



# Associations between lifetime stress exposure, race, and first-birth intendedness in the United States

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## Abstract

This study examined how lifetime stress exposure and race are associated with first-birth intendedness, and whether these associations differ based on stress exposure timing. Greater lifetime stress exposure was related to increased first-birth intendedness for black women but was unrelated or even associated with decreased first-birth intendedness for white women, depending on stress exposure timing. These effects were robust while controlling for age, partner status, household income, and education, and they differed based on the timing of participants' stress exposure. These data thus provide evidence that first-birth intendedness is influenced by both lifetime stress exposure and race in the United States.

## Keywords

adversity, birth intendedness, life stress, pregnancy, race

Births can occur under many different circumstances that have implications for lifelong health and well-being. At a basic level, for example, some births are planned whereas others are not, with 37% of births being unintended in the United States at the time they occur (National Center for Health Statistics, 2019). A great deal of public health attention has been directed toward avoiding undesired and mistimed births among American women, and reducing the proportion of unintended births is an explicit goal of the Healthy People 2020 initiative (US Department of Health and Human Services, Office of Disease Prevention and Health Promotion, 2019). This goal arises in part from the potential effect of pregnancy intendedness on behaviors that affect infant health. For example, women with an intended pregnancy seek prenatal care earlier (Kost and

Lindberg, 2015), are more likely to breastfeed their infant (Kost and Lindberg, 2015), and may more strongly bond with their child (Foster et al., 2018). Furthermore, a mistimed or unintended birth can suggest that the mother did not have full control over her reproduction, which makes birth intendedness an equity issue. Given the magnitude of these consequences, more research is needed to identify

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the complexity of factors that affect birth intendedness.

A life course perspective (Elder, 1985, 1994) highlights the importance of timing and social context in life course milestones, which can organize past research and guide further inquiry on first-birth intendedness. As we describe below, exposure to stressors over the life course may affect birth intendedness through multiple pathways, including by reducing cognitive resources for planning and limiting options for personal fulfillment as an adult. In this article, we specifically ask how major stressors occurring over the entire life course and during particular developmental periods are associated with differences in first-birth intendedness. Furthermore, we examine the extent to which these effects vary by race and by the specific timing of individuals' life stress exposure. The analysis thus helps to shed light on the complex associations between life stress exposure, social context, and birth intendedness in the United States.

### *Life stress and pregnancy*

Many studies have shown that stress at the time of pregnancy, or shortly before, is associated with a greater likelihood of having an unintended pregnancy, which includes both the desire to have a child and the timing of birth (Hall et al., 2014, 2017b; Maxson and Miranda, 2011; Nelson and Lepore, 2013; Orr and Miller, 1997; Uscher-Pines and Nelson, 2010). A potential mechanism linking current stress and intendedness was offered by Uscher-Pines and Nelson (2010), who speculated that the psychological costs of experiencing stress, including hopelessness and risky behavior, could lead to higher rates of unintended births.

The life course perspective (Elder, 1985, 1994) points to the significance of timing in the formation of attitudes and beliefs later in life. Consequently, the psychological costs of stress suggested by Uscher-Pines and Nelson (2010) may depend on the timing of stressor exposure during the life course. Consistent with this possibility, Hall et al. (2017c) found that adolescent

depression increased the likelihood of an unintended birth in adulthood whereas adult depression decreased the likelihood of an unintended birth. Although stress and depression are distinct constructs with unique effects on the likelihood of an unintended birth (Hall et al., 2014), these findings provide initial evidence that the specific timing of stress exposure could possibly influence birth intendedness.

Social experiences and women's beliefs about themselves as potential mothers may also shape fertility intentions (Bachrach and Morgan, 2013). For some women, becoming a mother may be a highly valued identity and experience. We propose that this may be specifically influenced by an interaction between exposure to stressors and social context. An example of such effects can be found in Edin and Kefalas' (2011) book, *Promises I Can Keep*. In it, the authors described the fertility experiences of poor women in neighborhoods with low marriage rates, very few high-quality educational or employment opportunities, and high poverty, drug use, and crime rates (Edin and Kefalas, 2011). The authors' interpretation is that women's view of motherhood was shaped by their social environment. Edin and Kefalas (2011) write: "Into this [opportunity] void comes a pregnancy and then a baby, bringing the purpose, the validation, the companionship, and the order that young women feel have been so sorely lacking. In some profound sense, these young women believe, a baby has the power to solve everything." Indeed, the women's experience shaped their views of the world, themselves, and consequently the transition to motherhood.

Subsequent survey data have provided further evidence for this effect. For example, in a sample of 18 to 20 year-old women, having received public assistance as a child, having friends or parents who would approve of a pregnancy, or having friends with children increased participants' likelihood of wanting a pregnancy (Weitzman et al., 2017). Despite what socially privileged outsiders might view as a poor choice to have a baby, the decision makes sense in the context of what the women experienced as

children and teenagers. Therefore, it is possible that a lifetime of stress, or stress occurring at particular developmental stages, might increase the likelihood that a birth was intended, particularly if it reflects a broader context of disadvantage.

## **Race**

Racial categorization is a key factor in Americans' experience because it has historically been used to inequitably distribute social and material resources toward whites (Omi and Winant, 2015). For example, social institutions such as education, housing, and employment practices preferentially benefit whites in the United States by providing them with greater access and rewards (Bonilla-Silva, 2017). One result of this system is that the median weekly earnings in 2018 was \$665 for black women versus \$816 for white women (U.S. Department of Labor, 2019). Similarly, black women are four times more likely to live in a high-poverty neighborhood than white women (Firebaugh and Acciai, 2016), and blacks' household wealth is 15% lower on average than whites' household wealth (Dettling et al., 2017).

In the United States, belief systems about racial groups have helped to justify inequitable social institutions (Jung, 2015). Consequently, the inequity evident between whites and blacks is not simply marked by a difference in the number of (dis)advantages but also the quality of their experiences. Interpersonal discrimination, symbolic representation (e.g., in the media), and neighborhood environment create unequal experiences among racial and ethnic groups even for people with similar class advantages. As a result, women with similar characteristics may experience different opportunities and health outcomes depending on their race. For instance, black women with college degrees in the United States are more likely to have severe maternal morbidity than women from other racial and ethnic backgrounds who never graduated from high school (New York City Department of Health and Mental Hygiene, 2016).

Given this social-cultural context, it is not surprising that birth intendedness varies widely

by race in the United States. Indeed, recent data from the National Survey of Family Growth showed that black women were more than twice as likely as white women to have an unintended birth (53% of births versus 24%). Hispanic women were less likely than black women, but much more likely than white women to have an unintended birth (45% for Hispanic women; Guzzo, 2017). Research seeking to explain this gap has largely focused on how racial inequity in access to resources such as education or insurance coverage might account for the gap in birth intendedness. In fact, unintended births are more common among women who are single, have less education, and use Medicaid, and these differences partially account for the racial disparity observed in birth intendedness (Guzman et al., 2010; Kim et al., 2016).

Some studies have also found that psychological factors operate differently for white and economically advantaged women. For example, one recent study found that experiencing moderate or severe depression was associated with higher rates of unintended pregnancy, but only among non-white women and women with incomes under \$50,000 (Hall et al., 2017c). To our knowledge, though, no studies have examined how stressors occurring over the life course interact with social or racial status to predict differences in first-birth intendedness in the United States.

## **Present study**

The aim of the present study was to address this important issue by the assessing the lifetime stress exposure of racially and economically diverse women who had just given birth. We had two main research questions: (a) is lifetime stress exposure, or stressor exposures occurring at particular developmental periods (i.e., childhood vs adolescence vs adulthood), associated with first-birth intendedness? and (b) if so, are the associations between life stress exposure and first-birth intendedness the same for black and white women? By addressing these two questions, our overarching goal was to examine for the first time how first-birth intendedness is

structured by both life stress exposure and race in a diverse sample of new mothers in the United States.

## Method

### Participants

Data were drawn from a larger study examining the effects of lifetime stress exposure and social support on birth outcomes and other pregnancy-related variables (Smith et al., 2020). The sample included 200 women who were recovering after giving birth to their first child at one of two large, urban hospitals from January to September 2016. The hospitals were selected to maximize black/white racial and class diversity. One hundred participants were enrolled from each hospital. Given the challenges of conducting the study in a clinically active postpartum setting, some surveys were administered verbally and others were self-administered using a tablet computer. Most women spent about 1 hour completing the survey.

Due to the nature of the hospital environment and interruptions, some participants were not able to complete all study measures, or the interview was interrupted for the respondent to rest, tend to her infant, spend time with visitors, or meet with medical staff. Given missing data and the exclusions described below, the final sample included 145 or 153 cases, depending on the developmental period analyzed. The smallest sample size used in analyses ( $n = 145$ ) provided 99.62% power to detect a conventionally medium-sized effect ( $f^2 = 0.15$ ) for a regression coefficient of interest in our regression analyses with seven predictors in the model (i.e., the maximum number of predictors our models included). The response rate was similarly high at the two sites: 70% and 74%. All participants received a \$30 gift card for their time. Data were gathered using the Research Electronic Data Capture (REDCap; Harris et al., 2009), and the study was approved by the Institutional Review Boards at the two study sites.

### Measures

**Lifetime stress exposure.** Stressor exposure occurring over the entire life course was assessed using the Stress and Adversity Inventory for Adults (STRAIN; Slavich and Shields, 2018). The STRAIN asks respondents about 55 different types of acute life events and chronic difficulties that they could have experienced since childhood (see <https://www.strainsetup.com>). For every stressor that is endorsed, follow-up questions ascertain the stressor's severity, frequency, timing, and duration. The STRAIN has been extensively validated and has excellent test-retest reliability ( $r_s = .904-.919$  over 1 month) and predictive validity in relation to several different psychological, biological, and health outcomes (e.g., Banica et al., 2020; Cazassa et al., 2020; McMullin et al., in press; Olvera Alvarez et al., 2019; Pegg et al., 2019; Sturmbauer et al., 2019; see Slavich and Shields, 2018).

For analyses, we used STRAIN variables representing the total count of all reported stressors occurring across different developmental time periods, which resulted in four stressor count variables. The first indicated participants' exposure to stressors occurring over the entire lifespan. Then, to assess the effects of stressor exposure timing, we used variables indicating the total count of stressors occurring during childhood (0–12 years old), adolescence (13–17 years old), and adulthood ( $\geq 18$  years old).

**Race.** Race was indicated by respondents' self-identified race and ethnicity. Sample sizes for women identifying as Asian, Hispanic/Latina, or another ethnicity were too small for meaningful comparisons ( $n = 20$ ). As such, the final sample included participants who identified as white or black/African American. The variable was recoded to 0 for respondents identifying as white and 1 for those identifying as black.

**First-birth intendedness.** We use the psychometrically validated London Measure of

Unplanned Pregnancy (LMUP; Barrett et al., 2004) to assess participants' intentions to have a baby just before their pregnancy. This 6-item scale includes questions about respondents' use of contraception, timing of pregnancy, intention to get pregnant, wanting to have a baby, communications with partner about having a baby, and preconception health behaviors (e.g., taking folic acid, smoking cessation, healthy eating). Items are scored as 0, 1, or 2, with higher scores indicating greater intention/planning to get pregnant.

Using the "do" file provided on the LMUP website (Hall, 2013), we imputed missing values for respondents with one or two missing values ( $n = 16$ ); no cases were missing three values or more. The final score ranges from 0 to 12, again, with higher scores indicating greater degrees of pregnancy planning/intention. Multiple studies suggest that although LMUP scores can be interpreted in three groups (i.e., 0–3 = *unplanned*, 4–9 = *ambivalent*, and 10–12 = *planned*), the total scale score should be used to retain as much information as possible (Barrett et al., 2004; Hall et al., 2017a). Therefore, we used participants' total scale scores for analyses ( $\alpha = .83$ ).

### Control variables

We included several *a priori* control variables that prior studies have shown are significantly related to birth intendedness, namely self-reported household income, highest level of education in the household, age, and marital/partner status.

### Data analysis

We adopted a three-step analytic strategy to fully examine the study data. First, we ran descriptive statistics for the independent variables and *t*-tests to test for significant mean differences by race. Second, we ran a series of ordinary least squares regression models predicting first-birth intendedness, which follows the empirical recommendations of Hall et al. (2017a). To evaluate our first research

question, we included lifetime stress exposure in Model 1. We introduced race in Model 2. To evaluate our second research question, we included a Stress Exposure  $\times$  Race interaction term in Model 3. Next, to adjust for potential differences in sociodemographic status, we included the above-named control variables in Model 4. Separate models were run to examine how stress exposure occurring over the entire lifetime and during each developmental period (i.e., childhood, adolescence, and adulthood) related to first-birth intendedness. To provide guidance on potentially significant findings in our limited sample, we report *p*-values at the .10 level as well as at the typical .05 and .01 levels.

Finally, to examine differences between the strength of associations between birth intendedness and timing of stressor exposure for each racial group, we conducted seemingly unrelated regression analyses. This analytic approach estimates regressions that allow residuals to correlate across models, which permits obtaining the covariance of coefficients from separate models—a step that is necessary to compare the effects of different predictors of the same dependent variable in the same participants across regression models. These slope covariances were then used to test differences in the magnitudes of these dependent slopes (Cohen et al., 2003).

## Results

Table 1 presents the descriptive statistics for the sample overall and separately by race. The results show that all of the variables differed significantly by race in the expected direction, except for adolescent life stress exposure. On average, white women reported higher rates of birth intendedness and less stress exposure at all developmental stages except for adolescence, when there was no significant difference by race.

Our first research question asked whether first-birth intendedness was associated with stress exposure over the entire lifetime, or during childhood, adolescence, or adulthood. The

**Table 1.** Characteristics of the sample, overall and separately by race.

	Total (n = 153)				White (n = 109)		Black (n = 44)		Diff. t-test <sup>a</sup>
	M	SD	Min	Max	M	SD	M	SD	
Independent variables									
Lifetime stressor count	16.50	12.10	0	59	14.88	10.49	20.52	14.78	**
Childhood stressor count	2.75	3.13	0	14	2.48	2.62	3.43	4.10	*
Adolescent stressor count	3.72	6.00	0	34	3.59	6.38	4.05	5.01	
Adulthood stressor count	8.54	7.89	0	50	7.65	6.45	10.73	10.43	**
Dependent variable									
Birth intendedness	9.01	3.14	2	12	9.50	3.13	7.80	2.86	**
Control variables									
Household education	13.11	1.81	10	16	13.74	1.16	11.52	1.39	***
Household income	4.28	2.23	1	7	5.10	1.81	2.25	1.84	***
Age	26.39	4.57	18	36	27.38	4.02	23.95	4.99	***
Married/partnered	0.60	0.49	0	1	0.75	0.43	0.23	0.42	***

<sup>a</sup>t-test examining differences between blacks and whites.

\* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ .

results of the statistical models addressing this question are presented in Table 2, Model 1, panels A-D. These models examined how life stress exposure occurring during different developmental periods (i.e., lifetime, childhood, adolescence, and adulthood) related to first-birth intendedness, without controlling for any sociodemographic factors. As shown, greater stress exposure occurring during adolescence, but not at other ages or overall, was associated with lower first-birth intendedness.

Our second research question asked whether these effects of life stress exposure on first-birth intendedness were the same for black and white women. Looking first at Model 2 in Table 2, we see that race is significant in the model with stress exposure for all of the developmental periods. The third model in Panels A-D presents the models with the interaction between life stress exposure and race. The interaction is at least marginally significant in all of the models ( $ps < .10$ ), with greater stressor count predicting increased first-birth intendedness for black women. In contrast, for white women, greater stressor count had the opposite or little effect, depending on the developmental period examined.

The *a priori* control variables were introduced in Model 4, which enabled us to compare black and white women with the same sociodemographic characteristics and who differed only on lifetime stress exposure. Note that the coefficients in these models are partial effects that depend on race and stress exposure. All of the effects hold under this condition except for that of stress exposure occurring during adulthood, which may be because this time period is very short for women who had their first birth close to their 18th birthday. Model 3 is presented in Figure 1.

Finally, we examined whether the effects of the timing of life stress exposure on first-birth intendedness differed by race. Only one significant association emerged. Specifically, for white participants, stress exposure occurring during adolescence was a significantly stronger predictor of first-birth intendedness than adulthood stress exposure in models without covariates ( $p < .05$ ). No other comparisons of the effect of stress by timing of exposure were significant for white or black women in the baseline models or in models including all covariates ( $ps > .10$ ).

**Table 2.** Ordinary least squares models estimating first-birth intendedness from stress and race.

<b>Panel A: Lifetime stressor count (n = 153)</b>												
	Model 1		Model 2			Model 3			Model 4			
	B	SE	B	SE		B	SE		B	SE		
Lifetime stressor count	-0.02	0.02	0.00	0.02		-0.07	0.03	***	-0.02	0.03		
Black race			-1.68	0.56	***	-4.49	0.91	***	-1.22	0.95		
Lifetime stressor count × Black race						0.16	0.04	***	0.08	0.04	**	
Education									-0.11	0.18		
Income									0.03	0.15		
Age									0.18	0.06	***	
Married/partnered									2.96	0.57	***	
Constant	9.30	0.43	***	9.56	0.43	***	10.58	0.49	***	3.86	2.39	**
R <sup>2</sup>		0.00		0.06		0.15			0.42			

<b>Panel B: Childhood stressor count (n = 153)</b>												
	Model 1		Model 2			Model 3			Model 4			
	B	SE	B	SE		B	SE		B	SE		
Childhood stressor count	-0.08	0.08	-0.05	0.08		-0.20	0.11	*	-0.12	0.09		
Black race			-1.65	0.55	***	-2.56	0.72	***	-0.29	0.73		
Childhood stressor count × Black race						0.31	0.16	**	0.22	0.13	*	
Education									-0.09	0.18		
Income									-0.01	0.16		
Age									0.20	0.06	***	
Married/partnered									3.04	0.58	***	
Constant	9.24	0.34	***	9.62	0.35	***	10.00	0.40	***	3.21	2.26	**
R <sup>2</sup>		0.01		0.06		0.09			0.40			

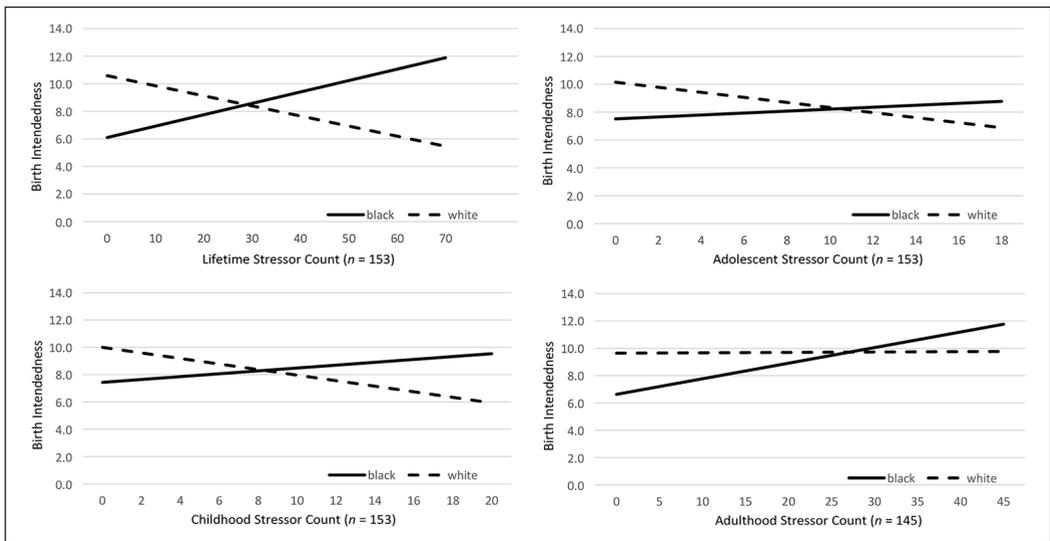
<b>Panel C: Adolescent stressor count (n = 153)</b>											
	Model 1		Model 2			Model 3			Model 4		
	B	SE	B	SE		B	SE		B	SE	
Adolescent stressor count	-0.14	0.04	***	-0.13	0.04	***	-0.18	0.04	***	-0.06	0.04
Black race				-1.64	0.53	***	-2.63	0.65	***	-0.81	0.71
Adolescent stressor count × Black race						0.25	0.10	**	0.27	0.09	***
Education									-0.15	0.18	
Income									-0.05	0.15	
Age									0.22	0.06	***
Married/partnered									3.12	0.56	***
Constant	9.51	0.29	***	9.97	0.32	***	10.15	0.32	***	3.50	2.46
R <sup>2</sup>		0.07		0.12		0.16			0.43		

(Continued)

**Table 2.** (Continued)

Panel D: Adulthood stressor count (n = 145)												
	Model 1		Model 2			Model 3		Model 4				
	B	SE	B	SE		B	SE	B	SE			
Adulthood stressor count	0.03	0.03	0.06	0.03	*	0.00	0.04	0.02	0.04			
Black race			-1.92	0.55	***	-3.02	0.83	***	-0.17	0.85		
Adulthood stressor count × Black race						0.11	0.06	*	0.03	0.05		
Education								-0.09	0.18			
Income								0.07	0.16			
Age								0.16	0.06	**		
Married/partnered								2.88	0.58	***		
Constant	8.89	0.38	***	9.21	0.38	***	9.64	0.45	***	3.65	2.39	*
R <sup>2</sup>		0.01		0.08			0.10		0.38			

\**p* < .10; \*\**p* < .05; \*\*\**p* < .01.



**Figure 1.** First-birth intendedness by life stress exposure and race for the four different stress exposure time periods assessed (i.e., lifetime, childhood, adolescent, and adulthood). Figures are based on Table 2, Model 3, Panels A-D.

**Discussion**

Although prior studies have examined associations between stress or race and birth intendedness, little research has taken a life course perspective and we know of no studies that have examined how lifetime stress exposure and race combine to affect first-birth intendedness in the

United States. The present data provide a first window into this important issue and revealed that greater stress exposure occurring during adolescence—and only during adolescence in the bivariate analysis—was associated with lower first-birth intendedness in the overall sample, suggesting that the teenage years may be especially important for structuring differences

in birth intendedness (e.g., by influencing the ability to engage in planned behavior and other factors associated with fertility planning). Moreover, we found that this association between life stress exposure and first-birth intendedness differed by race. Whereas for black women, greater exposure to stressors occurring during childhood, adolescence, and over the entire lifetime was associated with an increased likelihood that these mothers' first birth was intended, for white women, there was only a weak association or none at all. This finding thus highlights for the first time the profound effect that race has on first-birth intendedness in American women as a function of experiencing differing levels of stress.

Having few opportunities for positive transitions to adulthood can profoundly shape young women's attitudes toward becoming a mother. Edin and Kefalas' (2011) qualitative analysis of the experiences of 162 women in disadvantaged neighborhoods led them to conclude that women in economically similar neighborhoods have similar attitudes about the value of motherhood, regardless of their race or ethnicity. They note that the likelihood of white women growing up and remaining in a severely under-resourced neighborhood is very low as compared to that of black women. Their findings thus suggest that responses to stress may depend on the context in which women live. In our study, race is likely a proxy for unmeasured social context, including neighborhood and school quality, media messages, and other aspects of racial inequity that are present in society. Together, past research and our analyses underscore the importance of identifying factors that lead to first-birth intendedness through research that simultaneously examines lifetime stress exposure and broad social forces, such as race and ethnicity. Although some societal factors associated with social inequality are difficult to change, life stress—and especially individuals' perceptions of stress—are modifiable and can be reduced to help mitigate the negative effect that stress has on birth outcomes.

Identifying the complex set of factors that influence birth intendedness will also require

additional work that grapples with how prior studies that have assessed stress occurring over different time periods, such as current stress levels and lifetime stress exposure, can be successfully merged. Extant theory suggests that adverse experiences occurring over the entire life course can shape cognitive schemas of the self and social environment (Slavich, 2020), as well as views of oneself as a mother that can in turn affect birth intentions (Bachrach and Morgan, 2013; Elder, 1985). In contrast, current stress levels may operate through shorter-term effects on cognitive resources or the likelihood of engaging in risky behaviors (Shields et al., 2017, 2019). Future research could address these issues by assessing mediating mechanisms that may help explain the complex associations among current and lifetime stress exposure, race, and birth intendedness. Ideally, future research will also include sample sizes that are adequate for detecting whether stressors occurring during particular developmental periods have distinct impacts for women of different races, social classes, and other sociodemographic characteristics.

This study has several strengths. Most notably, the sizable sample was racially and economically diverse, our assessment of stress utilized a state-of-the-art system for measuring lifetime stress exposure, and our research questions were grounded in substantial theory on life stress, social context, race, and birth intendedness in the United States. However, several limitations should also be noted. First, we used only one measure of birth intendedness; therefore, future research should employ other measures of birth intendedness to provide alternative operationalizations of the construct (Borrero et al., 2015; Gomez and Wapman, 2017). Second, the sample included only white and black women, and was not nationally representative. Therefore, although we intentionally sampled from hospitals with demographically different profiles to maximize generalizability, future research using large probability samples is needed to examine the robustness and generalizability of these results to whites, blacks, and other racial and ethnic groups. Third, this study included only women who carried their

pregnancy to term, which excludes women who chose to terminate their pregnancy and those who experienced a miscarriage. This is a common limitation of studies of birth intendedness and national statistics on birth intendedness (Mosher et al., 2012), but one that should still be considered when interpreting our results. Finally, given the challenges of conducting research in the postpartum setting, some surveys were administered via interview whereas others were self-administered. Although we have not previously seen any differences in responses on the STRAIN based on mode of administration, future research could address this issue by standardizing how surveys are administered across participants.

Looking forward, we believe these results may have implications for practice, particularly with regard to the need to push health educators to think more critically about association between stress exposure, race, and birth intendedness. Health education programs are not always as effective as hoped (e.g., Bommaraju et al., 2015), and we believe the present findings have the potential to improve the effectiveness of health education programming by integrating women's lifetime stress exposure into the framework for understanding how women think about fertility. Our results suggest that each of the facets of fertility planning might be more effective if delivered through a lens that recognizes the impact that stress exposure has on women's intention to become pregnant. Fertility planning, prenatal, and parenting programs should also consider that a baby may be relatively more welcome for a black woman who has experienced a great deal of stress than for her white counterpart. Indeed, health education that reflexively treats pregnancy as unintended by disadvantaged women who have experienced significant life adversity may not be accurately understanding the fundamental life perspective, intentions, or wishes of black women. To develop better education and policy around these issues, researchers and policymakers would benefit from targeting behaviors that occur during the specific life stages when

stress-related effects on birth intendedness occur.

In conclusion, factors underlying the high rates of mistimed and unintended births in the United States have been poorly understood. One contributing factor involves how stress has been assessed. Namely, even though women have an entire *lifetime* of potentially stressful experiences that can shape their perceptions and behaviors around motherhood (Bachrach and Morgan, 2013), existing studies on this topic have assessed stress exposure occurring over only a few weeks or months and have thus ignored the majority of women's lives. Consequently, despite a great deal of theorizing about how lifetime stress exposure *may* affect health behaviors and outcomes, there is a distinct lack of studies that have assessed stressors occurring over the entire lifespan (Shields and Slavich, 2017; Slavich, 2019), and we are not aware of any studies that have specifically assessed the relation between lifetime stress exposure, race, and birth intendedness. The present data address this issue and reveal that greater stress exposure occurring across the lifetime, and during childhood and adolescence, is related to increased first-birth intendedness for black but not white women. These results thus highlight the relevance of both lifetime stress exposure and race for structuring first-birth intendedness, and suggest the importance of considering these inter-related factors in health education and future research on this topic.

#### **Availability of data**

Study data are available upon request.

#### **Declaration of conflicting interests**

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