Discouraging trends in reproductive health service use among adolescent and young adult women in the USA, 2002–2008

Kelli Stidham Hall^{1,*}, Caroline Moreau², and James Trussell³

¹Office of Population Research, Center for Health and Wellbeing, Princeton University, 228 Wallace Hall, Princeton, NJ 08544, USA

²CESP—Gender and Reproductive Health, Inserm, Office of Population Research, 228 Wallace Hall, Princeton University, Princeton, NJ 08544, USA ³Office of Population Research, Princeton University, The Hull York Medical School, 202 Wallace Hall, Princeton University, Princeton, NJ 08544, USA

*Correspondence address: Tel: +1-609-258-8087; Fax: +1-609-258-1039; E-mail: kshall@princeton.edu

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BACKGROUND: To investigate reproductive health service use by young women in the USA between 2002 and 2008.

METHODS: Using data from two waves of The National Survey of Family Growth, we investigated reproductive health service utilization among women aged 15–24 years (2002 $n = 2157$; 2006–2008 $n = 2264$). Descriptive and univariate statistics and multivariate regression models were employed to describe types of reproductive health services used and compare service use across years. Analyses focused on questions regarding specific recent use of reproductive health services (within the previous 12 months).

RESULTS: Over half the pooled sample ($n = 4421$) reported lifetime family planning clinic (58%) and recent reproductive health service (59%) use, including contraceptive (48%), gynecological exam (47%) and counseling (37%) services. Lifetime family planning service use declined by 15% from 2002 to 2008 ($P < 0.001$) and recent reproductive health service use by 8% ($P = 0.01$), including gynecological exam (8%, $P = 0.03$) and contraceptive (6%, $P = 0.02$) services. By 2006–2008, women were less likely to use reproductive health and contraceptive services than in 2002 [odds ratio (OR) 0.6, confidence interval (CI) 0.5, 0.8, $P < 0.001$ and OR 0.7, CI 0.6, 0.9, $P = 0.005$, respectively]. Trends were similar but smaller in magnitude among the sexually experienced women, with a 5% decline in both reproductive health (OR 0.7, CI 0.6, 1.0, $P = 0.02$) and contraceptive (OR 0.8, CI 0.6, 1.0, $P = 0.03$) service use.

CONCLUSIONS: Reproductive health service use among young women in the USA has declined over the past decade. Public health and policy strategies are needed to promote service use, ultimately to improve reproductive health outcomes.

Key words: reproductive health / family planning services / young women's health service utilization

Introduction

Adolescent and young adult women in the USA continue to have the highest rates of negative reproductive health and family planning sequelae, including unintended pregnancy, abortion and sexually transmitted infections (STIs), in the developed world (Darroch *et al.*, 2001). Poor reproductive health outcomes may be attributed, in part, to poor use of sexual and reproductive healthcare services by young women (Alan Guttmacher Institute, 2006; Suellentrop, 2008; Frost *et al.*, 2010; Jones and Kooistra, 2011).

Family planning and reproductive health service use in the USA increased by 9% from 1995 to 2002, including rising use of services for contraceptive provision and counseling and STI testing, especially among the youngest women (Mosher *et al.*,

2004; Potter *et al.*, 2009). During that time, contraceptive and condom use as well as STI screening and treatment rates increased, and teen pregnancy and induced abortion rates declined (Mosher *et al.*, 2004).

Following 2002, different trends were noted for reproductive health outcomes among young US women (CDC, 2007; Abma *et al.*, 2010; Kost *et al.*, 2010; Jones and Kooistra, 2011). In 2006, the USA teen pregnancy rate increased for the first time in more than a decade (Kost *et al.*, 2010). Contraceptive use rates were unchanged between 2002 and 2008 (Abma *et al.*, 2010). Rates of abortion were flat from 2005 to 2008 (Jones and Kooistra, 2011). The incidence of STIs, including chlamydia and syphilis, increased between 2006 and 2007, and continued to disproportionately affect adolescent and young women (CDC, 2007).

Reasons for these changes in reproductive and family planning outcomes since 2002 are likely complex and multifactorial, and may reflect factors such as declining numbers of young women who have ever had sex (CDC, 2010), increased adoption of long-acting reversible contraceptive methods (Mosher and Jones, 2010), increased provision of a greater contraceptive supply by health providers (Foster et al., 2011) or increasing rates of STI screening (CDC, 2007). However, changing reproductive outcomes may also be at least partially related to changes in the use of reproductive healthcare services among young women in recent years (Alan Guttmacher Institute, 2006; Suellentrop, 2008; Frost et al., 2010; Jones and Kooistra, 2011).

We sought to investigate reproductive health service use among adolescent and young adult women in the USA between 2002 and 2008 and to examine trends in service use over time.

Materials and Methods

We pooled data from two cycles of The National Survey of Family Growth (NSFG), a nationally representative survey conducted by the National Center for Health Statistics. The population-based survey collects information on family life, marriage and divorce, pregnancy, infertility, use of contraception, and men and women's health. Data were collected via two NSFG cycles of household, in-person, anonymous interviews with women and men aged 15–44 years residing in the USA: cross-sectionally in 2002 ($n = 12\,571$) and then ongoing collection from 2006 to 2008 ($n = 13\,495$). African American and Hispanic women and men were over-sampled; the response rate was 79%. Further information about the design and sampling of the NSFG can be found at <http://cdc.gov/nchs/nsfg.htm> (Lepkowski et al., 2006, 2010).

This analysis was restricted to the adolescents (age 15–19 years, $n = 2531$) and young adult (age 20–24 years, $n = 2652$) women. We excluded women who were pregnant or who had received prenatal or post-partum care in the previous year, given that those women were likely to have used services at higher rates than the general population. Our final sample included 4421 women in total; 2157 from 2002, and 2264 from 2006 to 2008. The Institutional Review Board of Princeton University approved this study.

Our analysis focused on a series of questions in the NSFG about health services utilization. Women were asked about receipt of reproductive health and family planning services from a medical provider. A single question assessed lifetime clinic service use (ever having received services at a family planning or other clinic). A series of questions assessed recent service use. Women were asked generally whether they had visited a medical provider for any reproductive health care within the 12 months preceding the survey and how many visits were made. Women were also asked the reason for services, which could include contraceptive services [contraceptive method provision, check-up, counseling, emergency contraceptive (EC) provision and counseling] and other gynecological services (pap smear, pelvic exam, STI testing/treatment, pregnancy testing and abortion). We considered women to have used any recent reproductive health services if they responded that they had made one or more visits to a provider within the last year. One-hundred and forty-five women did not respond to the general recent service use question but responded 'yes' to one or more specific type of services received. We considered these women to have received recent services. Also, one-hundred and thirty-seven women reported recent reproductive health service use but denied ever having received lifetime clinic services. These women were considered to have received services from locations other than a clinic.

We examined several key demographic, socioeconomic and reproductive history variables as potential confounders based upon previous related work (Potter et al., 2009). Variables of interest included race/ethnicity (Hispanic, non-Hispanic White, non-Hispanic Black, other), education (less than high school diploma, high school diploma, at least some college education, still in school), income category (<\$25 000; \$25–49 999; \$50–74 999; >\$74 999), poverty level (above or below 200% poverty level), employment situation (employed, unemployed, still in school or at home/other), insurance status (uninsured or had any gaps in insurance coverage within last year versus full coverage), birthplace (born in USA or another country), place of residence (urban, suburban or rural), religious service participation ($\geq$ weekly, less than weekly or never), mother and father's education level (<high school, high school diploma or General Education Development or at least some college), childhood family situation (intact versus not intact), age of mother at first birth, age at menarche, sexual intercourse experience (had vaginal sex versus never had sex), age at first vaginal coitus, number of male sex partners within last 12 months (0, 1, 2 or more), cohabitation and/or marital experience (yes or no), pregnancy (ever pregnant versus never pregnant), parity (0, 1 or 2 or more births) and previous diagnosis of gynecological problems (yes or no) (which may have included ovulation problems, ovarian cysts, uterine fibroids, endometriosis and pelvic inflammatory disease).

For data analysis, we first used descriptive statistics to estimate lifetime and recent reproductive health service use, by type of service. We conducted bivariate tests to compare services used by the study period, 2002 versus 2006–2008, focusing on two outcomes: (i) having received any reproductive health service visit in the previous year, and (ii) having received only contraceptive services (method provision, check-up and counseling), including EC. We also stratified results by sexual activity status (ever had sex and never had sex) and age (adolescents and young adults). Finally, we performed multivariate logistic regression modeling to estimate the likelihood of using reproductive health and contraceptive services in 2006–2008 when compared with 2002, while adjusting for age, sexual activity status and other potential sociodemographic and reproductive history confounders. Variables were considered for inclusion in regression models if their P -value in univariate models was 0.25 or less. In final reduced multivariate regression models, we retained only those covariates that were significantly associated with the outcome ($P < 0.05$) or that significantly changed point estimates of other key variables (i.e. survey year).

In all analyses, weighted data were used to account for the complex, stratified sampling design of the survey; SDs and tests of significance were computed using the `svy` series of commands in Stata 11.0 (Stata Corporation, College Station, TX, USA).

Results

Demographic, social and reproductive history characteristics of the pooled sample (2002 and 2006–2008 combined) are reported in Table 1, and were similar across survey years. The mean age of the sample was 19 years, with 53% adolescent and 47% young adult women. Over half the sample identified as White race/ethnicity (56%), while 18% identified as Black, 20% as Hispanic and 6% as other. Forty-two percent reported education level as still in secondary school, while 35% reported having had at least some college. Fifty-two percent of the sample was below 200% of the federal poverty line; 25% reported being uninsured at some point during the previous year. For sexual activity status, 63% reported ever having had vaginal intercourse.

Table 1 Demographic, social and reproductive characteristics of adolescent and young adult women in the USA, 2002 and 2006–2008.

Demographic and social characteristics	2002 and 2006–2008 (n = 4421)	2002 (n = 2157, 49%)	2006–2008 (n = 2264, 51%)	2002 versus 2006– 2008 P-value
Age, mean (SD)	19.4 (2.9)	19.5 (2.8)	19.2 (2.9)	0.70
Adolescents (15–19 years)	2326 (53)	1065 (49)	1261 (56)	
Younger adolescents (15–17 years)	1416 (32)	655 (30)	761 (34)	
Older adolescents (18–19 years)	910 (21)	410 (19)	500 (22)	
Young adults (aged 20–24 years)	2095 (47)	1092 (51)	1003 (44)	
Race/ethnicity				0.95
Non-Hispanic White	2476 (56)	1229 (57)	1247 (55)	
Non-Hispanic Black	785 (18)	388 (18)	397 (17)	
Hispanic	896 (20)	415 (19)	481 (21)	
Other	264 (6)	125 (6)	139 (6)	
Highest level education				0.94
<High school (HS)	389 (9)	187 (9)	202 (9)	
HS diploma	609 (14)	309 (14)	300 (13)	
Any college	1561 (35)	793 (37)	768 (34)	
Still in HS	1862 (42)	868 (40)	994 (44)	
Born outside the USA	479 (11)	251 (12)	228 (10)	0.31
Residence				0.22
Urban	1910 (43)	973 (45)	937 (41)	
Suburban	1693 (39)	793 (37)	900 (40)	
Rural	818 (19)	391 (18)	427 (19)	
Income				0.59
<\$25 000	1547 (35)	800 (37)	747 (33)	
\$25–49 999	972 (22)	479 (22)	493 (21)	
\$50–74 999	562 (13)	285 (13)	277 (12)	
>\$74 999	562 (13)	274 (13)	288 (13)	
Poverty level < 200% of federal line	2285 (52)	1050 (49)	1235 (55)	0.06
Uninsured any time during last 12 months	1089 (25)	535 (25)	554 (25)	0.97
Ever cohabitated with partner	1248 (28)	667 (30)	581 (26)	0.37
Ever married	427 (10)	255 (12)	172 (8)	0.24
Attends religious services now ≥ weekly	1365 (31)	697 (32)	668 (30)	0.87
Intact childhood family	2475 (56)	1282 (59)	1193 (53)	0.30
Age of mother first birth < 20 years	1306 (30)	649 (30)	657 (29)	0.37
Mother's education level				0.32
<HS	775 (18)	370 (17)	405 (18)	
HS diploma	1350 (31)	685 (32)	665 (29)	
>HS	1273 (51)	1093 (51)	1180 (52)	
Father's education level				0.45
<HS	635 (14)	344 (16)	291 (13)	
HS diploma	1282 (29)	592 (28)	690 (31)	
>HS	2071 (47)	1033 (48)	1038 (46)	
Reproductive characteristics				
Age at menarche, mean (SD)	12.4 (1.5)	12.4 (1.5)	12.4 (1.5)	
<11 years	405 (9)	201 (9)	204 (9)	0.42
11 years	719 (16)	330 (15)	389 (17)	
12 years	1248 (28)	642 (30)	606 (27)	
13 years	1116 (25)	536 (25)	580 (26)	
14 years	576 (13)	271 (13)	305 (14)	
>14 years	347 (8)	177 (8)	180 (8)	

Continued

Table I Continued

Demographic and social characteristics	2002 and 2006–2008 (n = 4421)	2002 (n = 2157, 49%)	2006–2008 (n = 2264, 51%)	2002 versus 2006– 2008 P-value
Ever had sexual intercourse (yes)	2782 (63)	1410 (65)	1372 (61)	0.18
(no)	1639 (37)	747 (35)	892 (39)	
Age at first vaginal intercourse, mean (SD)	16.4 (2.2)	16.3 (2.2)	16.4 (2.1)	
< 15 years	517 (12)	268 (12)	249 (11)	0.52
15 years	481 (11)	261 (12)	220 (10)	
16 years	574 (13)	288 (13)	286 (13)	
17 years	451 (10)	212 (10)	239 (11)	
18–19 years	518 (12)	258 (12)	260 (12)	
> 19 years	233 (5)	119 (6)	114 (5)	
Number of partners last 12 months, mean (SD)	1.4 (1.2)	1.6 (1.5)	1.5 (1.3)	
0	1836 (42)	838 (39)	1006 (45)	0.66
1	1840 (42)	962 (45)	878 (39)	
2 or more	737 (17)	357 (17)	380 (17)	
Number of partners lifetime, mean (SD)	2.8 (4.8)	2.8 (4.7)	2.8 (5.0)	
0	1651 (37)	762 (35)	898 (40)	0.50
1	840 (19)	431 (20)	409 (18)	
2–3	790 (18)	410 (19)	380 (17)	
4–5	476 (11)	234 (11)	242 (11)	
6–10	423 (10)	215 (10)	208 (9)	
> 10	232 (5)	105 (5)	127 (6)	
Ever pregnant	893 (20)	485 (23)	408 (18)	0.09
Pregnancies, mean (SD)	0.3 (0.8)	0.4 (0.9)	0.3 (0.8)	
None	3524 (80)	1673 (78)	1854 (82)	0.15
1	505 (11)	262 (12)	243 (11)	
> 1	388 (9)	222 (10)	165 (7)	
Parity, mean (SD)	0.2 (0.6)	0.3 (0.7)	0.2 (0.5)	
0	3768 (85)	1799 (83)	1969 (87)	0.17
1	451 (10)	237 (11)	214 (10)	
> 1	201 (5)	121 (6)	81 (4)	
Diagnosed with gynecological problems	586 (13)	310 (14)	276 (12)	0.24
Ovulation/menstrual problems	480 (11)	249 (12)	231 (10)	0.45
Endometriosis/uterine fibroids	72 (2)	37 (2)	34 (2)	0.80
Ovarian cysts	295 (7)	134 (6)	161 (7)	0.14
Pelvic inflammatory disease	97 (2)	55 (3)	42 (2)	0.30

Results are presented as frequency with percentage, unless stated otherwise. Comparisons by year with χ^2 test. Percentages may not add to 100% because of skip patterns in survey items administered or missing responses.

Reproductive health service use is described in Tables II and III. Among the pooled sample, 58% of women reported ever receiving any family planning services at a clinic. For recent service use, 59% of the total sample reported they visited a medical provider for reproductive health care one or more times during the past 12 months. Nearly half of the sample (48%) reported having used contraceptive services, including provision of contraceptive method (41%) or EC (3%), contraceptive and EC counseling (23 and 7%, respectively) and contraceptive check-ups (27%). Over one-third of women reported having received any counseling by a health provider during a non-counseling service visit (37%). Other services less commonly

used included STI testing and/or treatment (17%), pregnancy testing (16%) and abortion (1%) services.

All types of service use were more common among women who had experienced sexual intercourse when compared with virgin women ($P < 0.001$) (Table III). Among the 63% of non-virgin women, 79% reported recent reproductive health and 65% contraceptive service use. Eighty percent of non-virgin women reported ever having used family planning clinic services.

Service use also varied by age (results not shown). Adolescents reported less use of all types of recent reproductive health (33% less) and contraceptive services (25% less) than young adults

Table II Reproductive health and contraceptive service use by adolescent and young adult women in the USA, 2002 and 2006–2008.

Reproductive health services	2002 and 2006–2008 (n = 4421)	2002 (n = 2157)	2006–2008 (n = 2264)	2002 versus 2006– 2008 P-value
Ever used family planning <i>clinic</i> services	2574 (58)	1414 (66)	1160 (51)	<0.001
Any reproductive health service visit last 12 months	2587 (59)	1349 (63)	1238 (55)	0.01
Any contraceptive services last 12 months	2107 (48)	1093 (51)	1014 (45)	0.02
Provision of contraceptive method	1793 (41)	921 (43)	872 (39)	0.14
Provision of EC ^a	150 (3)	57 (3)	93 (4)	0.15
Service for contraceptive counseling	1018 (23)	542 (25)	476 (21)	<0.001
Service for EC counseling	287 (7)	147 (7)	140 (6)	0.04
Check-up for contraceptives	1198 (27)	652 (29)	573 (25)	0.09
Gynecological exam last 12 months	2079 (47)	1097 (51)	982 (43)	0.03
Pap smear	1979 (45)	1055 (49)	924 (41)	0.02
Pelvic exam	1611 (36)	862 (40)	749 (33)	0.008
Any reproductive health counseling by provider at time of non-counseling visit last 12 months	1616 (37)	815 (38)	801 (35)	0.17
Contraceptive counseling	1504 (34)	768 (36)	736 (33)	0.17
EC counseling	303 (7)	134 (6)	169 (8)	0.72
STI/condom use	511 (12)	230 (11)	281 (12)	0.51
Any other family planning services last 12 months	714 (16)	361 (17)	353 (16)	0.77
Pregnancy testing ^b	709 (16)	357 (17)	352 (16)	0.83
Abortion ^b	65 (1)	34 (2)	31 (1)	0.34
Any STI testing/treatment last 12 months	754 (17)	343 (16)	411 (18)	0.89

Results are presented as frequency with percentage. Comparisons by year with χ^2 test. STI, sexually transmitted infections; EC, emergency contraception.

^aNot applicable if responded no to 'ever taken EC before'.

^bNot applicable if responded no to 'ever had sex' (n = 1639).

($P < 0.001$). For lifetime clinic service use, 41% of adolescents (n = 524 in 2002, 439 in 2006) reported use when compared with 77% of young adults (n = 890 in 2002, 721 in 2006) ($P < 0.001$).

We examined changes in types of reproductive health and contraceptive services used from 2002 to 2006–2008 (Table II). The proportion of all young women reporting lifetime service use declined 15% between 2002 and 2006–2008 ($P < 0.001$). Recent reproductive service use also decreased over time, 8% overall ($P = 0.01$) and 6% for contraceptive services ($P = 0.02$), including birth control and EC counseling (4%, $P \leq 0.001$ and 1%, $P = 0.04$, respectively). Gynecological exam service use decreased by 8% ($P = 0.03$). Service use that remained stable over time included visits for STI testing and/or treatment ($P = 0.89$), pregnancy testing ($P = 0.83$), abortion ($P = 0.34$) and receipt of provider counseling at the time of a non-counseling visit ($P = 0.17$).

Changes in types of services used from 2002 to 2006–2008 were consistent when stratified by sexual intercourse experience (Table III). Among the sexually experienced young women, lifetime service use declined by 10% ($P < 0.001$) from 2002 to 2006–2008 and recent service use declined by 5% ($P = 0.04$), including a decrease in any contraceptive services (5%, $P = 0.04$), contraceptive counseling (3%, $P = 0.007$) and pelvic exam services (5%, $P = 0.03$).

In multivariate regression models, controlling for key demographic, social and reproductive history variables noted in Table I, by 2006–2008, women were 40% less likely to use any recent reproductive

health services than in 2002 [odds ratio (OR) 0.6, 95% confidence interval (CI) 0.5, 0.8, $P < 0.001$]. The odds of contraceptive service use were 30% less (OR 0.7, CI 0.6, 0.9 $P = 0.005$). Similar to reduced odds, though smaller in magnitude, were found among sexually experienced women for reproductive health (OR 0.7, CI 0.6, 1.0, $P = 0.02$) and contraceptive (OR 0.8, CI 0.6, 1.0, $P = 0.03$) service use in 2006–2008 versus 2002.

Discussion

While over half of adolescent and young adult women in the USA had one or more healthcare visits for reproductive and family planning needs in recent years, our findings show a significant decline in service use from 2002 to 2008. These negative trends are in contrast to our previous findings and reports of others in which reproductive health service use by young US women increased between 1995 and 2002 (Mosher *et al.*, 2004; Chandra *et al.*, 2005; Frost, 2008; Potter *et al.*, 2009).

When we examined reproductive health service use by type of service, downward trends found in gynecological exams were at least partially anticipated among this age group (ACOG, 2011). Recent changes in guidelines for pap smears in the USA recommended screening every 2 years, rather than annually, for young women beginning at age 21 years (ACOG, 2011).

Table III Reproductive health service use by US adolescent and young adult women who have had sexual intercourse, 2002 and 2006–2008.

Reproductive health services	2002 and 2006–2008 (n = 4421) Had sex (n = 2782), 63%	2002 (n = 2157) Had sex (n = 1410), 65%	2006–2008 (n = 2264) Had sex (n = 1372), 61%	2002 versus 2006–2008 P = 0.18
Ever used family planning <i>clinic</i> services	2220 (80)	1192 (85)	1028 (75)	<0.001
Any reproductive health service visit last 12 months	2205 (79)	1150 (82)	1055 (77)	0.04
Contraceptive services last 12 months	1818 (65)	951 (68)	867 (63)	0.04
Provision of contraceptive method	1611 (58)	841 (60)	770 (56)	0.23
Provision of EC ^a	150 (5)	57 (4)	93 (7)	0.15
Service for contraceptive counseling	853 (31)	455 (32)	398 (29)	0.007
Service for EC counseling	256 (9)	130 (9)	126 (10)	0.07
Check-up for contraceptives	1085 (39)	568 (40)	517 (38)	0.20
Gynecological exam last 12 months	1870 (67)	975 (69)	895 (65)	0.27
Pap smear	1803 (65)	950 (67)	853 (62)	0.10
Pelvic exam	1460 (53)	773 (55)	687 (50)	0.03
Reproductive health counseling by provider at time of non-counseling visit	1475 (53)	738 (52)	737 (54)	0.70
Contraceptive counseling	1369 (49)	695 (49)	674 (49)	0.60
EC counseling	280 (10)	126 (9)	154 (11)	0.50
STI/condom use counseling	498 (18)	223 (16)	275 (20)	0.98
Other reproductive services received last 12 months	714 (26)	361 (26)	353 (26)	0.77
Pregnancy testing	709 (26)	357 (25)	352 (26)	0.83
Abortion	65 (2)	34 (2)	31 (2)	0.34
Any STI testing/treatment	722 (26)	325 (23)	397 (29)	0.40

Results are presented as frequency with percentage. Comparisons by year with χ^2 test.

^aNot applicable if responded no to 'ever taken EC before'.

We also found negative changes in contraceptive service use overall and to a lesser but significant extent among the sexually experienced women. Less contraceptive service use may be related to declining numbers of young women who have ever had sex (CDC, 2010) or sexual history factors, although we did control for sexual variables in our analyses. Alternatively, declining use of contraceptive services may reflect national and statewide changes to public sector clinics in recent years (Alan Guttmacher Institute, 2009a,b). Increased service visits for contraceptive methods and counseling among adolescent women that occurred between 1995 and 2002 were hypothesized to result from increases in Medicaid and Title X support for family planning services (Mosher et al., 2004). During our study period, although there was an overall increase in number of clinics serving women from 2001 to 2006, the increase was related entirely to greater numbers of independent clinics and community health centers; the number of Planned Parenthood, hospital and health department clinics all declined (Alan Guttmacher Institute, 2009a,b).

Political challenges to confidential reproductive health care for young women in the USA over the past decade may have also influenced contraceptive and reproductive service use (Jones and Boonstra, 2004; Dailard, 2005; Dailard, 2006; Boonstra, 2009). Legislation for mandatory parental involvement with adolescents' sexual and reproductive health care, especially for abortion but to varying

extents for all reproductive health services including contraception, has been introduced for most minors in most states (Jones and Boonstra, 2004; Dailard, 2006; Boonstra, 2009). Moreover, programs focused on abstinence comprised the majority of government sanctioned approaches to sex education during this time (Boonstra, 2009). Policies and programs such as these may be restrictive and create barriers for young women seeking reproductive health and contraceptive services (Jones and Boonstra, 2004; Boonstra, 2009). Additional research is needed to more specifically examine the influence of potentially conservative and restrictive programs and policies on reproductive health service use among young women.

We intend to analyze the forthcoming 2008–2010 NSFG data to investigate whether downward trends in service use have worsened during the early economic recession years, as recent financial threats to sources of care may have a substantial negative effect on reproductive health service use (Alan Guttmacher Institute, 2009a,b; ACOG, 2011). Analysis beyond 2010 data will provide understanding of the full impact of the financial crisis. Future research critical to the debate should also evaluate the influence of state budget cuts to family planning services and legislative attempts to eliminate Title X and remove funding from Planned Parenthood clinics (Alan Guttmacher Institute, 2011). On the other hand, recent healthcare reforms in the USA, which promise to emphasize prevention and increase

insurance coverage and access for young women (Sonfield and Gold, 2011), will also need to be examined for their contributions to reproductive health service use.

Additionally, future studies should explicitly investigate the influence of current reproductive health service use on reproductive health outcomes in young women. Declining service use over our study years appears to correspond with patterns in outcomes between 2002 and 2008, including unchanged contraceptive and condom use and abortion rates, and increasing pregnancy and STI rates (CDC, 2007; Abma et al., 2010; Kost et al., 2010; Jones and Kooistra, 2011). However, these are only observed trends in the data. We controlled, to some extent, for factors such as sexual experience and reproductive history, which may represent a few potential correlates of decreasing service use (CDC, 2007; CDC, 2010; Mosher and Jones, 2010; Foster et al., 2011). Research is needed to more rigorously account for other possible determinants, such as pregnancy intentions or contraceptive method preference, and to more directly examine associations between reproductive health service use and outcomes.

Finally, we are currently investigating potential inequalities in declining reproductive service use from 2002 to 2006–2008, since women from different demographic and socioeconomic groups may have disparate use of reproductive health services and been differentially impacted by health service delivery, policy and program changes.

Overall, our findings highlight worsening reproductive health and contraceptive service use among young women in the USA. Public health and policy strategies to promote service use are currently needed, ultimately to help facilitate improved sexual and reproductive health outcomes for all young women, their families and society.

Authors' roles

All authors participated in conception and design of the study. K.S.H. and C.M. performed primary data management, coding and analyses. K.S.H. prepared the original draft of the article, with C.M. and J.T. providing critical revisions. C.M. and J.T. provided statistical expertise and supervision.

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