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Norms and Stigma around Unintended Pregnancy in Alabama: Associations with Recent Contraceptive Use and Dual Method Use among Young Adult Women

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Abstract

Background: The role of unintended pregnancy norms and stigma in contraceptive use among young women is understudied. This study investigated relationships between anticipated reactions from others, perceived stigma, and endorsed stigma concerning unintended pregnancy, with any and dual contraceptive use in this population.

Methods: From November 2014 to October 2015, young women aged 18–24 years (n=390) and at risk for unintended pregnancy and sexually transmitted infections participated in a survey at a university and public health clinics in Alabama. Multivariable regression models examined associations of unintended pregnancy norms and stigma with contraceptive use, adjusted for demographic and psychosocial characteristics.

Results: Compared to nonusers, more any and dual method users, were White, nulliparous, and from the university and had higher income. In adjusted models, anticipated disapproval of unintended pregnancy by close others was associated with greater contraceptive use (adjusted Odds Ratio [aOR]=1.54, 95% confidence interval [CI]=1.03–2.30), and endorsement of stigma concerning unintended pregnancy was associated with lower odds of dual method use (aOR=0.71, 95% CI=0.51–1.00).

Conclusion: Unintended pregnancy norms and stigma were associated with contraceptive behavior among young women in Alabama. Findings suggest the potential to promote effective contraceptive use in this population by leveraging close relationships and addressing endorsed stigma.

Keywords

reproductive health; contraception; psychosocial; norms; stigma

Introduction

“Unintended pregnancy” refers to a pregnancy that is mistimed or unwanted (Finer and Zolna 2016). Perceptions of pregnancy intendedness differ among people by sociodemographic group, and a large body of literature argues that current forms of

measurement of pregnancy intendedness do not adequately capture its ambiguity (Shreffler et al. 2015). Yet, unintended pregnancy continues to be a frequently used indicator of unmet need for reproductive healthcare (Finer and Zolna 2016). In the United States, prevention of unintended pregnancy has been an expressed goal of the government's national Healthy People 2020 initiative, because unintended pregnancies are associated with negative economic and health consequences that include billions of dollars in costs of births resulting from unintended pregnancy each year and delayed initiation of prenatal care during pregnancy (U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion 2010).

National estimates for the rate of unintended pregnancy among women aged 18–19 years (71 per 1000 women) and 20 – 24 years (81 per 1000 women) are substantially higher than for all women in the United States (45 per 1000 women aged 15–44 years) (Finer and Zolna 2016). Rates of sexually transmitted infections (STIs) are also disproportionately high among 18–24 year-olds (Center for Disease Control and Prevention 2015). Thus, recent guidelines have emphasized the concurrent use of long-acting reversible or other highly effective contraceptive methods (i.e., hormonal or long-acting contraceptive method) with condoms (i.e., dual method use) to prevent both unintended pregnancy and STI transmission (Committee on Adolescent Health Care Long-Acting Reversible Contraception Working Group and Gynecologists 2012). However, the prevalence of dual contraceptive use among this population is only 21% (Tyler et al. 2014). While interpersonal and intrapersonal psychosocial factors contributing to variation in contraceptive method use among young adult women has been examined, including type of sexual relationship (Hock-Long et al. 2013), contraceptive misinformation (Carter et al. 2012), perceived infertility, method dissatisfaction (Pazol et al. 2015), and pregnancy ambivalence (Higgins, Popkin, and Santelli 2012), relatively few studies have examined the roles of social norms and stigma in use of dual contraceptive methods within this population.

Social norms are “rules that govern behavior in groups and societies”, given shared expectations about the acceptability of our actions, roles and identities (Bicchieri and Muldoon 2011). Empirical studies of social norms conducted among young women within the family planning context have found that peer and parent attitudes influence contraceptive method use and other unintended pregnancy and STI risk behaviors. In particular, perceived peer approval of sexual behavior is associated with greater accumulation of sexual partners (Coley et al. 2013); peers worrying about transmission of HIV is associated with greater condom use (Hock-Long et al. 2013); and the perception that friends think birth control is important has been related to lower odds of contraceptive nonuse and higher odds of hormonal or long-acting contraceptive use (Frost, Lindberg, and Finer 2012). Studies of parent-child norms have suggested that perceived parental disapproval of sex is associated with greater odds of postponement of vaginal intercourse (Halpern et al. 2006), and perceived parental approval for use of reproductive health care services shapes reproductive health care-seeking (Caal et al. 2013, Rubin et al. 2016). Additionally, parental permissiveness of sexual activity is associated with higher odds of having multiple sexual partners and of contracting STIs (Hahm et al. 2007).

Stigma, on the other hand, refers to the social marking of individuals who transgress social norms due to an actual or perceived attribute or behavior. Among young women, perception of negative attitudes, stereotypes, and judgment within the community (perceived stigma) and agreement with those perspectives (endorsed stigma) are connected to behavior that places women and families at risk for adverse health outcomes. More specifically, greater perception of STI-related stigma has been associated with less STI testing among young adults (Cunningham et al. 2009), while HIV-related stigma has been associated with high risk sexual behaviors, including unprotected sex and partner concurrency (Clum et al. 2009). Stigma concerning unintended pregnancy, abortion, and adoption may result in non-disclosure of pregnancy or the outcome of pregnancy by young women (Smith et al. 2016).

While the aforementioned studies have explored social norms or stigmas regarding several sexual and reproductive health behaviors, to our knowledge, no recent U.S. studies have explored social norms and stigma *concerning unintended pregnancy* as related to use of dual contraceptive methods among young adult women. Social norms and stigma involving unintended pregnancy are closely tied to social expectations and sanctions for the circumstances by which women have unintended pregnancies, including uncommitted sexual relationships and financial instability, behavior that results in unintended pregnancy, such as sexual activity and contraceptive failure, and motherhood (Smith et al. 2016, Rice et al. 2017). Women may be motivated to use contraceptive methods to avoid any or all of the intersecting stigmas that women who have an unintended pregnancy face. These stigmas may play a role in not only whether young women use contraception, but also whether they use dual methods, to avoid the multiple forms of stigma that may result from contraceptive failure. Alternatively, women may not actively prepare for the use of contraceptive methods, and especially dual contraceptive methods, for fear of social judgment regarding their sexual activity.

Social norms and stigma concerning unintended pregnancy may explain a portion of the variation in contraceptive use among young women in particular, beyond the portion accounted for by norms and stigma associated with other reproductive behaviors (e.g., contraceptive use and sexual behavior). Young women consider partner and parental preferences for family planning (e.g., family size, pregnancy timing or lack thereof, etc.) in contraceptive decision-making (Yee and Simon 2010, Miller, Barber, and Schulz 2017). Thus, young women whose social networks are less supportive of pregnancy in young adulthood may be more motivated to prevent pregnancy by use of contraceptives. Relatedly, some women report that a friends' "pregnancy scare" catalyzed their own use of long acting contraceptive methods (Anderson et al. 2014), which may reflect social norms around unintended pregnancy in contraceptive use.

Investigation of norms and stigma about unintended pregnancy in the U.S. South may provide support for efforts to modify norms and stigma to address disparities in unintended pregnancy and STI rates. In Alabama, in particular, an estimated 48 per 1000 pregnancies are unintended (Kost 2015), higher than national estimates, and rates of gonorrhea and chlamydia in Alabama are among the highest in the nation (Centers for Disease Control and Prevention (CDC) 2014). Young people in Alabama may be particularly susceptible to stigma concerning sexual and reproductive health behavior, given the political climate in the

state. Alabama is one of 11 U.S. states that does not mandate sex education and requires that voluntary sex education programs stress abstinence (Guttmacher Institute 2016), despite lack of scientific evidence on the effectiveness of abstinence education programs (Brindis 2006). Alabama state abortion laws require women who decide to terminate a pregnancy to receive state-published materials on risks of abortion and alternatives 48 hours prior to the procedure, in addition to numerous other requirements that make it difficult to access care at the few facilities in the state (White et al. 2016). These and other policies contribute to Alabama's relatively low ranking among US states in women's reproductive rights (Hess et al. 2015).

The objective of the current study was to investigate the relationships between anticipated negative reactions to unintended pregnancy from close others, as well as perceived and endorsed stigma concerning unintended pregnancy, with recent use of dual contraceptive methods and recent use of any contraceptive method among young adult women in Birmingham, Alabama.

Materials and Methods

Data Collection

We conducted a survey of young women in Birmingham, AL from November 2014 to October 2015. Eligibility criteria included female sex (regardless of gender identity), aged 18 to 24 years, ability to speak English, and not currently pregnant. Trained female research assistants recruited young women from common areas of public health department clinics and a university campus using posted fliers and in-person recruitment. Study staff described the study to and assessed the eligibility of each potential participant during in-person recruitment or contact by telephone, if recruited via flyer.

Additional study participants were recruited from an introductory psychology course at the university, in which students had the option to participate in the current study to fulfill a course research participation requirement. Students in the course signed-up for the current study online and viewed descriptions of available studies and their eligibility criteria, and were able to select from, modify, or cancel available study appointments held at designated locations on campus. At the time of survey administration, a research assistant met participants in, or directed them to, a private location for the consent process and survey. Surveys were administered via iPad using Harvest Your Data's iSurvey software (Contract Software Ltd 2010). After reviewing informed consent information on the iPad, participants provided consent before continuing with the 20–30-minute survey. Respondents received a \$20 incentive, or class credit, for participating.

We screened 1095 young women for participation in the current study, of whom 653 (60%) met the eligibility criteria for age, language, and pregnancy status and proceeded with informed consent and study enrollment. No women refused participation after having been found eligible. Out of 592 women screened at the health department site, 190 participants (32%) were enrolled. From the university site, 463 participants were enrolled out of the 503 women screened (92%). University students approached were more likely to be in the appropriate age range (18–24 years) and speak English, as compared to those at the health

department site. The study protocol was approved by the Institutional Review Board at the authors' institution.

Measures

The 175-item survey included measures of norms and stigma related to unintended pregnancy, demographic data, and sexual and reproductive health behaviors and outcomes. The norms and stigma survey items were developed through a mixed-methods process in which focus groups were conducted with 36 young adult women in Birmingham to understand perceptions and experiences of stigma around unintended pregnancy in this population. Survey items developed were pre-tested in interviews with 12 young adult women in Birmingham. The revised items were reviewed by an expert group of family planning professionals before arriving at the final version (Rice et al. 2017).

Independent Variables—To assess social norms and stigma around unintended pregnancy, we conducted separate principal components and reliability analyses for each construct, which resulted in the variables presented in Table 1. Nine of the items assessed anticipated negative reactions to unintended pregnancy answered on a Likert scale from 1 (extremely unlikely) to 5 (extremely likely). Principal components analysis revealed two underlying factors, of which Cronbach's alpha level for the first factor was high ($\alpha=0.87$) and was low for the second factor ($\alpha=0.42$); thus the latter was not included in analysis. To provide context for the anticipated negative reaction items, we asked participants in a separate question, "If you were to get pregnant accidentally, in addition to your own opinion, how much would [specific close others'] opinions matter?" on a scale from 1 (would not matter at all) to 4 (would matter very much), and calculated mean values for each.

Twelve of the items focused on stigma regarding unintended pregnancy, measured on a Likert scale from 1 (strongly disagree) to 5 (strongly agree). Principal components analysis revealed four factors, of which the first three-item factor theoretically represented perceived stigma and the second four-item factor represented endorsed stigma. The first two factors were moderately reliable ($\alpha=0.58$ and 0.59), the third factor had low reliability ($\alpha=0.44$), and the fourth was comprised of one item; therefore the last two factors were not included in analysis. We created a mean score variable for each retained construct, whereby higher score indicated more negative anticipated reactions or more perceived or endorsed stigma.

Dependent Variables—Contraceptive method use measures were created from responses to the following question, adopted from the National Survey of Family Growth (U.S. Department of Health and Human Services 2014): "the last time you had sexual intercourse, did you or your partner use a method to prevent pregnancy and if so, what were the methods you used?" Response items included no method, birth control pills, condoms, an intrauterine device or implant, and shot/ring. Dual method use was defined as participants' reported use of both a condom and a highly effective contraceptive method (i.e., hormonal or long-acting contraceptive method), at last intercourse (coded 1), compared to nonuse of dual methods (coded 0). The reference group included both participants who used a single contraceptive method and those who used no contraceptive method at last intercourse, an approach used in previous studies investigating factors associated with dual method use (Higgins et al. 2014,

Seutlwadi and Peltzer 2013). Any contraceptive use was analyzed as a separate outcome and defined as participants' reported use of any contraceptive method to prevent pregnancy at last sexual intercourse (coded 1) as opposed to contraceptive nonuse (i.e., no method; coded 0).

Covariates—Covariates included study recruitment location (health department vs. university campus), age (18–19 vs. 20–24 years), race (black or other vs. white), household receipt of welfare services (any public assistance vs. none), relationship status (in a committed relationship vs. not), religiosity (very vs. not at all or somewhat), and number of prior pregnancies (1 or more vs. 0). An item measuring the participants' number of recent male sexual partners (i.e., “During the past 3 months, with how many men, if any, have you had sexual intercourse?”) was also included, measured as a continuous variable.

Bivariate and Multivariate Analyses

We initially described characteristics of participants at risk for unintended pregnancy and STIs (i.e., any prior engagement in sexual activity with a person of the opposite sex). We performed a dependent t-test to distinguish whose opinions regarding unintended pregnancy the participants considered most relevant. We examined unadjusted associations of these characteristics with use of any or dual contraceptive methods using chi-square tests and Pearson's correlations. Next, we determined whether anticipated negative reactions to unintended pregnancy, perceived stigma, and endorsed stigma were associated with one another, also using Pearson's correlations. Given findings that perceived stigma had a large correlation with anticipated negative reactions ($r = 0.54$; $p < 0.01$), and a small correlation with endorsed stigma ($r = 0.19$; $p < 0.01$), we tested the associations of anticipated negative reactions to unintended pregnancy, perceived stigma, and endorsed stigma regarding unintended pregnancy, with any or dual contraceptive use.

Finally, we examined the unadjusted and adjusted associations of anticipated negative reactions to unintended pregnancy, perceived stigma, and endorsed stigma regarding unintended pregnancy, with any or dual contraceptive use in logistic regression models. We assessed the fit of the overall multivariate models using omnibus chi square tests. Covariates were included in the adjusted models based on significant bivariate associations with at least one of the contraceptive use variables. In models for which an association of anticipated negative reactions to unintended pregnancy, perceived stigma, and endorsed stigma regarding unintended pregnancy, with any contraceptive use or dual method use were observed, we explored whether that relationship was moderated by specific covariates (in particular, study recruitment site, race, religiosity, number of sexual partners, and pregnancy history) by examining interaction effects. Data were analyzed using IBM SPSS Statistics, version 22.

Results

Of the 654 young women who participated in study, we excluded from analysis 252 who were not sexually active, 5 who were missing over 50% of data, and 7 whose survey entries indicated ineligibility. The current sample thus included 390 women; slightly over half (52%) were 20–24 years of age; most were recruited from the university campus recruitment

location (65%), and the majority were black or other race (59%) (Table 2). Eighty-five percent of participants used a contraceptive method at last intercourse, and 29% used dual methods. Participants indicated that the opinions of close others that mattered most in terms of an unintended pregnancy were mothers primarily, followed by the man involved in the pregnancy (Figure 1). Mean scores for the variable indicating the degree to which those participants' opinions mattered were significantly different for family and partner compared to social acquaintances ($t=32.90$; $p<0.001$).

Bivariate descriptive analyses revealed that, compared to participants who did not use any method during most recent intercourse, more contraceptive users were recruited from the university, were White, lived in a household where public assistance was not received, and had no prior pregnancies. More contraceptive users also anticipated negative reactions to unintended pregnancy by close others and perceived stigma concerning unintended pregnancy than did nonusers. Differences between dual method users and those not using dual methods were similar to the differences between any versus no contraceptive method users, but in addition, were younger, more religious, and had a fewer recent sexual partners compared with those who did not use dual methods. More dual method users similarly anticipated negative reactions from close others, but fewer endorsed stigma about unintended pregnancy, compared to their counterparts. Relationship status was not associated with either dependent variable.

In separate bivariate models for use of any contraceptive method (versus no method), higher anticipated negative reactions to unintended pregnancy (Odds Ratio [OR]=1.75, 95% confidence interval [CI]=1.29–2.37) and greater perceived stigma concerning unintended pregnancy (OR=1.48; 95% CI=1.01–2.16) were associated with greater odds of contraceptive use (Table 3). However, in the covariate-adjusted models, only anticipated negative reactions to unintended pregnancy remained significantly associated with contraceptive use (Adjusted OR [AOR]=1.54, 95% CI=1.03–2.30). In this multivariate model, being recruited from the health department (AOR=0.34, 95% CI=0.13–0.86), being non-white (AOR=0.28, 95% CI=0.09–0.91), and higher number of prior sexual partners (AOR=1.88, 95% CI=1.17–3.02) were also associated with any contraceptive method use. Our examination of interactions revealed that the association between anticipated negative reactions concerning unintended pregnancy and contraceptive use was not moderated by study recruitment site, race, religiosity, number of sexual partners, or pregnancy history.

In the bivariate models to examine factors associated with use of dual contraceptive methods, higher anticipated negative reactions to unintended pregnancy were also associated with higher odds of dual method use (OR=1.35, 95% CI=1.07–1.70), and higher endorsed stigma concerning unintended pregnancy was associated with lower likelihood of dual method use (OR=0.68, 95% CI=0.51–0.91). In multivariable-adjusted models, only endorsed stigma remained significantly associated with higher odds of dual method use (AOR=0.71, 95% CI=0.51–1.00). In this model, being very religious (AOR=2.98, 95% CI=1.73–5.12) and having a prior pregnancy (AOR=0.21, 95% CI=0.08–0.53) were also associated with dual method use. For the tested covariates, no interaction effects were observed in the relationship between endorsed stigma around unintended pregnancy and dual method use.

The omnibus chi-square tests for all of the multivariate logistic regression models explored indicated the overall model significance.

Discussion

In this Alabama sample, young women who anticipated more negative reactions to unintended pregnancy by close others were more likely to report using contraception at last intercourse. This is consistent with literature indicating that young women who expect negative interpersonal repercussions to (or do not perceive social support for) STI or unintended pregnancy risk behavior are less likely to engage in risky behavior (Hahm et al. 2007, Halpern et al. 2006). Considering that the anticipated reactions of parents, siblings, and romantic partners involved in an unintended pregnancy were most important to the current study participants, these findings may inform the development of strategies that leverage these close interpersonal relationships to promote contraceptive use (Crepaz et al. 2015, Peipert et al. 2011). However, it will be important to investigate whether these anticipated negative reactions result in anticipated stigma (the expectation of negative judgement by others), which may lead to internalized stigma (shame and lower self-worth due to endorsement of external stigmatizing attitudes regarding oneself) (Turan, Budhwani, et al. 2016). Although the scientific community debates whether stigma is an effective public health tool in other contexts (Bell et al. 2010), unintended pregnancy stigma has been associated with negative consequences (Smith et al. 2016); thus, sexual and reproductive health promotion efforts may seek to leverage positive communication with close others concerning contraceptive use, rather than encourage anticipated stigma.

Our study results also contribute to the literature the finding that, while anticipated interpersonal repercussions were associated with contraceptive use, we did not observe the same association for use of dual contraceptive methods, after accounting for differences in participant characteristics. This finding may reflect the complex motivations for avoiding both unintended pregnancy and STIs/HIV as compared to a single form of contraception or no contraception (Hock-Long et al. 2013). Dual contraceptive method users specifically are more likely to have specific sexual health risk characteristics, such as sexual intercourse with a casual partner and an STI diagnosis (Tyler et al. 2014), and may use dual methods to protect themselves considering these circumstances. Women who did not use dual methods may choose not to use condoms because they consider themselves to be in a monogamous relationship (thus at less perceived risk) compared to women who are using dual methods. Alternatively, women who did not use dual methods at last intercourse may be particularly sensitive to negative social attitudes regarding their sexual risk behavior and the circumstances in which they desire dual protection.

We also found that participants who endorsed more negative attitudes and judgments about young women who have had an unintended pregnancy had lower odds of using dual contraceptive methods. Prior literature similarly suggests that higher intrapersonal stigma is associated with riskier sexual and reproductive health risk behavior (Clum et al. 2009, Cunningham et al. 2009). This relationship exists among stigmatized individuals (persons living with HIV) because endorsement of stigma and self-deprecating feelings as a consequence leads to greater fear of stigma within the community and is in turn associated

with health risk behavior (Turan, Budhwani, et al. 2016). It is possible that unintended pregnancy-related stigma works in a similar way to affect use of dual contraceptive methods. Young women who endorse negative attitudes and judgment about unintended pregnancy may internalize shame related to the circumstances motivating prevention of both unintended pregnancy and STIs, such as nonstable or concurrent intimate partner relationships, and fear judgment about preparation for and use of dual contraceptive methods. Therefore, they may not prepare for the use of a hormonal method or may not negotiate the use of a barrier method with partners to avoid stigma. Efforts to prevent endorsement of stigma can use targeted public health communication that challenges stereotypical and accusatory constructions of unintended pregnancy and related sexual behavior (Clair, Daniel, and Lamont 2016).

In our study, endorsed stigma was not significantly related to unprotected intercourse, despite its inverse relationship with use of dual contraceptive methods, perhaps because use of dual methods may invoke more stigma related to the circumstances within which women are motivated to prevent both unintended pregnancy and STIs than single method use. The finding that perceived stigma was not associated with use of any or dual contraceptive methods in adjusted models is consistent with findings from the HIV stigma literature suggesting that intrapersonal and interpersonal stigma are more directly relevant to health outcomes than perceptions of stigma within the community. These studies have reported null findings for the relationship between perceived community stigma and use of preventive HIV care but observed a significant association for internalized and anticipated stigma (Turan, Lanzi, et al. 2016). Our findings and the existing literature highlight that differentiation between different dimensions of norms and stigma is relevant to health behavior.

Another key finding was that compared to nonusers, more of the any method and dual method users as were White, higher income, nulliparous, and from the university study site. Prior literature has similarly documented associations of contraceptive use with race (Higgins et al. 2014), socioeconomic status, and parity (Wilson and Koo 2008). Disparities in use of contraceptive methods may reflect the structural inequalities that produce disparities in access to contraceptive methods (Dehlendorf, Harris, and Weitz 2013). Marginalized groups may also be hesitant to use long-acting contraceptive methods, given U.S. history of unethical promotion and medical practice involving such methods (Gubrium et al. 2016).

Surprisingly, we found that relationship status was not associated with contraceptive use in our sample. This could have been because the response categories for relationship status in our survey (married, cohabitating, non-cohabitating, single, or separated/widowed/divorced) did not appropriately reflect participants' conceptions of intimate relationships. The "steps, stage, and statuses in dating relationships" during late adolescence and young adulthood are less clear than that of older adults (Owen et al. 2010). Studies that have found an association between relationship status and contraceptive use have largely included participants beyond the age of women included in the present study (Higgins et al. 2014, James-Hawkins and Broadus 2016). Furthermore, relationship characteristics that were not captured in our

survey, such as duration of relationship and parenthood status, are relevant to contraceptive use (Wilson and Koo 2008).

Lastly, use of a single dichotomized variable for relationship status in the analysis may have masked variation in contraceptive use. In supplemental analyses, only cohabiting unmarried partnerships ($\chi^2=9.246$, $p=0.002$), and separately, non-cohabiting unmarried partnerships ($\chi^2=10.281$, $p=0.001$) versus all other relationship sub-categories were related to dual method but not any method use in bivariate analyses, similar to previous study findings by Wilson and Koo (2008). We opted to maintain use of the dichotomous relationship status variable given support for this approach provided by prior published studies of reproductive stigma as well as dual method use among young adult women (Rice et al. 2017, MacPhail et al. 2007).

Limitations

Our findings should be interpreted in consideration of the study's limitations. First, the small sample size and moderate internal consistency of the perceived and endorsed community stigma scales could have resulted in inadequate statistical power to detect modest associations as statistically significant, misclassification and inaccurate results (e.g., interaction effects in the associations between norms and stigma and contraceptive use may have been obscured), respectively. Second, the cross-sectional design did not allow assessment of temporal relations among variables and thus causal conclusions, such as whether attitudes and intentions actually lead to behavior. Additionally, our study may have overestimated the association of unintended pregnancy norms and stigma with contraceptive use by not measuring contraceptive use norms and stigma. Although our study was intended to investigate the relationship of unintended pregnancy norms and stigma with contraceptive use within the southern U.S. context, our sample largely consisted of white participants (41%) recruited from a university (70%), and we did not or measure gender identity; therefore, our findings are not generalizable to non-University southern residents and non-binary and transgender people. Lastly, self-selection biases may have occurred with the women who agreed to the eligibility screening for our survey, particularly in the non-university setting which had a much lower participation rate.

The current study can provide a foundation for further exploring these concepts in future studies, which can adapt and validate improved scales using prospective, longitudinal designs and larger purposive samples. Subsequent studies should examine the association between contraceptive use stigma and unintended pregnancy stigma to determine whether either or both are relevant to contraceptive use and other pertinent outcomes (such as depression, prenatal care use, etc.) to inform allocation of programmatic resources. These analyses should include intimate partner relationship characteristics, such as partner concurrency, that were not measured in the present study and may be more relevant to contraceptive use than relationship status.

Conclusion

Our study contributes the findings that among the young Alabama women at risk for unintended pregnancy and STIs in our study, anticipated disapproval of unintended

pregnancy by close social circle members was protective against unprotected intercourse, while endorsement of stigma concerning unintended pregnancy was associated with dual contraceptive method nonuse. Our results may suggest specific areas for health promotion. Practitioners who provide contraceptive counseling to young women may consider discussion of close relationships, particularly with mothers and partners, to understand and respond to the context in which women make contraceptive decisions. Health educators may have a meaningful role in efforts to mitigate the stigma and dual method nonuse association, using targeted programmatic efforts, including messaging to destigmatize unintended pregnancy, sexual behaviors, and contraceptive use.

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Figure 1:
Mean Values for the Degree to which Family Members and Close Others' Opinions Would Matter to Participants if Faced with an Unintended Pregnancy (N=390)

Table 1:

Results of Principal Components Factor Analysis of Items Compromising the Anticipated Negative Emotional Reactions, Perceived Stigma and Endorsed Stigma Scales (N=390)

Factor and items	Factor loadings
Anticipated negative reaction [†]	
If I got pregnant accidentally, the people who matter most to me:	
Would be disappointed	0.79
Would be happy [‡]	0.80
Would be mad	0.82
Would understand [‡]	0.83
Would be supportive [‡]	0.68
Would feel ashamed	0.78
<i>Cronbach's $\alpha=0.87$</i>	
<i>Eigenvalue, 3.70; 62% explained variance</i>	
Perceived stigma [*]	
A woman my age who gets pregnant accidentally will be gossiped about	0.73
A woman my age who gets pregnant accidentally brings shame on her family	0.79
It is not a big deal if a woman my age becomes pregnant accidentally [‡]	0.72
<i>Cronbach's $\alpha=0.59$</i>	
<i>Eigenvalue, 1.64; 55% explained variance</i>	
Endorsed stigma [*]	
Women my age who become pregnant accidentally:	
Usually didn't bother to use birth control (e.g., a condom, birth control pills, IUD, etc.)	0.68
Are usually the type who sleep around	0.73
Are usually using the pregnancy to trap a man	0.62
It is a woman's responsibility not to get pregnant accidentally	0.63
<i>Cronbach's $\alpha=0.58$</i>	
<i>Eigenvalue, 1.77; 44% explained variance</i>	

[†] Response options were from 1 (extremely unlikely) to 5 (extremely likely)

[‡] Reverse coded

^{*} Response options were from 1 (strongly disagree) to 5 (strongly agree)

Table 2:

Selected Sociodemographic, Reproductive, and Psychosocial Characteristics of Sexually Active Study Participants by Any Recent Contraceptive Use and by Dual Method Use

	Total (N=390)	Contraceptive Use		p- value	Dual Method Use [†]		p- value
		Yes (n=333)	No (n=57)		Yes (n=115)	No (n=271)	
	%	%	%		%	%	
Age (years)				.069			<.01
18–19	47.9	50.0	36.8		60.0	42.8	
20–24	52.1	50.0	63.2		40.0	57.2	
Recruitment site				<.001			<.001
Health dept.	34.6	29.7	63.2		15.7	42.8	
University	65.4	70.3	36.8		84.3	57.2	
Race				<.05			<.001
Black	50.5	47.7	66.7		36.3	56.8	
White	40.7	43.8	22.8		56.6	33.9	
Other	8.8	8.5	10.5		7.1	9.2	
Public assistance				<.05			<.05
Received	42.8	40.0	57.9		33.9	53.5	
Not Received	57.2	60.0	42.1		66.1	46.5	
Religiosity				.111			<.001
Very religious	30.0	31.5	21.1		43.5	24.4	
Somewhat or not religious	70.0	68.5	78.9		56.5	75.6	
Relationship status				.165			.279
Single	40.8	39.3	49.1		36.5	42.4	
In a Committed Relationship	59.2	60.7	50.9		63.5	57.6	
Prior Pregnancies				<.001			<.001
1 or more	26.0	22.3	48.1		7.0	34.4	
0	74.0	77.7	51.9		93.0	65.6	
	Mean (SD)	Mean (SD)			Mean (SD)		
No. of recent sexual partners	1.03 (0.79)	1.04 (0.80)	0.96 (0.78)	.510	0.84 (0.60)	1.11 (0.85)	<.01
Anticipated negative reactions (range: 1 – 5)	3.05 (0.97)	3.13 (0.94)	2.62 (0.99)	<.001	3.24 (0.94)	2.97 (0.96)	<.05
Perceived stigma (range: 1 – 5)	3.16 (0.76)	3.19 (0.74)	2.97 (0.86)	<.05	3.26 (0.74)	3.12 (0.77)	.105
Endorsed stigma (range: 1 – 5)	3.16 (0.78)	3.15 (0.76)	3.25 (0.87)	.351	3.00 (0.83)	3.23 (0.75)	<.01

[†] Dual contraceptive use was defined as use of both a condom and a highly active contraceptive method (i.e., hormonal or a long-acting contraceptive method) at last intercourse

Table 3:

Relationships between Anticipated Negative Emotional Reactions, Perceived Stigma, and Endorsed Stigma on Any Contraceptive Use and Dual Contraceptive Method Use among Sexually Active Participants

y	Contraceptive Use (N=390)		Dual Method Use (N=386)	
	Unadjusted OR (95% CI)	Adjusted [†] OR (95% CI)	Unadjusted OR (95% CI)	Adjusted [†] OR (95% CI)
Model 1				
Anticipated Negative Reactions	1.75 (1.29–2.37) ***	1.54 (1.03–2.30) *	1.35 (1.07–1.70) *	0.94 (0.70–1.25)
Model 2				
Perceived Stigma	1.48 (1.01–2.16) *	1.20 (0.76–1.90)	1.27 (0.95–1.69)	0.86 (0.61–1.21)
Model 3				
Endorsed Stigma	0.84 (0.58–1.21)	0.99 (0.66–1.50)	0.68 (0.51–0.91) **	0.71 (0.51–1.00) *

OR: Odds ratios from logistic regression models; CI: Confidence interval

[†] Adjusted for age, recruitment site, race, public assistance, religiosity, prior pregnancy, and recent sexual partners

* p<.05

** p<.01

*** p<.001