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# Parents' Beliefs Regarding Sex Education for Their Children in Southern Alabama Public Schools

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**Abstract** This study investigated the attitudes of parents of public school children in a conservative southern U.S. metropolitan area concerning the incorporation of a variety of adolescent pregnancy prevention strategies taught in the public school curriculum. It also assessed how attitudes from parents living in high risk teen pregnancy zip codes compared to the attitudes from parents living in the larger community. A telephone survey included 402 randomly selected parents from Mobile County, Alabama and an additional 120 Mobile County parents who lived in specific regions with high rates of teen pregnancy (target group). When the participants from the entire group were asked if schools should teach sex education, almost 80 % responded affirmatively and 16.5 % responded negatively. There were statistically significant income, education, and race differences between the at-large and target groups and statistically significant differences in parents' attitudes about whether or not their children should be taught about abstinence and other methods for preventing adolescent pregnancy in public schools. More than three-fourths of both groups, however, supported an assortment of adolescent pregnancy prevention strategies, a finding that could belie statistical difference in opinions between the two groups. The results suggest there is strong parental support for an approach to sex education in Alabama public schools that extends beyond abstinence-only. Informing state public policy-makers of these research findings could result in a sustained investment in the implementation of evidence-based adolescent sex education programs appropriate for the adolescents served.

**Keywords** Teen pregnancy prevention · Adolescent sexual health · Health education

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## Introduction

Unintended adolescent pregnancy is a major public health concern in the USA. Even with a decline by one third since the early 1990s (Centers for Disease Control and Prevention [CDC] 2011), the USA continues to rank first among countries in the industrialized world for pregnancies of adolescents aged 15 to 19 years (United Nations Statistical Division 2012).

Adolescent parents face a myriad of associated negative social and health consequences (Kirby 2007a). For instance, in comparison to young adult mothers, adolescent mothers are more likely to (a) drop out of high school (Hoffman and Maynard 1997), (b) receive public assistance (Hoffman and Maynard 1997; Moore et al. 1993), (c) have lower incomes (Johnson and Favreault 2004), and (d) have higher fetal mortality rates (MacDorman and Kirmeyer 2009).

Unintended adolescent pregnancy also has a negative impact on the child of an adolescent parent. Compared to children of adult parents, children of adolescent parents face a higher incidence of negative outcomes over time, including lower cognitive development, worse educational outcomes, and higher rates of adolescent childbearing later in life (Hoffman and Maynard 1997).

Adolescent unprotected sexual activity is associated with higher incidence of sexually transmitted infections (STIs)

(Kirby and Laris 2009). In the USA, those aged 15 to 24 years represent about 25 % of the sexually active population but constitute about one half of all new STIs (Satterwhite et al. 2013). Both chlamydia and gonorrhea rates are highest in 15- to 24-year-olds, with young females experiencing the most serious long-term health consequences (CDC 2014). As such, the high number of unintended pregnancies and STIs among U.S. adolescents points to the need for adolescent pregnancy to be considered a national public health priority (Lavin and Cox 2012).

School-based sex education programs can reach a large percentage of youths, allowing them to make informed decisions about their sexual behavior (McCave 2007; Mueller et al. 2008), but implementation of evidence-based approaches is not widely and systematically practiced across school districts (Kirby 2010; Shearer et al. 2005). Evidence-based programs, i.e., those programs proven effective through systematic reviews by evaluators and experts in the field and approved by a federal agency or research group as effective, offer the benefits of directing resources to programs with proven possibilities of success (U.S. Department of Health and Human Services 2012). Unfortunately, the U.S. Department of Education (2011), in a broad study regarding implementation of select programs in various behavioral fields, found only 7.8 % of school programs to be evidence-based.

The two primary approaches to US sex education programs for youth, abstinence-only and abstinence-plus, have been under public debate for over a decade (Mueller et al. 2008; Markham et al. 2012). Abstinence-only education is generally defined as promotion of sexual abstinence as the key or only strategy for prevention of adolescent pregnancy, whereas abstinence-plus can be defined as sex education that includes both sexual abstinence and strategies for safe sexual practices (Stanger-Hall and Hall 2011). The debate between the two tactics primarily focuses on the efficacy and appropriateness of the interventions (Jemmott et al. 2010) as well as a state's political view (Kirby 2010).

Research findings vary for the two approaches, but generally it has been determined that abstinence-only programs have mixed or limited outcomes (Markham et al. 2012; Underhill et al. 2007). A review of four rigorously designed studies found that adolescents instructed in abstinence-only education were no more likely to abstain from sex, use protection for sex, or have a reduced number of sexual partners than adolescents in control groups (Trenholm et al. 2008). There is empirical support for abstinence-only curricula with young adolescents, however, regardless of whether or not they are sexually active, when it is considered among a wide array of approaches (Jemmott et al. 2010).

Alternatively, abstinence-plus evidence-based programs can improve adolescents' sexual health by (a) delaying initiation of sexual intercourse (Tortolero et al. 2010; Wakley 2011), (b) preventing sexually transmitted infections (Tortolero et al. 2010), (c) lowering the rate of unplanned pregnancies (Kirby 2007b), and (d) improving consistent use of birth control (Kirby and Laris 2009). An evidence-based abstinence-plus approach to sex education for youth is supported by professional groups in the medical, scientific, and public health communities, including the American Academy of Pediatricians, the American Medical Association, the American Public Health Association, and the Society for Adolescent Medicine (Sexuality Information and Education Council of the United States [SIECUS], 2013). In addition, in 2011, the National Sexuality Education Standards (Future of Sex Education Initiative 2011) were introduced by a partnership of experts in the fields of health education, sexuality education, public health, public policy, philanthropy, and advocacy to clarify minimum essential content and skills for sexuality education in K-12. The standards speak to the importance of schools implementing evidence-informed, age-appropriate approaches to sex education curricula that include a focus on reducing risks of pregnancy and HIV, i.e., abstinence-plus.

The public debate regarding sex education curriculum choice extends to consideration of personal values (Santelli et al. 2006). The teaching of abstinence-only is sometimes supported by religious institutions that may influence community and school leaders' attitudes about school-based sex education curriculum decisions (Griffin et al. 2005). Accordingly, some policy-makers consider teaching abstinence as the only choice for adolescents (Griffin et al. 2005; Santelli et al. 2006), causing some states to stress implementation of abstinence-only based curricula (Guttmacher 2013; Kaiser Family 2004; Kirby 2010; Tortolero et al. 2010; Shearer et al. 2005) despite high levels of adolescent sexual activity within the state.

In this study, we investigated the attitudes of parents of public school children in Mobile, AL, USA, a moderately large southern metropolitan area, concerning the incorporation of abstinence-plus sex education in the school curriculum. We compared opinions from parents living in high-risk teen pregnancy zip codes to parents living in the at-large community to determine differences, if any. To our knowledge, such comparisons in the adolescent pregnancy prevention literature are unique.

## Methods

### Design and Setting

The results reported in this study were collected in 2011 via a telephone survey carried out over 3 months by the University of South Alabama Polling Group (USA Polling Group). This was a non-experimental, descriptive survey design.

### Sample

Only parents of children in the Mobile County Public School System were interviewed. The sample included a total of 522 parents including 402 randomly selected parents in Mobile County and an additional 120 randomly selected parents in areas with high incidence of teen pregnancy as identified by the following zip codes: 36603, 36604, 36605, 36606, 36607, 36610, 36611, 36612, 36617, 36509, 36523, 36544, and 36582. Of these zip codes, ten are located in urban areas of the county, whereas three zip codes are considered rural.

For this study, parents living in areas with high incidence of teen pregnancy were coded as the "target" group, while parents in other areas are listed under the "at-large" category. Only one parent per household was eligible for inclusion.

### Procedure

A Computer-Assisted Telephone Interviewer (CATI) system was used to conduct the interviews and to collect data. The CATI system, developed by Sawtooth Technologies in Evanston, IL, USA, was used to record information about the call histories and call dispositions used by interviewers to document the outcome of each call attempt, survey questions, and their responses. The USA Polling Group used CATI capabilities to program skip patterns and range checks within the interview to reduce back-end data cleaning. Additionally, CATI's call scheduling capabilities were used to maximize the probability of contacting potential respondents. A central file server took sample telephone numbers and arranged automatic call scheduling for the interviewer. The system enabled calls to be scheduled so that different times of the day and week are represented. All phone numbers received a minimum of seven unsuccessful call attempts before being withdrawn from the sample.

To obtain 522 complete surveys (including the 120 surveys from the target community) from parents whose children attended public school in Mobile County, the USA Polling Group made a total of 18,463 phone calls. There was no contact (no answer, answering machine, busy) with 8,535 phone numbers. Of the remainder, there was a total of 3,010 phone contacts with eligible households, and of those, 522 completed the survey, resulting in a response rate of 17.3 %.

### Instrument

The survey explored parents' attitudes and opinions about sex education in public schools. *Sex education* was defined as "classes referring to sexual behavior and sexual health, including human development, relationships, and communication skills." The survey questions were adapted from a previous phone survey conducted in North Carolina (University of North Carolina (Survey Research Unit) and Adolescent Pregnancy Prevention Campaign of North Carolina 2009). Our survey included 36 substantive questions and six questions addressing demographics. It was pretested by the USA Polling Group. Final approval of question wording and order was provided by the study's investigators with feedback from a cross-section of community leaders interested in teen pregnancy prevention. The study's protocol was approved by the Institutional Review Board at the University of South Alabama.

### Analysis

The opinions of parents were studied by gender, race, age, education, income, and number of children in public schools. Data were stratified by zip codes into two strata, high incidence area (target) and the remaining county (at-large), to determine if the demographics were different. All data were analyzed using JMP 7.0 (JMP Statistical Discovery Software). All categorical data were summarized using percentages. Demographics for the two strata were compared using Fisher's exact test (Fisher 1922; Agresti 1992) or chi-square test (Aron et al. 2008) as the situation warranted. Results were considered significant if $p<0.05$.

## Results

### Sample

The demographics of respondents who completed the interview are listed in Table 1. The majority of participants were females, but the gender distribution of respondents differed significantly with more female respondents in the target group. Overall, almost half of the participants were Caucasian (49.2 %) followed by African Americans (44.6 %). However, the target group had almost 68 % African American respondents, and the at-large group had almost 63 % White respondents. More than half of the respondents had some college education beyond high school, although the percentage was significantly lower in the target group compared to the at-large group. The target group had a higher proportion of low-income families when compared to the at-large group.

No significant differences were observed in the distribution of age of participants or the number of children in public schools between the target and at-large groups.

### Support for Sex Education in Schools

Almost 83 % of parents indicated that schools should include sex education in its curriculum (Table 2). Less than half a percent refused to answer, and the remaining did not know the answer. Table 3 shows the percentages of parents who indicated that sex education should be taught in school by different demographic characteristics. About 86 % of parents in the target group and 80 % in the at-large group supported

**Table 1** Demographics of participants interviewed in the study expressed as percentages. As indicated in "methods", the "target" group is defined as people living in areas of high incidence of teen pregnancy and the "at-large" group includes parents from any other areas

| | Total (%) | Target(%) | At-large(%) | *p* |
|---|---|---|---|---|
| Gender | (*n*=522) | (*n*=274) | (*n*=248) | 0.0030 |
| Male | 16.3 | 11.7 | 21.4 | |
| Female | 83.7 | 88.3 | 78.6 | |
| Race | (*n*=522) | (*n*=268) | (*n*=243) | <0.0001 |
| African American | 44.6 | 67.9 | 30.9 | |
| White | 49.2 | 29.9 | 62.9 | |
| Other | 6.2 | 2.2 | 6.2 | |
| Age (in years) | (*n*=522) | (*n*=274) | (*n*=248) | 0.1370 |
| 21–35 | 25.1 | 27.74 | 22.18 | |
| 36–50 | 49.0 | 44.16 | 54.44 | |
| Over 50 | 21.5 | 23.36 | 19.35 | |
| Refused to answer | 4.4 | 4.74 | 4.03 | |
| Education | (*n*=522) | (*n*=274) | (*n*=248) | 0.0002 |
| Less than high school | 7.9 | 11.68 | 3.63 | |
| High school | 30.7 | 31.02 | 30.24 | |
| Some college | 26.1 | 29.56 | 22.18 | |
| College | 21.8 | 17.52 | 26.61 | |
| Advanced degree | 11.9 | 8.39 | 15.73 | |
| Refused to answer | 1.7 | 1.82 | 1.61 | |
| Income (in $1,000) | (*n*=469) | (*n*=244) | (*n*=225) | <0.0001 |
| Below 25 | 27.1 | 38.9 | 14.2 | |
| 25–50 | 35.2 | 36.5 | 33.8 | |
| 50–75 | 19.6 | 15.6 | 24.0 | |
| 75+ | 18.1 | 9.0 | 28.0 | |
| Number of children in public schools (K-12) | (*n*=521) | (*n*=274) | (*n*=247) | 0.1377 |
| 1 | 49.7 | 49.3 | 50.2 | |
| 2 | 33.4 | 31.4 | 35.6 | |
| 3 | 10.7 | 10.9 | 10.5 | |
| 4+ | 6.1 | 8.4 | 3.6 | |

the teaching of sex education to their children in public schools. Support for sex education did not differ by gender, number of children in school, age of parent, or education level. Parents in an income level of $25,000–50,000 were the most supportive of sex education in schools. No difference was observed between those in the lowest and highest income brackets (84 % each). Although there was a significant difference in attitude by race, still a vast majority of parents (between 73.9 % White and 91.4 % African-American) supported sex education in public schools.

## Attitudes Towards Teaching of Specific Sex Education Topics

The 416 parents who indicated that sex should be taught in school were given a list of 20 different topics and asked which ones should be covered. The results are shown in Table 2. On ten of those topics, parental support, as indicated by the answer "very important", exceeded 90 %. The lowest support was observed for discussion of classroom demonstration of correct condom use followed by the use of other birth control methods such as pills or IUDs. Yet, for these two topics, an additional 25 and 23 %, respectively, indicated that it was "somewhat important" to include them in the curriculum. Comparison of the target and at-large groups showed no significant difference in parental support on 16 out of 20 topics.

We sought to examine differences, if any, in the attitudes between adolescent and adult parents regarding types of sex education taught in public schools. Because the survey did not ask the parents if they were adolescents (younger than 18 years old) when they became parents, we estimated the proportion of adolescent parents by comparing the age of the parent with the age of the oldest child. For example, a 23-year-old or younger parent with the oldest child in kindergarten (estimated age at most 6 years) should have become a parent at the age of 17 or younger. From these estimates, we calculated that 34 (6.5 %) participants were adolescent parents when they had their first child. About 8 % in the target group (22 of 274) were adolescent parents, compared to 4.8 % in the at-large group (12 of 248). This suggests that the likelihood of a parent from the target area being an adolescent parent was almost twice that from the at-large community.

Ninety-seven percent of the estimated number of adolescent parents supported teaching sex education in schools, a significantly higher percentage compared to 82 % of adult parents.

About 25 % of parents had their oldest child in elementary school, and about 47 % of parents had their oldest child in high school. Comparison of opinions between these groups of parents indicated a significantly higher support for school sex education by parents with the oldest child in high school (86 %) compared to those with the oldest child in the elementary school (76 %, $p$=0.01).

Of 337 parents in different households from the total sample who considered teaching abstinence until marriage as very important, 334 (99 %) also considered teaching transmission and prevention of sexually transmitted diseases to be very important. Of 11 parents who considered teaching abstinence until marriage not important, 10 (91 %) considered teaching transmission and prevention of sexually transmitted diseases to be very important, not a significant difference.

## Responsible Party

Parents were also asked to identify who should play both "a role" and the "most important role" in deciding how sex education should be taught (Table 4). The overwhelming majority (98 %) indicated that parents should play "a role" in sex education of children, followed by public health professionals

**Table 2** Percent of parents who consider "very important" to include specific topics in sex education in public schools. For each question, parents were asked to use a five-point Likert scale (five choices, from "very important" to "totally opposed")

| Question | % total ($n$=416) | % target ($n$=224) | % at-large ($n$=192) | $p$ |
|---|---|---|---|---|
| How important do you think it is that your child learned about the basics of reproduction or how babies are made, pregnancy, and birth at some point during their schooling? | 82.5 | 83.5 | 81.3 | 0.6056 |
| How important do you think it is that your child learns about how to talk with parents about sex and relationship issues at some point during their schooling? | 94.5 | 94.2 | 94.8 | 0.8328 |
| How important is learning to deal with pressure to have sex? | 95.2 | 95.5 | 94.8 | 0.8196 |
| What about waiting to have sex until after graduating from high school? | 90.4 | 90.2 | 90.6 | 1.0000 |
| How to talk with a girlfriend, boyfriend, or partner about not having sex? | 91.8 | 93.3 | 90.1 | 0.2823 |
| How to talk with a girlfriend, boyfriend, or partner about birth control and sexually transmitted diseases? | 92.5 | 93.3 | 91.7 | 0.5769 |
| How to deal with the emotional issues and consequences of being sexually active? | 93.3 | 91.9 | 94.8 | 0.3269 |
| Abstinence until marriage? | 81.0 | 81.3 | 80.8 | 0.9009 |
| Transmission and prevention of HIV or AIDS? | 98.1 | 97.8 | 98.4 | 0.7305 |
| Transmission and prevention of other sexually transmitted diseases? | 98.3 | 98.2 | 98.4 | 1.0000 |
| The use of condoms? | 92.8 | 94.2 | 91.2 | 0.2574 |
| How important is it that your child be exposed to classroom demonstrations of how to use a condom correctly? | 53.6[a] | 59.8 | 46.4 | 0.0076 |
| How to use other birth control methods, such as birth control pills and IUDs? | 62.5[b] | 66.5 | 57.8 | 0.0840 |
| Effectiveness and failure rates of birth control methods, including condoms? | 85.3 | 85.3 | 85.4 | 1.0000 |
| Where to get birth control, including condoms? | 75.7 | 79.9 | 70.8 | 0.0387 |
| How to get tested for HIV or AIDS and sexually transmitted diseases? | 88.9 | 91.9 | 85.4 | 0.0412 |
| What to do if one has been raped or sexually assaulted? | 98.8 | 98.7 | 98.9 | 1.0000 |
| Talking about what sexual orientation means? | 76.9 | 82.6 | 70.3 | 0.0035 |
| How about the risks of oral sex? | 85.1 | 85.7 | 84.4 | 0.7827 |
| How about the risks of anal sex? | 82.5 | 83.9 | 80.7 | 0.4385 |

Likert scale choices included "very important", "somewhat important", "not too important", "not at all important", and "totally opposed"

[a] For this question, 25.0 % answered that the topic was "somewhat important"

[b] For this question, 23 % answered that the topic was "somewhat important"

(97 %), students in public schools, (79 %) and school administrators (78 %). Results indicated that parents assigned the "most important" role to themselves (82 %) followed by public health professionals (10 %). Two thirds of the respondents indicated that religious leaders should play "a role," but less than 1 % assigned this group the "most important role".

## Discussion

The results presented herein suggest that even in a conservative area of the country, parents prefer abstinence-plus education in public schools. Previous studies (Crosby and Holtgrave 2006; Strayhorn and Strayhorn 2009; Yang and Gaydos (2010) have found a correlation between adolescent birth rates and state social characteristics or social policy. Variations can be attributed, in part, to state levels of religiosity and conservatism. It seems pertinent to the health of the nation's adolescents to consider how state characteristics could shape public policy in regard to sex education in public schools; therefore, herein we describe Alabama's ranking on two key state characteristics, religiosity and conservatism, that could influence sex education policy.

States characterized with low religiosity have views associated with support for abstinence-plus sex education (Strayhorn and Strayhorn 2009), whereas states with high religiosity show greater support for abstinence-only sex education (McCave 2007; Santelli and Kirby 2010). Religiosity refers to a constellation of absolute beliefs in one's God, religion, and religious services (Public Life 2008), and state conservatism can be defined as self-reported ideological beliefs (Gallup 2013). Through an analysis of more than 350,000 interviews collected through 2008, Gallup (2009) examined state-by-state differences in self-reported religiosity, and Alabama emerged as the second most religious state in the USA.

To assess the extent to which a state was considered conservative, Gallup (2013) telephone-surveyed a random sample

**Table 3** Percent of parents from each demographic category listed in Table 1 who indicated that their children should be taught sex education in schools. All percentages are reported for the total group except for geographic areas

| Demographic category | Percent "yes" (%) | *p* |
|---|---|---|
| Geographic areas | | 0.1230 |
| All answers | 79.7 | |
| "Target" group | 85.5 | |
| "At-large" group | 80.0 | |
| Gender | | 0.1981 |
| Male | 83.9 | |
| Female | 77.8 | |
| Race | | < 0.0001 |
| African American | 91.4 | |
| White | 73.9 | |
| Other | 85.0 | |
| Age at time of interview (years) | | 0.4647 |
| 21–35 | 85.0 | |
| 36–50 | 84.9 | |
| 50+ | 80.0 | |
| Education level | | 0.3880 |
| No college | 81.5 | |
| Some college | 84.6 | |
| Income level (in $1,000) | | 0.0049 |
| <25 | 84.3 | |
| 25–50 | 92.6 | |
| 50–75 | 76.4 | |
| 75+ | 84.3 | |
| Number of children in school | | 0.9293 |
| 1 | 81.9 | |
| 2 | 84.1 | |
| 3 | 84.6 | |
| 4+ | 83.3 | |

of 211,972 adults aged 18 or over, living in the USA, and ranked their respondents from self-reported broad ideological labels as either conservative or liberal. In this study, Alabama was determined to be the most conservative state in the USA.

A typical hurdle to implementation of the abstinence-plus approach in public schools, particularly within conservative states, is the perception that parents of school-aged children would object to the curriculum (Brough 2008). However, studies in various areas of the USA have shown strong parental support for abstinence-based sex education for their children (Eisenberg et al. 2009; Baldassare 2005; Bleakley et al. 2006; Yarber et al. 2005). Despite these findings, these outcomes have been disregarded by some school systems because of policy-makers' belief that the opinions expressed in these polls do not represent their constituency (Constantine et al. 2007).

**Table 4** Parents' opinion about who should play "a role" vs "the most important role" concerning deciding how sex education should be taught (note that parents were allowed to choose more than one option)

| Stakeholders | Should play "a role" (%) | Should have "the most important role" (%) |
|---|---|---|
| Parents | 98.3 | 82.0 |
| Public school students | 78.8 | 2.4 |
| Elected school members | 67.1 | 0.7 |
| School administrators | 78.4 | 2.6 |
| Public health professionals | 96.6 | 10.1 |
| Religious leaders | 66.6 | 0.7 |
| State legislators | 45.5 | 0.2 |
| Do not know | N/A | 0.2 |
| No answer | N/A | 1.0 |

Alabama has a high incidence of teen pregnancy, ranking among the top 20 % nationwide (Mathews et al. 2010). Within the state of Alabama, Mobile County has the highest incidence of teen pregnancy among the three largest metropolitan areas (Birmingham, Mobile, and Montgomery) (Alabama Department of Public Health and Health Statistics Division 2009). Yet, teaching abstinence-plus or risk reduction sex education in schools has not been a priority for Alabama public school systems (Guttmacher 2013). Although it is difficult to separate conservatism and adolescent birth rates, additional research from conservative states can assist policy-makers at all levels to expand their views.

There has been considerable debate among U.S. school policy-makers about whether or not an evidence-based approach to sex education should be part of the school curriculum, and if the answer is affirmative, the question then becomes what type of program will be implemented (Bennett and Assefe 2005; Brough 2008; Guttmacher 2013; Jemmott et al. 2010; Kaiser Family 2004; & Kirby et al. 2007).

In this study, we investigated the extent to which parents think that schools should implement abstinence-plus sex education and pregnancy prevention programs. The majority of the parents indicated that children should be taught sex education in schools. Similar results have been found in other studies (Baldassare 2005; Constantine et al. 2007; Eisenberg et al. 2009; Hoff et al. 2000; & Ito et al. 2006). For example, 86 % of a random sample of 1605 Minnesota parents of school-aged children supported education about condom use (Eisenberg et al. 2009). Likewise, Constantine et al. (2007) conducted a survey of 1284 California parents and found that 89 % preferred abstinence-plus sex education, and 96 % supported discussing contraception when students are in high school.

In our study, even among the parents who indicated that sex education should be included in the curriculum, there was less agreement about specifics concerning contraceptive methods.

For example, although almost 93 % indicated that education should mention the importance of using condoms, a smaller proportion (53.6 %) indicated that it was "very important" to include demonstrations about how to properly use a condom or other contraceptive devices. Yet, when one includes the proportion of individuals that considered these demonstrations "somehow important", the total was almost 80 %.

About 81 % of parents supported the discussion of abstinence in public schools. On the other hand, parents were almost unanimous in their support of public schools discussing transmission and prevention of HIV or AIDS (98.1 %), transmission and prevention of other sexually transmitted diseases (98.3 %), and what to do if one has been raped or sexually assaulted (98.8 %). About 90 % of parents supported parent/child communication about sex and relationship issues and how their child can talk with a partner about sexually transmitted diseases, birth control, and not having sex. This is consistent with both abstinence-based and abstinence-plus perspectives that emphasize education about human development, communication training, and refusal skills.

There were significant income, education, gender, and racial differences between the target and at-large groups (Table 1). Even with these differences, from a practical standpoint, the majority agreed with the need for teaching sex education in public schools regardless of socioeconomic status, gender, or race. Their opinions, however, did vary significantly and practically about what topics to include in sex education. The parents living in areas with high teen pregnancy rates were more supportive of (a) educating their children about condom use, (b) where to get birth control, (c) how to get tested for HIV or AIDs and sexually transmitted diseases, and (d) talking about sexual orientation. This outcome points to the importance of implementing sex education curricula in schools that are focused on the needs of the populations served and the inclusion of clear health goals that reflect community values, two of the 17 characteristics that Kirby and Laris (2009) identified as essential to effective curriculum-based sex education programs for adolescents.

Further analysis of our data suggested that parents in areas with a high incidence of teen pregnancy were twice as likely to have been adolescent parents themselves, in agreement with studies that report associations between adolescent births and having a mother who was an adolescent parent (Bonell et al. 2006; Campa and Eckenrode 2006). Evidence from our study might lend support to additional assessments of potential risk to children with adolescent parents.

In agreement with earlier findings (Jerman and Constantine 2010; Wilson et al. 2010), the majority of parents (98 %) indicated that they wanted to play a role in deciding how sex education should be addressed. Parents were almost unanimously in support of health professionals playing a role in their child's sex education and over three fourths of parents expressed a preference for themselves as having the most important role, followed by a distant 10 % for public health professionals. This finding should encourage health professionals and school systems to educate parents about effective, accurate, developmentally, and age-appropriate sex education for youth. In addition, parents appeared to see students as strong stakeholders in decisions about sex education curricula with over three fourths of parents (78.8 %) reporting a preference for students in the public school system playing a role. We suggest future research along these lines to further explore parental opinion about the extent to which students in public schools should decide sex education curricula. Interestingly, in the opinion of these parents, the clergy should play a minor role in deciding what would be the best approach to address sex education in public schools, even though the poll was carried out in a very religious and predominantly conservative population.

Our study adds to previous research because of two primary strengths. First, it expresses the views of parents in one of the most conservative regions of the USA, a geographical area that has not been explored on the topic of adolescent pregnancy prevention until this study. Second, it compares the attitudes of parents living in a high-risk pregnancy location to the attitudes of parents living in the at-large community.

The findings are subject to a few limitations. First, the sample was largely female and consistent with the overrepresentation of females in another telephone survey about public sex education (Eisenberg et al. 2009). It is important to note, however, that our data reflected that opinions did not differ by gender. Second, the participants were self-selected, so the opinions of those who refused to participate cannot be reflected in the findings. Third, the response rate was low but similar to that of other random-digit-dialed telephone surveys which have demonstrated valid results with low response rates (Curtin et al. 2000; Keeter et al. 2000; also see Tompson et al. (2013), as an example).

## Conclusion and Recommendations

This study offers a non-biased account of parents' views of sex education for their children from a conservative U.S. state. The intent of this article is to inform a wide range of policymakers, encourage discussion, and raise public awareness about sex education public policy. The clarity of public preferences on this topic could provide venues for representative policy-making.

The majority of parents in Mobile County, AL, USA, were supportive of sex education for their children in public schools, regardless of whether they lived in high-risk adolescent pregnancy zip codes or in the general community. Bringing in parents as key stakeholders in the development of relevant sex education programs for youth could stimulate

communication between parents and policy-makers in sex education curriculum choices.

We propose to use this study as the starting point for the exchange of ideas on the topic among researchers, parents, and policy-makers. In this regard, we have recently met with policy-makers in the Mobile County School System to discuss some of the results reported in this paper with the goal of implementing evidence-based, abstinence-plus sex education in local schools that would meet the needs of the target population.

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