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The Status of Reproductive and Sexual Health in Southern USA: Policy Recommendations for Improving Health Outcomes

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Abstract A review of public health data for the 50 states shows that southern states including Alabama, Arkansas, Louisiana, Oklahoma, and Texas consistently have the highest teen pregnancy, teen birth, and sexually transmitted disease (STD) rates in the USA. Furthermore, these states also lack mandates regarding sexuality education; and when sexuality education is provided, abstinence must be stressed while medically accurate information is not a specific requirement. This article synthesizes findings from recent health data collected by the Centers for Disease Control and Prevention (CDC), Guttmacher Institute, the National Campaign to Prevent Teen and Unplanned Pregnancy, and the National Assembly on School-Based Health Care with research and professional recommendations from the scientific literature. Based on the summary of these findings, the goal of this article is to provide recommendations aimed at addressing sexual health in these states, as well as other states with abstinence-only policies, to help improve the health of young people through preventing unintended pregnancy and STD transmission.

Keywords Reproductive health · Sexual health · Teens · Southern USA · Sex education · Policy

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Introduction

Unintended pregnancy and sexually transmitted diseases (STD) among teens are associated with long-term health and social consequences for teens, their families, and communities (Centers for Disease Control and Prevention [CDC] 2012a; Hamilton et al. 2010; Weinstock et al. 2004). According to the Centers for Disease Control and Prevention (CDC), teen pregnancy rates have been declining over the last 20 years and are at record lows (Curtin et al. 2013; Ventura et al. 2014). Although rates have declined since 1991 (with brief increases in 2005 and 2007), geographic and demographic disparities persist, perpetuating negative health outcomes for certain groups of teens. For example, southern states have the highest teen pregnancy and birth rates in the country (Martin et al. 2015; Ventura et al., 2014) and teen pregnancy rates among Black[1] and Hispanic[1] teens are still twice as high as rates for white teens (Hamilton et al. 2012). With the exception of West Virginia, nine of the ten states with the highest teen pregnancy and childbirth rates are located in the southern region of the USA as defined by the US Department of Health and Human Services ("Regional Offices | HHS.gov," n.d.). Such disparity in regard to teenage pregnancy and childbirth is particularly problematic given that teen mothers are less likely to graduate from high school, attend college, and are more likely to live in poverty (Hoffman 2008; Perper et al. 2010; National Campaign to Prevent Teen and Unplanned Pregnancy 2011) perpetuating cycles of poverty in certain states and within certain racial/ethnic groups.

Additionally, rates of STD remain particularly high in certain geographic locations and are disparate among

[1] Authors have utilized terminology to describe race/ethnicity according to the language utilized by the Centers for Disease Control and Prevention.

racial/ethnical groups. For example, nearly half (48 %) of young Black women were infected with an STD, compared with approximately one fifth (20 %) of young white women (Centers for Disease Control and Prevention [CDC] 2009). Again, high rates of STD are of concern given that long-term infection can result in pelvic inflammatory disease (PID) in women and epididymitis in men, both of which result in infertility (Centers for Disease Control and Prevention [CDC] 2012b). Without adequate knowledge about and access to STD testing, many teens may not seek out testing as many STD lack visible or physical symptoms (Centers for Disease Control and Prevention [CDC] 2012b).

The sexual and reproductive health risks associated with teen pregnancy/birth and STD may result in both short- and long-term negative social and health-related outcomes. The purpose of this article is to compile and synthesize data describing the current state of sexual and reproductive health among five states in the southern region of the USA (Alabama, Arkansas, Louisiana, Oklahoma, Texas) into a single source. The five states we examined were chosen through a strategic multi-step process. First, we identified states from the two southern regions as identified by the US Department of Health and Human Services (US Department of Health and Human Services 2014) resulting in a list of 13 states. Next, we identified states with a conservative political climate to include in our sample (New York Times 2012). Many factors could be utilized to categorize politically conservative states. We based our selection on results from the most recent (2012) national election because research suggests that people are most politically active during nation elections ("Voter turnout data for United States (Parliamentary, Presidential) | Voter Turnout | International IDEA," 2014). This resulted in a list of 10 states. Finally, because this paper focuses on the need for sexuality education, we selected states lacking a mandate for sexuality education. Thus, the remaining states included in our sample are Alabama, Arkansas, Louisiana, Oklahoma, and Texas.

Methods

The data discussed in the current article were drawn from a number of sources. We reviewed data from the following CDC sources: (1) 2013 Youth Risk Behavior Surveillance Survey, (2) 2012 School Health Profiles, (3) 2013 State Health Profiles for Alabama, Arkansas, Louisiana, Oklahoma, and Texas, and (4) 2010 National Center for Health Statistics. We also reviewed data from the Guttmacher Institute's 2014 State Policies on Sex and HIV education, the National Campaign to Prevent Teen and Unplanned Pregnancy's 2012 state-specific rates of teen pregnancy, and the National Assembly on School-Based Health Care's (NASBHC) 2009 census report. Based on our review of these data, we have summarized findings related to the current state of pregnancy and birth, STD, sexuality education, and sexual risk behavior among teens residing in Alabama, Arkansas, Louisiana, Oklahoma, and Texas. Drawing on the findings from this broad review and current peer-reviewed scientific literature, we have made specific policy recommendations in order to improve the current status of sexual and reproductive health in these five states.

Results and Discussion

Teen Pregnancy and Birth

According to the CDC, teen pregnancy rates remain remarkably high in the USA with state-specific rates varying widely (Ventura et al. 2014). An overwhelming majority of teen pregnancies are also unintended. For example, 98 % of pregnancies occurring among women under the age of 15 are unintended, 79 % of pregnancies occurring among women between the ages of 15 and 17 are unintended, and 83 % of the pregnancies occurring among women between the ages of 18 and 19 are unintended (Finer & Zolna 2011). Although not all pregnancies occurring among teenage women are unintended, there is the potential for increased health risks and financial expenditures. Not surprisingly, the five states included in our sample were among the states with the highest teen pregnancy rates in the USA. Specifically, Oklahoma has the highest teen birth rate (47.3 per 1000) followed by Arkansas (45.7 per 1000), Louisiana (43.1 per 1000), Texas (44.4 per 1000), and Alabama (39.2 per 1000) (Ventura et al., 2014). Similar to the rest of the country (Martin et al., 2013; Hamilton et al. 2010; Ventura et al. 2001), rates of teen pregnancy have declined in Alabama, Arkansas, Louisiana, Oklahoma, and Texas, but at a slower pace (Kost & Henshaw 2013).

In addition to geographic disparities, there are wide racial/ethnic disparities in regard to both teen pregnancies and births. According to Table 1, teen birth rates in Alabama, Arkansas, Louisiana, Oklahoma, and Texas are substantially higher among non-Hispanic black and Hispanic teens compared to non-Hispanic White and Asian/Pacific Islander teens. American Indian/Alaskan natives typically have lower rates of teen birth compared to white teens, with the exception of Oklahoma. Among teens in Oklahoma, the birth rate for American Indian/Alaskan natives is 55.4 compared to 41.0 and 47.3 across all races demonstrating the racial disparity (Ventura et al., 2014). Note that these differences may not be statistically significant as the data presented here do not allow for such comparisons.

Teen pregnancy and child birth are linked to negative health outcomes. For example, compared to infants born to women in their twenties or older, infants born to teen mothers are at higher risk of being low birth weight and

Table 1 Birth rate for teens aged, 15–19 per 1000 by state and race/ethnicity

State	All races	Non-Hispanic White	Non-Hispanic Black	American Indian/Alaska Native	Asian/Pacific Islander	Hispanic
US	29.4	20.5	43.9	34.9	9.7	46.3
Alabama	39.2	33.1	48.9	27.7	10.0	58.7
Arkansas	45.7	40.0	63.4	35.5	22.8	53.4
Louisiana	43.1	33.2	56.7	24.6	17.3	51.7
Oklahoma	47.3	41.0	56.0	55.4	19.8	67.4
Texas	44.4	26.3	44.1	11.6	8.5	62.0

preterm. These outcomes are associated with a myriad of short- and long-term health issues including infant death (Martin, Hamilton, Sutton et al., 2010; Martin, Osterman, & Sutton, 2010; Mathews & MacDorman, 2010).

Teen childbearing also has significant economic, social, and health costs which states end up having to cover. The annual cost of teen childbearing is substantial; in 2010, US$9.4 billion were spent on teen childbearing nationally. Such costs include social programming needed to support childrearing for teen parents, such as Medicaid, Temporary Assistance to Needy Families (TANF), Supplemental Nutrition Assistance Program (SNAP), the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and Head Start (Hoffman 2008; National Campaign to Prevent Teen and Unplanned Pregnancy 2011; Perper et al. 2010; Trussell 2007). Specifically, Alabama spent US$167 million, Arkansas US$129 million, Louisiana US$152 million, Oklahoma US$169 million, and Texas US$1.1 billion on costs associated with teen childbearing in 2010 (Sonfield, & Kost, 2013).

Although there are public health and financial costs associated with teen pregnancy which tend to result in diminished outcomes for mothers and children, it is important to acknowledge critiques to this framing. Teen pregnancy is often framed as inherently negative in public health research; however, within certain cultural demographics, teens may desire and plan for pregnancy. Exclusively conflating teen pregnancy with unwanted or unplanned pregnancy could result in making assumptions about particular groups which are misleading and potentially stigmatizing and oppressive (e.g., Geronimus, 2003). There is a substantial, though far less recognized, body of literature which critiques the framing of teen pregnancy as purely problematic and inherently negative specifically focusing on how this perspective may stigmatize and oppress women of color (For a more in-depth review of these issues, see Geronimus 1997, 2003; Arai, 2009; Yardley, 2008). It is thusly important to note that the potential for increased risks discussed (e.g., health risks, diminished educational and financial outcomes) do not differentiate between whether those pregnancies are intended or unintended.

Sexually Transmitted Disease Rates Among Teens

Sexually transmitted diseases, including HIV, are a public health concern, particularly among young adults and teens. Alabama, Arkansas, Louisiana, and Texas have some of the highest rates of chlamydia, gonorrhea, and primary and secondary syphilis compared to other states in the USA; such rates are one and a half to more than double national rates (CDC, 2011a). For example, Alabama has the 3rd highest rates for both chlamydia and gonorrhea, whereas Arkansas is ranked 7th for both and Texas is ranked 13th for both. Louisiana's rates are also among the highest—fourth for chlamydia and second for gonorrhea. In addition, Louisiana has the third highest rate of primary and secondary syphilis infection while Texas is ranked 6th, Arkansas 9th, and Alabama 15th. In contrast, rates of HIV diagnosis are somewhat lower in these states with the exception of Texas (3rd highest rate) and Louisiana (11th highest rate) (CDC, 2011a). It is possible that HIV rates appear lower in states like Alabama, Arkansas, and Oklahoma due to lower rates of testing rather than lower rates of actual infection. Alternatively, because HIV tends to be concentrated in urban areas, rates may be lower in these states because these states are mainly rural. Interestingly, Oklahoma appears to be an outlier among these states as rates for all three STD and HIV are lower across the board. Specifically, Oklahoma ranks 24th in chlamydia infection, 15th in gonorrhea infection, 35th in primary and secondary syphilis, and 28th in HIV. As mentioned previously about HIV, it is unknown if Oklahoma's rates of STD are actually lower or an artifact of inadequate testing.

Consistent with national data, rates of STD vary widely by gender and race/ethnicity. For example, female teens, ages 15–19, in Alabama, Arkansas, Louisiana, Oklahoma, and Texas, have 2.5–3.1 times higher rates of chlamydia when compared with their male peers. Gender differences in rates of STD may result from greater testing among women compared with men as the CDC provides specific recommendation for testing among women (Centers for Disease Control and Prevention [CDC] 2013a). Additionally, women are at greater risk of contracting STD that are transmitted via infected fluids (i.e., chlamydia; gonorrhea) when they are the

receptive partner during vaginal-penile intercourse. As such, this may also explain the higher rates among female teens.

According to Table 2, in Alabama, Arkansas, Louisiana, Oklahoma, and Texas, Black teens, ages 15–19, face greater burden from STD compared with other racial/ethnic groups; the same holds true for HIV diagnoses among 13 to 24 year olds. With the exception of primary and secondary syphilis, Hispanic teens and young adults are also at a greater burden for STD and HIV compared to their white peers. The rate of chlamydia in Black teens is between 4 and 7 times higher compared to White teens and the rate of gonorrhea in Black teens is approximately 10 to 20 times higher compared to White teens. Similarly, disproportionate rates exist for primary/secondary syphilis and HIV diagnosis (Centers for Disease Control and Prevention [CDC] 2012c). These findings are consistent with national data, though the disparities among racial/ethnic groups are more pronounced in Alabama, Arkansas, Louisiana, Oklahoma, and Texas compared with rational rates. The Centers for Disease Control and Prevention [CDC] (2011b) cites a myriad of reasons for why STD rates may be higher among Black teens and young adults compared with White individuals, including financial inequity resulting in a lower quality of care, higher rates of incarceration, and mistrust of the medical community which may, in turn, influence access to and seeking out of healthcare.

High rates of STD are of particular concern in these rural states because of limited access to testing and treatment. As such, these infections may go unnoticed or/and undiagnosed resulting in longer-term health outcomes (e.g., PID, epididymitis, infertility) which can, in turn, contribute to the costs associated with STD infection (Chesson et al. 2004). Although there is no data available on the costs of treating STD among teens in specific states, the CDC estimates that direct medical costs associated with STD nationally are US$16 billion per year (Owusu-Edusei et al. 2013). Costs associated with STD include the immediate expense of treatment as well as future costs of long-term side effects of untreated or late-treated infections, such as PID and infertility.

Teen Sexual Activity and Preventative Sexual Health Behavior

To understand why teens in Alabama, Arkansas, Louisiana, Oklahoma, and Texas experience the highest teen birth rate, higher rates of teen pregnancy, and higher rates of STD, it is necessary to examine adolescent sexual behavior. According to Table 3, in 2013, 46.8 % of high school-aged teens in the USA reported having engaged in sexual intercourse, 5.6 % reported initiating sex before age 13, 15.0 % reported having had four or more sexual partners in their lifetime, 34.0 % reported sexual intercourse in the past 3 months and among those who reported being sexually active, 40.9 % reported not using a condom during the last time they engaged in sexual intercourse (Centers for Disease Control and Prevention [CDC] 2012a). Just as teens residing in Alabama, Arkansas, Oklahoma, and Texas (note we have not included Louisiana in this comparison because Youth Risk Behavior Surveillance (YRBS) data for Louisiana were not available) experience greater negative sexual health outcomes compared with teens nationally, for the most part, they also report higher rates of sexual behaviors and more frequently report not using condoms during their last engagement in sexual intercourse.

As can be seen in Table 3, compared with average percentages across the USA, teens in Alabama, Arkansas, and Oklahoma report higher rates of ever engaging in sexual intercourse, engaging in sexual intercourse within the last 3 months, having had four or more sexual partners, and initiating sex before age 13 (Centers for Disease Control and Prevention [CDC] 2012a). Teens in Texas reported slightly lower rates of engaging in sexual intercourse, sexual initiation before 13, having four or more partners, and engaging in sexual intercourse in the last 3 months. It is important to note that the items on YRBS pertain specifically to sexual intercourse. We do not mean to suggest that STD contraction only occurs via heterosexual contact nor do we mean to imply that same-sex sexual contact should be left out of the discussion. Certainly, it is important to

Table 2 STD and HIV diagnosis rates

State	Sexually transmitted disease rate/ 100,000 15–19 year olds (2012 rates from CDC)											
	Chlamydia			Gonorrhea			Primary/secondary syphilis			HIV diagnosis[a]		
	Black	Hispanic	White	Black	Hispanic	White	Black	Hispanic	White	Black	Hispanic	White
AL	4574.0	276.4	755.9	1383.4	0.0	82.6	11.9	0.0	2.0	67.5	5.4	5.9
AR	7488.9	876.6	1445.6	2403.6	69.2	140.4	40.4	0.0	0.7	38.1	5.0	4.2
LA	5057.0	1101.2	878.7	1708.0	143.9	138.8	36.7	0.0	2.4	85.0	22.1	8.6
OK	4715.3	1441.0	1223.1	1821.0	198.0	170.4	7.1	0.0	0.6	50.2	13.5	6.9
TX	4796.7	1677.9	1197.9	1802.9	280.3	196.4	23.5	5.0	2.0	93.5	18.6	9.8

[a] Rates of HIV diagnoses include rates among 13–24 year olds

Table 3 Percent of students who engaged in sexual behaviors, from the Youth Risk Behavior Survey

Sexual Behaviors	USA	Alabama	Arkansas	Oklahoma	Texas
Ever engaged in sexual intercourse	46.8	49.8	49.4	50.1	45.9
Initiated sexual intercourse before age 13	5.6	7.0	8.3	4.6	5.2
Have had 4 or more sexual partners	15.0	17.0	18.1	18.0	14.9
Engaged in sexual intercourse within the last 3 months	34.0	35.8	36.8	36.2	32.8
Preventative behaviors among sexually active students					
Did not use a condom during last sexual intercourse	40.9	48.7	48.9	41.8	47.1
Did not use highly effective method before last sexual intercourse	74.7	68.9	69.8	77.7	79.8
Did not use any method before or during last sexual intercourse	13.7	14.1	17.8	13.5	19.0

Data for Louisiana not available

understand rates of (unprotected) vaginal-penile intercourse in order to better understand teen pregnancy. However, STD transmission can and does occur from other forms of sexual contact including oral to genital and anal intercourse in addition to vaginal-penile intercourse. It would be helpful to have a better understanding of the range with which teens engage in sexual behaviors.

Sexually active teens in these four states are not taking necessary measures to reduce the risk of unintended pregnancy and STD transmission. As can be seen in Table 3, with the exception of highly effective contraceptive method use (i.e., the birth control pill, injectable birth control, birth control ring, birth control implant, or intrauterine device) among teens in Alabama and Arkansas, use of other preventative methods (i.e., condom use, use of highly effective methods, use of any preventative method) are reported less often by teens in these four states when compared to teens nationally. Lower rates of highly effective contraceptive methods and condom use are particularly problematic because teens in these states are engaging in about the same (i.e., Texas) or greater amounts (Alabama, Arkansas, Oklahoma) of sexual activity compared to their national peers. However, they are less likely to utilized highly effective hormonal (e.g., birth control pill, IUD, implant) or barrier methods (e.g., condoms) which reduce the risk of pregnancy and STD transmission. These findings could provide some explanation for why teens in these states experience higher rates of unintended, teen pregnancy and STD.

Access to Evidence-Based Sexual Health Programs and Services

To understand why rates of teen pregnancy and STD in Alabama, Arkansas, Louisiana, Oklahoma, and Texas are higher than most other states, it is critical to examine the current sexual health policies and services for teens in these states. Policies in these five states indicate that abstinence must be stressed *if* sexuality education is going to be taught in classrooms or provided via School-Based Health Centers (SBHC). Interestingly, though, these states do not have any specific requirements regarding the medical accuracy of sexuality education.

Current State of Sex Education

Sex education content and implementation is inconsistent and varies widely by state and school district. According to the 2012 School Health Profiles, 97.5 % of secondary schools (i.e., 6th–12th grade) in Arkansas and 80.1 % of secondary schools in Alabama require some type of health education which seems encouraging compared to Oklahoma in which only 36 % of secondary schools require some type of health education; data was not provided for Louisiana and Texas. However, the topics covered and quality of education provided also varies substantially.

Table 4 outlines the percentage of secondary schools in Alabama, Arkansas, and Oklahoma in which teachers reported covering specific sexual health topics as part of the schools' required health course during the 2011–2012 academic year. National medians are included in the table for comparison purposes. The percentage of school teachers who reported covering topics related to HIV, STD, and condom use are fairly similar when comparing Arkansas to the national medians; however, Oklahoma is significantly lower than the national median. Similarly, the percentage of teachers who reported covering topics related to condoms and hormonal birth control methods among 9th–12th graders in Alabama, Arkansas, and Oklahoma are consistently lower than the national medians. Although a causal relationship cannot be drawn from such findings, these data suggest that one possible reason teens in these states experience higher rates of teen pregnancy compared with national rates could be due to the lack of education regarding preventative mechanisms such as hormonal birth control methods and condoms. Hormonal birth control methods have been deemed by the CDC to be highly effective methods of pregnancy prevention.

Table 4 Percentage of secondary schools in which teachers taught about specific topics in a required course during the 2011–2012 school year

Sexual health topic	6th–8th grade AL	6th–8th grade AR	6th–8th grade OK	National median	9th–12th grade AL	9th–12th grade AR	9th–12th grade OK	National median
The differences between HIV and AIDS	59.7	71.3	65.0	73.5	95.9	95.1	73.7	94.2
How HIV and other STDs are transmitted	59.7	75.6	67.2	76.3	95.9	96.5	73.8	95.3
How HIV and other STDs are diagnosed and treated	54.2	66.3	60.6	67.9	92.5	90.8	68.8	92.0
Health consequences of HIV, other STDs, and pregnancy	56.5	69.4	64.9	72.5	93.5	95.2	68.2	94.3
The relationship among HIV, other STDs and pregnancy	51.8	70.0	59.4	67.7	93.4	93.6	63.8	92.6
The relationship between alcohol/other drug use and risk for HIV, STDs, and pregnancy	52.3	73.9	56.9	71.6	94.2	95.1	62.2	93.3
The benefits of being sexually abstinent	61.7	78.0	62.9	75.8	94.4	96.4	69.5	94.8
How to prevent HIV, other STDs, and pregnancy	55.0	76.6	62.6	74.2	94.2	96.6	68.3	94.9
How to access valid and reliable information, products, and services related to HIV, other STDs, and pregnancy	50.0	67.3	52.6	62.1	90.0	91.7	63.2	90.7
The influenced of media, family, and social and cultural norms on sexual behavior	52.3	69.4	52.7	69.4	94.2	91.8	57.7	91.8
Communication and negotiation skills	49.0	68.8	50.4	68.4	90.0	88.9	58.3	89.9
Goal-setting and decision-making skills	51.5	67.4	54.4	67.3	90.8	88.2	59.7	88.6
Compassion for persons living with HIV or AIDS	51.1	58.8	52.6	56.4	85.2	81.4	59.3	76.5
How to create and sustain healthy and respectful relationships	46.7	73.4	49.4	72.1	80.9	90.3	50.7	91.3
Efficacy of condoms	33.7	46.4	41.4	47.0	71.9	77.9	57.3	80.2
Importance of using condoms correctly and consistently	27.1	40.4	37.6	40.4	56.7	70.0	58.2	70.9
How to obtain condoms	9.5	24.0	18.0	22.2	39.1	47.3	32.9	52.9
How to correctly use a condom	6.3	12.6	16.5	16.5	28.5	33.2	28.1	45.1
All 4 condom use topics	5.4	11.8	14.3	14.3	25.5	32.4	20.9	38.6
How to obtain contraceptives other than condoms	11.6	20.5	18.7	20.7	37.8	49.8	34.7	52.6
How to correctly use contraceptives other than condoms	9.4	18.2	17.0	18.2	34.2	44.3	29.1	52.3
Importance of using contraceptive methods, other than condoms, consistently and correctly	16.5	27.7	24.2	27.7	47.8	57.5	40.8	63.2
Importance of using a condom at the same time as another form of contraception to prevent both STDs and pregnancy	15.2	30.8	27.1	30.8	50.6	59.0	40.5	63.2
All 4 contraceptive topics	6.3	16.4	16.3	16.4	26.5	41.2	25.5	46.4
All 22 HIV, STD, and pregnancy prevention topics	3.5	11.2	13.4	9.1	22.4	27.0	16.4	32.3
Birth control pill	–	–	–	–	36.5	45.2	27.1	56.7
Birth control patch	–	–	–	–	30.4	32.4	22.7	48.3
Birth control ring	–	–	–	–	27.4	25.5	20.9	47.3
Birth control shot	–	–	–	–	33.5	33.9	23.5	51.9
Implants	–	–	–	–	24.4	28.2	18.7	43.6
Intrauterine device	–	–	–	–	26.8	27.7	22.5	51.6
Emergency contraception	–	–	–	–	20.6	30.0	19.8	42.9
All 7 contraceptives	–	–	–	–	17.6	19.2	17.0	37.7

Data for Louisiana and Texas not available

Current State of School-Based Health Centers

Another avenue for providing sex education and services is via SBHC. According to the National Assembly on School-Based Health Care (NASBHC), there are 5 SBHCs in Alabama, 4 in Arkansas, 64 in Louisiana, 11 in Oklahoma, and 70 in Texas. However, students who access sexual health services at SBHC may not receive comprehensive sex education. Local

school boards establish guidelines regarding what education and services can be provided. Although some school-based clinics provide sex education as well as other services such as access to contraceptives, many do not. In fact 61.2 % of SBHC are prohibited from providing contraceptives to teens. Furthermore, the most common service provided by SBHC is abstinence-only sex education; 83.6 % of SBHC provide on-site and referral abstinence counseling. Interestingly, the second most common service provided by SBHC is pregnancy testing with 80.5 % of SBHC reporting on-site or referral services for pregnancy testing. Again, though causal inferences cannot be drawn from these data, one might question whether the abstinence education and abstinence counseling provided at SBHC are being listened to and followed by teens if the second most common service provided is pregnancy testing.

Given state mandates in Alabama, Arkansas, Louisiana, Oklahoma, and Texas, SBHC in this region must emphasize abstinence in their approach to sex education, though some may be able to prescribe and distribute contraceptives when parental consent is given; this decision is made at the community level. Thus, it is unclear the extent to which comprehensive sex information, including information on where to obtain condoms and other contraceptive methods or how to use such methods, is provided in SBHC. Additionally, state funds cannot be utilized to purchase condoms or contraception which restricts teens' access to these highly effective pregnancy and STD prevention methods.

The emphasis these states' sex education mandates place on abstinence is discouraging particularly given the high rates of teen pregnancy, child birth, and STD among teens residing in these states and the consistent research demonstrating that abstinence-only programs are ineffective (e.g., Kirby 2008). Though causal relationships cannot be drawn from these data, it may be the case that the lack of consistent sex education compounded by abstinence-focused requirements is failing to curb the high rates of negative sexual outcomes among teens in Alabama, Arkansas, Louisiana, Oklahoma, and Texas; indeed, it may even be contributing to their continuance.

What Works: Best Practices for Addressing Sexual and Reproductive Health Outcomes

Approaches to lower rates of negative sexual health outcomes among teens (such as those described above applying to Alabama, Arkansas, Louisiana, Oklahoma, and Texas) have been well documented in the scientific literature. For example, research has shown that recent declines in teen pregnancy rates can be explained by fewer teens being sexually active and by sexually active teens using birth control, including highly effective methods, more frequently (Martinez et al. 2011). However, approximately half of teens in Alabama, Arkansas, Oklahoma, and Texas are sexually active, and the majority of sexually active teens in these states are not using condoms or highly effective forms of birth control nor are they learning about such methods of contraception in sex education (Demissie et al. 2013; Centers for Disease Control and Prevention [CDC] 2012a).

The CDC recommends that communities adopt the following strategies to prevent teen pregnancy: "Include evidence-based sex education that provides accurate information and supports the needs of teens throughout their development" and "Include efforts to help parents and teens communicate effectively with each other; Ensure sexually active teens have access to effective and affordable contraceptives" (Centers for Disease Control and Prevention [CDC] 2012a). Given these recommendations, two specific mechanisms to respond to the sexual health needs among the teens in Alabama, Arkansas, Louisiana, Oklahoma, and Texas include implementation of evidence-based, comprehensive sexuality education and increasing access to contraceptive methods through accessible sources like SBHC.

Sex Education

It is of particular importance for states such as Alabama, Arkansas, Louisiana, Oklahoma, and Texas to mandate evidence-based comprehensive sexuality education given the growing evidence demonstrating their success. For example, in 2007, the National Campaign to Prevent Teen and Unplanned Pregnancy published *Emerging Answers*, a meta-analysis of findings from 115 studies, which examined sex education programming over the previous 6 years (Kirby 2007). The report identified a number of sex education programs that were effective in reducing sexual behaviors that could lead to unintended pregnancy and STD/HIV infection, including delaying first sexual intercourse, reducing frequency of sexual intercourse, reducing number of sexual partners, increasing condom use, and/or increasing use of contraceptive methods. Programs that have been shown to impact these behaviors are known as evidence-based interventions (EBIs).

Alternatively, Kirby (2007), Trenholm et al. (2007), and Underhill et al. (2007) found that abstinence-only sex education programs did not delay sexual initiation nor were they effective in reducing the number of teens' sexual partners. Additionally, abstinence-only programs were also not effective in increasing teens' use of condoms and contraception when they did engage in sexual intercourse (Kirby 2007; Trenholm et al., 2007; Underhill et al. 2007). Furthermore, researchers found that some of the material covered in abstinence-only programs was scientifically inaccurate, misleading, and dishonest (Trenholm et al., 2007; Waxman, 2004).

The *Emerging Answers* report and subsequent research has overwhelmingly found several comprehensive sex education programs that have been shown to positively impact behaviors

that may lead to preventing unintended pregnancy and STD (e.g., delaying first sexual intercourse, increasing condom use, increasing contraception use), while abstinence-only sex education programs have been shown to be ineffective in delaying first sexual intercourse or in changing other behaviors related to reducing teen pregnancy and STD transmission. Thirty-one comprehensive sex education programs are listed on the federal Office of Adolescent Health's list of EBIs, because they were shown to be effective in changing risk behaviors (U.S. Department of Health and Human Services, Office of Adolescent Health 2013). The CDC's Guide to Community Preventive Services has also reviewed abstinence programs and comprehensive risk reduction programs and found results similar to Kirby (2007) (see http://www.thecommunityguide.org/hiv/riskreduction.html to access the CDC's Guide to Community Preventive Services).

Based on the research about "what works" in sex education, public health agencies and organizations have called for investment in comprehensive, accurate sex education. For example, medical and public health organizations such as the American Academy of Pediatrics (AAP), the American Medical Association (AMA), the American Psychiatric Association, the American Psychological Association, and the American Public Health Association (APHA) have endorsed comprehensive sex education. The AAP recommends that pediatricians "advocate for implementation and investments in evidence-based programs that provide comprehensive information and services to youth" (AAP 2012; Klein et al. 2005). The AMA "Urges schools to implement comprehensive, developmentally appropriate sexuality education programs," which include specific guidelines, such as being "based on rigorous, peer-reviewed science" (AMA Policy statement, 2007).

Furthermore, public health organizations like the Society for Adolescent Health and Medicine (SAHM) and APHA have questioned the efficacy of abstinence-only sex education and do not support continued funding and implementation of such programming. For example, in a position paper released by SAHM and endorsed by the American College Health Association, SAHM states, "Current funding for abstinence-only programs should be replaced with funding for programs that offer comprehensive, medically accurate sexuality education"(Society for Adolescent Health and Medicine position paper, 2006). Similarly, APHA recommends that, "States should support school districts and local schools to implement abstinence education as a part of comprehensive sexuality education and as an integral part of comprehensive K-12 school health education" (American Public Health Association 2006).

Additionally, comprehensive sexuality education also does a better job at acknowledging diversity within sexuality by not framing sexual activity as an experience engaged in by one man and one woman. Instead, comprehensive programs attempt to be more inclusive by acknowledging diversity in sexual expression. However, even comprehensive programs elide the educational needs of sexual minority youth and youth who do not confirm to a gender binary.

School-Based Health Centers

In addition to providing sex education, the CDC recommends increasing teens' access to effective contraceptives. School-based health centers are an important strategy for improving access to health care, particularly among the most economically disadvantaged communities. School-based health centers and school-linked health centers provide access to a number of primary health care services for students and have been shown to have a positive impact on numerous health and educational outcomes. Kirby's review of the literature about the relationship between SBHC and adolescent sexual health found inconsistencies in the data, but found some evidence showing that school-based or school-linked health centers that provided contraceptives and clear, focused messaging regarding how to use contraceptives in conjunction with abstinence increased contraception use (Kirby 2007). Additionally, a recent study found that although access to a SBHC did not lead to increased use of reproductive health care in the population as a whole, sexually active females were more likely to have used hormonal contraceptives if their school had a SBHC (Ethier 2011).

Although providing sexual health services in SBHC is promising in reducing unintended pregnancy and STD among teens, access to these services vary among SBHC. The latest national survey of the 1930 SBHC in the USA found that the majority of SBHC offer abstinence counseling (82.1 %), provide on-site diagnosis and treatment for STD (69.4 %), and other diagnostic services such as pregnancy testing (81.2 %); more than half provide HIV testing (55.1 %) and HIV/AIDS counseling (59.8 %); but almost half (49.8 %) of SBHC are prohibited from dispensing contraception due to school district policy, school policy, state law, etc. (Lofink et al. 2013).

Roadblocks and Barriers

Given the substantial evidence supporting evidence-based comprehensive sexuality education, why have Alabama, Arkansas, Louisiana, Oklahoma, and Texas not mandated such education in schools, especially given their substantial sexual health needs among teens? Previous research has found that liberals tend to have the most positive views regarding comprehensive sexual education (Constantine et al. 2007; Eisenberg et al. 2009), whereas conservatives are less likely to endorse comprehensive sexuality education (Constantine et al., 2007; Eisenberg et al. 2009). It is likely the case that the conservative political climates in these states leads to

the dismissal of findings supportive of comprehensive sexuality education as well as those which refute the efficacy of abstinence-only sex education.

In these states, instead of relying on empirical findings, legislatures seem to rely on unfounded beliefs or fears. For instance, when considering legislation to allow schools to collect information for the YRBS, some members of the Louisiana state legislature raised concerns that simply asking about "… sex would encourage curiosity and sexual behavior" (Kempner 2014). Interestingly, as already stated, Kirby (2007) found the opposite—youth who participated in comprehensive sexuality education actually delayed sexual initiation.

Politicians may also dismiss empirical findings in favor of their own personal experiences. In a 2010 interview, Rick Perry (Texas Governor at the time) stated "Abstinence works." When asked by the interviewer to provide empirical evidence to support his claim, Governor Perry replied "… from my own personal life, abstinence works." In reference to instituting comprehensive sexuality education in schools, Governor Perry continued "… we're going to stand up here and say, 'Y'all go have sex and have the whatever is going on … and here's the ways to have safe sex'—I'm sorry; call me old-fashioned if you want, but that's not what I'm going to stand up in front of the people in the state of Texas and say, 'That's the way we need to go, and forget about abstinence'."(Smith 2010). The above statements highlight not only a lack of familiarity with empirical findings regarding the effectiveness of comprehensive sexuality education (compared to abstinence-only education), but also an absence of understanding what constitutes comprehensive sexuality education.

These are only a few examples of politicians being unsupportive of comprehensive sexuality education. We do not mean to suggest that all politicians in these states hold views similar to those reflected above. However, these states' current policies regarding sex education (i.e., no sex education; emphasis of abstinence-only education) and their poor sexual health outcomes suggests that the overall political climate in these states is more in line with the above views than with empirical findings.

Recommendations

Policymakers, school districts, health care providers, and parents should work together to change the status quo in order to improve sexual and reproductive health outcomes for teens in these southern states. Based on surveillance data and a review of best practices, three policy recommendations are listed below.

Recommendation 1: Continue and Improve Investment in Sex Education

Improved prevention mechanisms are essential and could save states money. Teens residing in Alabama, Arkansas, Louisiana, Oklahoma, and Texas are in need of comprehensive sex education programs that have been rigorously evaluated and have been shown to impact young people's behavior. School administrators should require that only evidence-based, medically accurate sex education programs be utilized in their respective schools and school districts. All five states should continue and sustain participation in the federal PREP program to fund evidence-based sex education (Zief et al. 2013). Additionally, because some teen pregnancies are wanted and planned, it is also important to note that quality, medically accurate, comprehensive, sexuality education can also help young people think about and plan for the future (e.g., provide an opportunity for life/goal planning). Specifically, sexuality education could help those teens considering pregnancy/parenthood during their teenage years be better prepared or help such teens make an informed decision to postpone pregnancy/parenthood until later in life.

Recommendation 2: Amend Current Sex Education Policies

Currently practices and policies regarding sex education in Alabama, Arkansas, Louisiana, Oklahoma, and Texas are inconsistent with current scientific evidence. For example, Arkansas Code § 6-18-703 states that abstinence and the social, economic, and physical health consequences of sex before marriage should be stressed in school health curriculum. Scientific studies show that promoting abstinence as the only mechanism to prevent pregnancy and STD, while omitting information on condoms and contraception, is ineffective in preventing unintended pregnancy and STD/HIV transmission. Clear evidence supports implementing comprehensive sex education (which includes information about abstinence as well as condoms and contraception) as an effective approach. Laws, such as this example from Arkansas Code § 6-18-703, should be amended by legislatures and policymakers in these states to require that sex education focus on abstinence as well as condoms and contraception. We should be clear in that our solution to mandate sexual education means *comprehensive* and *medically accurate* sexual education. Although the battle to mandate any form of sexual education has proven to be difficult due to the political climate in these states, a failure to require medically accurate and comprehensive sexual education could result in legislatures and politicians such as former Texas governor Rick Perry mandating abstinence-only education because, based on their own personal experience, "… abstinence works" (Smith 2010). Additionally, these standards should apply to SBHC as well.

Recommendation 3: Improve Access to Sexual Health Services in School- and Community-Based Clinics

In order to lower pregnancy and STD rates, these states should increase investments in school-based clinics in accordance with recommendation from the CDC. This is particularly important in communities disproportionately impacted by high levels of pregnancy and STD among teens. State funding should be allowed to purchase condoms and birth control in SBHC. Again, policymakers and legislatures need to revise stipulations on spending. Our recommendation is consistent with the American Academy of Pediatrics' recent recommendation, which states, "Schools should be considered appropriate sites for the availability of condoms because they contain large adolescent populations and may potentially provide a comprehensive array of related educational and health care resources" (Committee on Adolescence, 2013).

Conclusions

Compared to other states in the USA, Alabama, Arkansas, Louisiana, Oklahoma, and Texas have some of the highest teen pregnancy rates, teen birth rates, and rates of STD. Childrearing and STD diagnosis is an unfortunate burden disproportionately placed on teens in these states, which further impacts their health as well as their social and economic wellbeing. The data presented here is intended to provide evidence regarding the high rates of these negative health outcomes and give clear recommendations for improving the status quo. Given that the problem is multidimensional, the response must be multidimensional as well. Policy recommendations, such as ours, and continued research on the efficacy of comprehensive sexuality education programs is paramount to generating any positive change in sexual health outcomes in these five states and others. However, as long as politicians continue to defer to unfounded beliefs and personal experiences, research alone is incapable of creating change. Researchers should continue to find ways to disseminate their findings beyond their respective professional fields and into mainstream discourse with the hope that these findings will inform the general public who can then hold politicians responsible when they refuse to acknowledge the empirical evidence.

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