–2.10)	1.49	(1.13–1.95)

Age, race/ethnicity, and family affluence were included as covariates in the adjusted models. Substance use, physical activity, and fruit and vegetable consumption were also included as covariates in the corresponding adjusted models for physician screening and advice. $p < .05$ are in bold.

CI = confidence interval; RR = relative risk.

CI = 1.21–2.10). Similarly, these associations were not attenuated by covariates (ARRs were 1.28, 1.35, and 1.49, respectively).

Discussion

This study extends prior research on barriers to health care and service utilization among sexual minority adolescents [11] by examining alternative indicators of health care access disparity, including the lack of health insurance coverage and no routine physical checkup in the past year. In contrast to the parallel adult literature [33], sexual orientation disparity in health insurance coverage was not found in our sample of U.S. adolescents, possibly reflecting that the majority of adolescents were still covered by parents' insurance. Despite this finding, there is evidence for gender-specific sexual orientation disparities in other aspects of health care access. Consistent with a prior study among young adults [9], sexual minority females were more likely to have no routine checkup in the past year relative to heterosexual females. On the other hand, sexual orientation disparity in unmet medical needs was found among males only, with over 45% of sexual minority males reporting such needs. This pattern contradicts findings from a recent study among young adults [8], potentially reflecting a developmentally specific need for younger sexual minority males. Research on sexual identity development suggests that sexual minority females tend to accept sexual minority labels earlier than sexual minority males [34]. It may be that more adolescent sexual minority males were still exploring their sexual identity during this developmental stage. Consequently, they may be more reluctant to endorse sexual minority status during a clinic visit, leading to more unmet medical needs.

Multiple clinical guidelines recommend screening of health-related behaviors in the domains of substance use, weight-related, and sexual risk behaviors [18,22,24], as well as tailoring clinical care for sexual minority adolescents [25], as part of routine care. Our study was the first to examine possible sexual orientation disparities in physician screening. We found that sexual minority and heterosexual adolescents reported similar screening rates (ranging from around 55% to 75%) across all health-related behaviors examined in the present study. While unable to assess directly in our sample, past research indicated that sexual orientation is one of the least discussed topics in interactions between adolescents and their physicians [35,36]. Two thirds of sexual minority young adults reported that they have never discussed sexual orientation with their health care provider [37]. One possible explanation for similar screening rates for health-related behaviors across sexual minority and heterosexual adolescents could reflect this general lack of discussion about sexual orientation for a sizable group of adolescents.

In terms of physician advice, a consistent pattern was found such that female sexual minority adolescents were more likely than female heterosexual adolescents to receive health-promoting physician advice to change six different health-related behaviors, along with a greater likelihood of receiving physician advice about risks associated with poor diet and sexual behaviors. These findings are novel and may reflect something special about the adolescent-physician interaction among female sexual minority adolescents which has largely been unexplored in existing literature. Past studies suggest that sexual minority females are at particularly elevated risks for substance use behaviors, unhealthy diet, and less physical activity [1,38].

Interestingly, our analyses controlling for these corresponding health-related problems did not attenuate any of the associations involving sexual minority status, ruling out engagement in risk-taking and unhealthy behaviors as a primary mechanism that explains the observed differences by sexual orientation. Another possible explanation could be related to gender differences in medical communication. Specifically, female adolescents may be more likely seen by female physicians [39,40], and female physicians tend to engage in greater behavioral counseling and preventive services than male physicians [14,17]. Within the context of delivering these services, sexual orientation and associated risks may be discussed [36], leading to increased health-promoting physician advice given to sexual minority females. These possible explanations should be empirically tested in future research with direct measures of assessment and disclosure of sexual orientation and evaluation of their impact on the type and quality of physician advice provided.

This study has several limitations. First, sexual orientation was assessed using a single item about sexual attraction. While a focus on sexual attraction as the core element of sexual orientation among adolescents has received some empirical support [28,29], the inclusion of additional measures of sexual behavior and/or identity could have strengthened this study [27]. Second, despite a fairly large sample, sexual minority subgroups were small and could not be disaggregated for analyses. In light of growing research suggesting diversity among sexual minority subgroups [1,3], future research is needed to better understand the unique health care needs of lesbian, gay, bisexual, and questioning adolescents. Third, although the current analytic sample is largely similar to the wave 2 NEXT sample in terms of sample characteristics, attrition and missing data which varied by race/ethnicity and family affluence could have introduced bias to the analytic sample. Fourth, unlike other health-related behaviors, sexual behaviors were not assessed and could not be controlled for in the final adjusted models. Finally, our study did not include other variables such as the physicians' gender, the quality of adolescent-physician relationship, and physicians' knowledge about participants' sexual orientation, all of which could be relevant to understanding the dynamics and effectiveness of provider-patient communication.

Despite these limitations, the present study addresses multiple gaps in the literature and has important clinical and policy implications. Notably, our findings suggest that male sexual minority adolescents may have unrecognized unmet medical needs relative to male heterosexual adolescents, even though sexual minority and heterosexual males did not differ in health insurance coverage and routine physical checkup. These findings point to the need to better understand the nature and extent of unmet medical needs among male sexual minority adolescents and underscore the importance of targeted prevention and intervention for this group of adolescents. Consistent with recommendations by SAHM [25], it is important to more fully incorporate sensitive assessment of sexual orientation as part of routine care, such that physicians and health care providers may better serve sexual minority males by addressing possible health-related and/or sexual orientation-related questions or needs that they may have.

Physicians and health care providers should be encouraged by our findings regarding health-promoting physician advice received by female sexual minority adolescents, as we show that female sexual minority adolescents are better served in at least one aspect of health care. These findings are particularly

important in the context of past research suggesting that sexual orientation-related health disparities may be more pronounced among females [1–3,38]. Structural and policy approaches aimed at increasing the rates of annual routine physical checkup could further reduce sexual orientation-related health disparities among female adolescents.

To extend the present study, more work is needed to assess not only the overall rates of physician screening and advice but also the way advice was given and whether these patterns may vary by geographical regions and the adolescent's social environment. Optimally, access to culturally sensitive health care services that foster a safe environment for disclosure of sexual orientation would be made available to all sexual minority adolescents. Training for physicians to enhance sensitivity in service delivery and support for sexual minority adolescents to minimize perceived rejection may enhance patient-provider communication [15] and facilitate tailored physician screening and advice that best address sexual minority adolescents' medical, psychosocial, and developmental needs.

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References

- [1] Marshal MP, Friedman MS, Stall R, et al. Sexual orientation and adolescent substance use: A meta-analysis and methodological review. *Addiction* 2008;103:546–56.
- [2] Rosario M, Corliss HL, Everett BG, et al. Sexual orientation disparities in cancer-related risk behaviors of tobacco, alcohol, sexual behaviors, and diet and physical Activity: Pooled youth risk behavior surveys. *Am J Public Health* 2014;104:245–54.
- [3] Shearer A, Herres J, Kodish T, et al. Differences in mental health symptoms across lesbian, gay, bisexual, and questioning youth in primary care settings. *J Adolesc Health* 2016;59:38–43.
- [4] Jackson CL, Agenor M, Johnson DA, et al. Sexual orientation identity disparities in health behaviors, outcomes, and services use among men and women in the United States: A cross-sectional study. *Bmc Public Health* 2016;16:11.
- [5] Rosario M, Li F, Wypij D, et al. Disparities by sexual orientation in frequent engagement in Cancer-related risk behaviors: A 12-year follow-up. *Am J Public Health* 2016;106:698–706.
- [6] Albuquerque GA, Garcia CD, Quirino GD, et al. Access to health services by lesbian, gay, bisexual, and transgender persons: Systematic literature review. *Bmc Int Health Hum Rights* 2016;16:10.
- [7] Dahlhamer JM, Galinsky AM, Joestl SS, Ward BW. Barriers to health care among adults identifying as sexual minorities: A US national study. *Am J Public Health* 2016;106:1116–22.
- [8] Everett BG, Mollborn S. Examining sexual orientation disparities in unmet medical needs among men and women. *Popul Res Policy Rev* 2014;33:553–77.
- [9] Strutz KL, Herring AH, Halpern CT. Health disparities among young adult sexual minorities in the US. *Am J Prev Med* 2015;48:76–88.
- [10] Hoffman ND, Freeman K, Swann S. Healthcare preferences of lesbian, gay, bisexual, transgender and questioning youth. *J Adolesc Health* 2009;45:222–9.
- [11] Williams KA, Chapman MV. Comparing health and mental health needs, service use, and barriers to services among sexual minority youths and their peers. *Health Social Work* 2011;36:197–206.
- [12] Ackard DM, Neumark-Sztainer D. Health care information sources for adolescents: Age and gender differences on use, concerns, and needs. *J Adolesc Health* 2001;29:170–6.

- [13] Ford CA, Cheek C, Culhane J, et al. Parent and adolescent interest in receiving adolescent health communication information from primary care clinicians. *J Adolesc Health* 2016;59:154–61.
- [14] Klein JD, Wilson KM. Delivering quality care: Adolescents' discussion of health risks with their providers. *J Adolesc Health* 2002;30:190–5.
- [15] Fuzzell L, Fedesco HN, Alexander SC, et al. "I just think that doctors need to ask more questions": Sexual minority and majority adolescents' experiences talking about sexuality with healthcare providers. *Patient Education Couns* 2016;99:1467–72.
- [16] Henry-Reid LM, O'Connor KG, Klein JD, et al. Current pediatrician Practices in identifying high-risk behaviors of adolescents. *Pediatrics* 2010;125:E741–7.
- [17] Millstein SG, Igra V, Gans J. Delivery of STD/HIV preventive services to adolescents by primary care physicians. *J Adolesc Health* 1996;19:249–57.
- [18] Burke PJ, Coles MS, Di Meglio G, et al. Sexual and reproductive health care: A position paper of the Society for adolescent health and medicine. *J Adolesc Health* 2014;54:491–6.
- [19] Donaldson AA, Lindberg LD, Ellen JM, Marcell AV. Receipt of sexual health information from parents, teachers, and healthcare providers by sexually experienced U.S. Adolescents. *J Adolesc Health* 2013;53:235–40.
- [20] Mitchell SG, Gryczynski J, O'Grady KE, Schwartz RP. SBIRT for adolescent drug and alcohol use: Current status and future directions. *J Substance Abuse Treat* 2013;44:463–72.
- [21] Webb MJ, Kauer SD, Ozer EM, et al. Does screening for and intervening with multiple health compromising behaviours and mental health disorders amongst young people attending primary care improve health outcomes? A systematic review. *BMC Fam Pract* 2016;17:12.
- [22] Williams JF, Ammerman SD, Levy SJL, et al. POLICY statement substance use screening, brief intervention, and referral to treatment for pediatricians. *Pediatrics* 2011;128:E1330–40.
- [23] Krebs NF, Baker RD, Greer FR, et al. Prevention of pediatric overweight and obesity. *Pediatrics* 2003;112:424–30.
- [24] Taylor SA, Borzutzky C, Jasik CB, et al. Preventing and treating adolescent obesity: A position paper of the Society for adolescent health and medicine the Society for Adolescent Health and Medicine. *J Adolesc Health* 2016;59:602–6.
- [25] Reitman DS, Austin B, Belkind U, et al. Recommendations for promoting the health and well-being of lesbian, gay, bisexual, and transgender adolescents: A position paper of the Society for adolescent health and medicine. *J Adolesc Health* 2013;52:506–10.
- [26] Conway KP, Vullo GC, Nichter B, et al. Prevalence and patterns of poly-substance use in a nationally representative sample of 10th graders in the United States. *J Adolesc Health* 2013;52:716–23.
- [27] Saewyc EM. Research on adolescent sexual Orientation: Development, health disparities, stigma, and resilience. *J Res Adolescence* 2011;21:256–72.
- [28] Saewyc EM, Bauer GR, Skay CL, et al. Measuring sexual orientation in adolescent health surveys: Evaluation of eight school-based surveys. *J Adolesc Health* 2004;35:345.e31–345.e315.
- [29] Friedman MS, Silvestre AJ, Gold MA, et al. Adolescents define sexual orientation and suggest ways to measure it. *J Adolescence* 2004;27:303–17.
- [30] Currie C, Molcho M, Boyce W, et al. Researching health inequalities in adolescents: The development of the Health Behaviour in School-Aged Children (HBSC) Family Affluence Scale. *Social Sci Med* 2008;66:1429–36.
- [31] McNutt LA, Wu CT, Xue XN, Hafner JP. Estimating the relative risk in cohort studies and clinical trials of common outcomes. *Am J Epidemiol* 2003;157:940–3.
- [32] Zou GY. A modified Poisson regression approach to prospective studies with binary data. *Am J Epidemiol* 2004;159:702–6.
- [33] Buchmueller TC, Carpenter CS. The effect of requiring private employers to extend health benefit eligibility to same-sex partners of Employees: Evidence from California. *J Policy Anal Manage* 2012;31:388–403.
- [34] Savin-Williams RC, Diamond LM. Sexual identity trajectories among sexual-minority youths: Gender comparisons. *Arch Sex Behav* 2000;29:607–27.
- [35] Kelts EAS, Allan MJ, Klein JD. Where are we on teen sex?: Delivery of reproductive health services to adolescents by family physicians. *Fam Med* 2001;33:376–81.
- [36] Meckler GD, Elliott MN, Kanouse DE, et al. Nondisclosure of sexual orientation to a physician among a sample of gay, lesbian, and bisexual youth. *Arch Pediatr Adolesc Med* 2006;160:1248–54.
- [37] Allen LB, Glick AD, Beach RK, Naylor KE. Adolescent health care experience of gay, lesbian, and bisexual young adults. *J Adolesc Health* 1998;23:212–20.
- [38] Laska MN, VanKim NA, Erickson DJ, et al. Disparities in weight and weight behaviors by sexual orientation in college students. *Am J Public Health* 2015;105:111–21.
- [39] Franks P, Bertakis KD. Physician gender, patient gender, and primary care. *J Womens Health Gender-Based Med* 2003;12:73–80.
- [40] Garrison GM, Gentile N, Lai B, et al. Differential experience with Men's and Women's health care visits between male and female family medicine Residents. *Fam Med* 2016;48:546–50.