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**Objective:** Black and Latinx individuals are often the focus of health educational efforts to ‘correct’ perceived flawed beliefs about pregnancy, in order to increase contraceptive use and reduce unintended pregnancies. We sought to revisit the association between race, ethnicity, and beliefs about pregnancy.

**Methods:** We administered a web-based survey to 2,099 heterosexual men and women aged 21-44 years, using non-probability quota sampling. We analyzed a subset who were not currently pregnant (n=1,884) and conducted chi-square tests to examine the association between race/ethnicity and beliefs about avoiding pregnancy (can be avoided, determined by fate/God, ‘just happens,’ and is a natural process). We then performed a two-stage multinomial logistic regression, modeling the belief that pregnancy can be avoided. The first model included sociodemographic characteristics and the second model added feelings about pregnancy.

**Results:** Bivariate analyses revealed that, compared with Whites, those who identified as Black/African American or Latinx were significantly more likely to believe that pregnancy was determined by fate/God (15%,13% vs 9%, respectively) or a natural process (13%,13% vs 9%, respectively) and less likely to report that it can be avoided (57%,56% vs 67%, respectively; P=.001). In the first regression model, these differences persisted. However, in the second model, being Black/African American or Latinx was not significantly associated with beliefs about avoiding pregnancy.

**Conclusions:** Our findings suggest that once more nuanced beliefs about pregnancy prevention are considered, Black and Latinx individuals do not hold strongly different beliefs than Whites. Efforts that exclusively

## INTRODUCTION

Black and Latinx individuals have the highest rates of unintended pregnancies in the United States, that is, pregnancies that are mistimed or unwanted, at 64% and 50%, respectively, compared with 38% among those who identify as White.<sup>1</sup> In response, much public health research has focused on Black and Latinx groups in an attempt to better understand the factors, and possible causes, associated with their high rates of unintended pregnancy, and determine areas for interventions to reduce these pregnancies.<sup>2-8</sup> These studies have concluded that Black and Latinx individuals have limited knowledge of contraception, excessive concerns about side effects, and inconsistent contraceptive behavior that contradicts their purported pregnancy intentions.<sup>2-8</sup> Such conclusions are often devoid of the larger

context and oftentimes complicated lived experiences of people of color.<sup>9-14</sup>

Little, if any, substantive discussion exists about how systemic racism has perpetuated barriers to high-quality education, access to health care, and economic mobility, all of which may affect how such individuals may or may not be able to plan pregnancy, as well as whether they even consider an unplanned pregnancy as an unquestionably negative occurrence. Nonetheless, several authors have recommended educational interventions and more culturally competent care that incorporates reproductive life planning.<sup>6-8</sup> In turn, public health professionals have often directed contraceptive educational efforts toward people of color, in an effort to shift their perceived cultural beliefs about pregnancy, disabuse them of “incorrect” knowledge and problematic attitudes (eg, magical thinking) regarding contraception,

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focus on people of color to change beliefs about pregnancy appear unwarranted. *Ethn Dis.* 2020;30(4):525-532; doi:10.18865/ed.30.4.525

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increase use of effective contraceptive methods, and reduce unintended pregnancies.<sup>7,15-18</sup> Yet, none of these efforts acknowledge nor address the root factors underlying disparate social and health-related outcomes that people of color experience that play out in myriad ways, not the least of which might be in their thoughts about family formation relative to other aspects of their lives. Considering the historic and continued efforts to control reproduction among people of color in the United States,<sup>9,12,19,20</sup> such inter-

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ventions may be viewed as problematizing pregnancies among Black and Latinx women and further attempts to limit their reproductive autonomy.

This analysis questions the validity and salience of the perceived association between race/ethnicity and pregnancy intentions (based on standard measures with the embedded assumption that unintended pregnancies are de facto negative) by employing a novel approach to studying pregnancy. Research in the last few decades has led others to question if measuring,

and subsequently intervening upon, pregnancy intentions is valid, given evidence that this construct does not necessarily align with how many people approach pregnancy.<sup>21-25</sup> One qualitative study in particular found that, in reference to pregnancy, participants across all racial and ethnic backgrounds included in the study used terms related to planning as well as predetermined language that noted the role of chance, nature, and fate in pregnancy.<sup>26</sup>

We sought to operationalize a new measure of how women and men think about pregnancy in order to revisit the association between race, ethnicity, and beliefs about avoiding pregnancy. Specifically, our aim was to investigate if race and ethnicity were associated with beliefs about how pregnancy happened (that it can be avoided, was determined by fate/God, just happens, or was a natural process), and if that association persisted once more nuanced perceptions about ideal criteria before pregnancy, pregnancy desires, and control over pregnancy were considered. We hypothesized that any association between race/ethnicity with beliefs about pregnancy would be attenuated once these were included in the analysis.

This study revisits the assumed association between racial and ethnic differences and beliefs about avoiding pregnancy, thought to be responsible for the differential rates of unintended pregnancy. In doing so, we move away from the narrow focus on pregnancy intentions and introduce new survey items that capture a range of beliefs toward pregnancy. Whereas an unintended pregnancy is considered an inately negative and flawed approach to pregnancy, we operationalize new

items related to beliefs about pregnancy, with the recognition that they are each valid and should be understood in the larger contexts. Findings from this analysis can inform if and how current intervention efforts to prevent unintended pregnancy require redirection, and if more appropriate measures are warranted that encompass the complexities of how people think about avoiding pregnancy.

## METHODS

### Study Design and Recruitment

We administered a web-based survey to heterosexual men and women aged 21-44 years to examine the relationship between sociodemographic characteristics, and beliefs, desires, emotions, and control related to pregnancy. Using non-probability quota sampling based on the 2010 US Census,<sup>27</sup> and in collaboration with a third-party vendor (Qualtrics™), online recruitment was conducted to ensure adequate sample distribution across three key categories: sex, age, and the four geographic regions (Midwest, Northeast, South, West). Quotas were set based on the national rates of sex, age distribution, and proportion living in each region. Qualtrics™ monitored sample enrollment; screened and consented respondents using their web-based software; and issued respondent payment for survey participation. Compensation was determined and provided by Qualtrics™, dependent upon how each participant joined the third-party recruiting service panel. Approximately 19% of those who were emailed completed the survey (N=2,099).

## Survey Instrument Development

The research team created survey items based on the extant literature and our own formative qualitative research.<sup>26,28</sup> We performed telephone-administered cognitive interviews (n=9) using verbal probing techniques to assess respondent understanding of question meanings; edits were subsequently made to improve interpretability of survey items. Respondents who participated in the phone-based cognitive interviews were given a \$25 gift card for their time. The final survey included 45 questions within seven domains: sociodemographic characteristics; beliefs about avoiding and becoming pregnant; emotions related to pregnancy ‘right now’; current pregnancy desires; ideal criteria before first pregnancy; perceived control over avoiding pregnancy and becoming pregnant; and items related to thoughts about first pregnancy.

## Key Measures

### *Main Outcome Measure*

Beliefs about avoiding pregnancy was the main outcome measure and captured with the multiple-response question “When thinking about trying to avoid (a partner) becoming pregnant, would you say that pregnancy... can be avoided, sometimes just happens anyway, is something determined by fate or a higher power like God, is a natural process that happens when it’s meant to, or other.” We defined “partner” as anyone the respondent has sex with. If respondents chose more than one response, they were then asked to choose the one belief they felt mostly strongly about. For this

analysis, we used their strongest held belief about avoiding pregnancy, and excluded those who reported “other.”

### *Main Independent Variable*

Race/ethnicity was the main independent variable. Race and ethnicity were asked as separate questions. Ethnicity was asked as “Are you of Hispanic, Latino or Spanish origin?” with response options of Yes or No; race was asked as “What is your race? (select all that apply)” with response options of American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, White, Other (specify). For our analysis, this construct was operationalized as one variable with mutually exclusive categories of: White, Black, Latinx, Asian, and Other. Latinx includes anyone who reported being Hispanic, Spanish, or Latino, irrespective of race. Other includes those who reported being American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, or Other; Other also includes those who reported more than one racial group.

### *Key Covariates*

Key covariates in this analysis included sociodemographic characteristics, feelings about a potential pregnancy right now, whether or not the respondent had ideal criteria they wanted to meet before becoming pregnant, their perceived control over avoiding pregnancy, and their current pregnancy desires.

### **Analytic Plan**

We restricted the sample to those who were not/partner was not currently pregnant and responded to the

question about beliefs about avoiding pregnancy (N=1,884). We began by conducting chi-squared and Fisher’s exact tests to examine the association between race and ethnicity with beliefs about avoiding pregnancy (can be avoided, determined by fate/God, just happens, and is a natural process). We then performed a two-stage multinomial logistic regression, fitting a four-level outcome of beliefs about avoiding pregnancy, modeling the belief that pregnancy can be avoided. The first model included sociodemographic characteristics and the second model added feelings about a potential pregnancy right now, whether or not the respondent had ideal criteria they wanted to meet before becoming pregnant, their perceived control over avoiding pregnancy, and their current pregnancy desires. We considered  $P < .05$  to indicate a statistically significant relationship. We present the adjusted odds ratios, 95% CIs, and P-values for key variables. We hypothesized that, after adjustment of all variables, there would not be significant differences in beliefs about avoiding pregnancy by race/ethnicity. We used SAS® version 9.4 for all statistical analyses.

## RESULTS

### **Sample Description and Descriptive Statistics**

Of the 1,884 respondents, the majority identified as White (66%), followed by Latinx (14%), Black/African American (11%), Asian (6%), and Other/multi-racial (3%) (Table 1). The most strongly held belief among more than a third of all respondents was that pregnancy was predetermined (that is,

Table 1. Sample sociodemographic characteristics and pregnancy perceptions, N=1,884

Variable	Beliefs about avoiding pregnancy, n (%)				
	Totals n (%)	Can be avoided, n=1,194 (63)	Determined by fate/God, n=196 (10)	Just happens, n=297 (16)	Natural process, n=197 (11)
Race/Ethnicity <sup>a</sup>					
White	1239 (66)	834 (67)	115 (9)	178 (14)	112 (9)
Black/African American	213 (11)	121 (57)	31 (15)	34 (16)	27 (13)
Latinx	254 (14)	143 (56)	32 (13)	46 (18)	33 (13)
Asian	119 (6)	62 (52)	10 (8)	29 (24)	18 (15)
Other	59 (3)	34 (58)	8 (14)	10 (17)	7 (12)
Sex <sup>b</sup>					
Female	983 (52)	641 (65)	99 (10)	161 (16)	82 (8)
Male	901 (48)	553 (61)	97 (11)	136 (15)	115 (13)
Number of children <sup>b</sup>					
0	902 (48)	585 (65)	83 (9)	135 (15)	99 (11)
1	387 (21)	254 (66)	40 (10)	51 (13)	42 (11)
2	355 (19)	228 (64)	36 (10)	60 (17)	31 (9)
>2	239 (13)	126 (53)	37 (15)	51 (21)	25 (10)
Region <sup>b</sup>					
Northeast	330 (18)	213 (65)	29 (9)	57 (17)	31 (9)
Midwest	379 (20)	254 (67)	29 (8)	60 (16)	36 (10)
South	693 (37)	411 (59)	95 (14)	113 (16)	74 (11)
West	482 (26)	316 (66)	43 (9)	67 (14)	56 (12)
Feelings about pregnancy right now <sup>a</sup>					
Positive	1040 (61)	585 (56)	142 (14)	168 (16)	145 (14)
Negative	655 (39)	492 (75)	35 (5)	103 (16)	25 (4)
Control over avoiding pregnancy <sup>a</sup>					
None/little	282 (15)	89 (32)	57 (20)	71 (25)	65 (23)
A lot/Complete	1602 (85)	1105 (69)	139 (9)	226 (14)	132 (8)
Pregnancy desires <sup>a</sup>					
Do not want pregnancy	783 (50)	576 (74)	46 (6)	117 (15)	44 (6)
Want pregnancy	308 (20)	141 (46)	49 (16)	67 (22)	51 (17)
Are not trying but would be okay with pregnancy	470 (30)	273 (58)	63 (13)	72 (15)	62 (13)

a.  $P < .001$ .b.  $p < 0.05$ 

determined by fate or a higher power like God [10%], something that just happens anyway [16%], or a natural process that happens when it's meant to [11%]. Nearly two-thirds (63%) felt that pregnancy can be avoided.

In bivariate analyses, Black/African American and Latinx individuals were significantly more likely to believe that pregnancy was determined by fate/God compared with Whites (15%, 13% vs 9%, respectively) or a natural process (13%, 13% vs 9%, respectively), and less likely to re-

port that it can be avoided (57%, 56% vs 67%, respectively;  $P = .001$ ).

### Multinomial Logistic Regression

In the first multinomial model, Black/African Americans, Latinx, and Asian respondents were significantly more likely to feel that pregnancy was determined by one or more of the reasons other than being avoidable (ie, determined by fate/God, a natural process, or just happens) compared with Whites (Table 2). In the second

multinomial model, we added the variables with more nuanced perceptions of and desires for pregnancy (ie, desire for a pregnancy, emotions regarding a pregnancy now, criteria before a pregnancy, and perceived control over avoiding pregnancy) (Table 3). There was no longer a significant association between Black/African Americans or Latinx respondents compared with Whites for any beliefs about avoiding pregnancy. For Asian individuals, however, the significance persisted; compared with Whites, Asians were

**Table 2. Multinomial logistic regression of beliefs about avoiding pregnancy, Model 1**

Variable	Determined by fate/God vs can be avoided	Just happens vs can be avoided	Natural process vs can be avoided
	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)
Race			
White	Ref	Ref	Ref
Black/African American	1.8 (1.1-2.9) <sup>a</sup>	1.3 (.8-2.0)	1.7 (1.0-2.8) <sup>a</sup>
Latinx	1.8 (1.2-2.9) <sup>b</sup>	1.6 (1.1-2.4) <sup>a</sup>	1.8 (1.1-2.8) <sup>a</sup>
Asian	1.4 (.7-2.9)	2.4 (1.5-3.9) <sup>c</sup>	2.7 (1.5-5.0) <sup>b</sup>
Other	1.7 (.7-3.8)	1.5 (.7-3.1)	1.4 (.6-3.3)
Sex			
Female	Ref	Ref	Ref
Male	1.3 (.9-1.8)	1.0 (.8-1.3)	1.8 (1.3-2.5) <sup>b</sup>
Number of children			
0	Ref	Ref	Ref
1	.8 (.5-1.3)	.8 (.6-1.2)	.8 (.5-1.2)
2	.8 (.5-1.3)	1.2 (.8-1.7)	.6 (.4-1.0)
>2	1.5 (.9-2.4)	1.8 (1.2-2.9) <sup>b</sup>	.9 (.5-1.5)
Region			
Northeast	Ref	Ref	Ref
Midwest	.8 (.5-1.5)	.9 (.6-1.4)	.9 (.6-1.6)
South	1.7 (1.1-2.7) <sup>a</sup>	1.1 (.7-1.5)	1.2 (.7-1.9)
West	1.0 (.6-1.7)	.8 (.5-1.1)	1.1 (.7-1.8)

a. P&lt;.05.

b. P&lt;.01.

c. P&lt;.001.

Not shown: age, relationship status, annual income, education, able to get pregnant/impregnate, partner able to become pregnant/impregnate.

significantly more likely to feel that pregnancy just happens (aOR: 2.0, 95% CI: 1.2-3.5) or is a natural process (aOR: 2.4, 95% CI: 1.2-4.7).

Additionally, compared with respondents who had no children, those with more than two children were more likely to report that pregnancy is determined by fate/God (aOR: 2.2, 95% CI: 1.2-4.1) and just happens (aOR: 2.1, 95% CI: 1.3-3.6). Those from the US South were more likely to believe that pregnancy is determined by fate/God (aOR: 1.8, 95% CI: 1.0-3.0), compared with those from the Northeast. Compared with those who did not want a pregnancy, those who wanted a pregnancy were more likely to believe that pregnancy was determined by fate/God (aOR: 2.6, 95% CI: 1.5-4.4), just happens (aOR: 2.1, 95% CI:

1.3-3.2), and is a natural process (aOR: 2.6, 95% CI: 1.5-4.5). Those who are not trying but would be okay with a pregnancy right now were also more likely to believe that pregnancy was determined by fate/God (aOR: 1.9, 95% CI: 1.2-3.0) and a natural process (aOR: 2.0, 95% CI: 1.2-3.3). Notably, age, relationship status, income, education, and ability for respondent or their partner to get pregnant were not associated with beliefs about avoiding pregnancy in the final model.

## DISCUSSION

Our findings demonstrate that once more nuanced perceptions about and emotions and desires toward pregnancy prevention were considered, Black/

African American and Latinx individuals did not hold strongly different beliefs than Whites regarding whether pregnancy can be avoided. These results suggest that efforts to change beliefs specifically among people of color, as a means to reduce unintended pregnancy, are unwarranted, given the lack of differing views by race/ethnicity.

Additionally, those who wanted or would be okay with a pregnancy soon were also more likely to report predetermined notions related to pregnancy, similar to results of a related study that found those who wanted to become pregnant felt that pregnancy happens regardless of birth control.<sup>29</sup> Our results suggest that beliefs often viewed as flawed or modifiable may be more prominent among those with intended pregnancies, in this



**Table 3. Multinomial logistic regression of beliefs about avoiding pregnancy, Model 2**

Variable	Determined by fate/God vs can be avoided	Just happens vs can be avoided	Natural process vs can be avoided
	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)
Race			
White	Ref	Ref	Ref
Black/African American	1.7 (1.0-2.9)	1.3 (.8-2.1)	1.4 (.8-2.5)
Latinx	1.5 (.9-2.5)	1.5 (1.0-2.4)	1.4 (.8-2.3)
Asian	.9 (.4-2.3)	2.0 (1.2-3.5) <sup>a</sup>	2.4 (1.2-4.7) <sup>a</sup>
Other	1.5 (.6-4.1)	1.2 (.5-2.9)	1.2 (.4-3.5)
Sex			
Female	Ref	Ref	Ref
Male	.9 (.6-1.4)	.9 (.6-1.2)	1.6 (1.1-2.4) <sup>a</sup>
Number of children			
0	Ref	Ref	Ref
1	.9 (.5-1.5)	.8 (.5-1.3)	.8 (.5-1.2)
2	1.2 (.7-2.1)	1.4 (.9-2.2)	.9 (.5-1.7)
>2	2.2 (1.2-4.1) <sup>b</sup>	2.1 (1.3-3.6) <sup>b</sup>	1.2 (.6-2.3)
Region			
Northeast	Ref	Ref	Ref
Midwest	.9 (.5-1.7)	1.0 (.6-1.6)	.7 (.4-1.4)
South	1.8 (1.0-3.0) <sup>a</sup>	1.3 (.8-1.9)	1.4 (.8-2.3)
West	1.0 (.6-1.9)	.8 (.5-1.2)	1.2 (.7-2.0)
Feelings about pregnancy right now			
Positive	Ref	Ref	Ref
Negative	.5 (.3-.8) <sup>b</sup>	.9 (.6-1.3)	.4 (.2-.7) <sup>c</sup>
Control over avoiding pregnancy			
None/little	Ref	Ref	Ref
A lot/complete	.2 (.1-.3) <sup>c</sup>	.3 (.2-.4) <sup>c</sup>	.2 (.1-.3) <sup>c</sup>
Pregnancy desires			
Do not want pregnancy	Ref	Ref	Ref
Want pregnancy	2.6 (1.5-4.4) <sup>c</sup>	2.1 (1.3-3.2) <sup>b</sup>	2.6 (1.5-4.5) <sup>c</sup>
Are not trying but would be okay with pregnancy	1.9 (1.2-3.0) <sup>a</sup>	1.2 (.8-1.8)	2.0 (1.2-3.3) <sup>b</sup>

a. P<.05.

b. P<.01.

c. P<.001.

Not shown: age, relationship status, annual income, education, able to get pregnant/impregnate, partner able to become pregnant/impregnate, ideal criteria before pregnancy.

case Black and Latinx individuals, and not among those who did not desire a pregnancy. Thus, race and ethnicity may be a mediator for the association between pregnancy desires and approaches to pregnancy, not a predictor. This is an important distinction in recognizing that there is not an inherent association between being Black or Latinx and having different beliefs about avoiding pregnancy, compared with White individuals.

The findings that those with more

than two children and from the US South are more likely to hold predetermined beliefs may account for some of the racial/ethnic differences in the multinomial models that are possibly more related to differences in family size and religiosity, respectively. For example, given the prominence of religion in the South,<sup>30</sup> it is not surprising that residents of that area reported believing that pregnancy was determined by a higher power like fate or God. Those with more than two children

may be using their experience from previous pregnancies, thought to be predetermined, to inform their current beliefs.<sup>26</sup> Further exploration into differences by region and family size are needed, as well as investigating the association between Asian individuals and beliefs about avoiding pregnancy.

Overall, we found that more than a third of the sample held strong, predetermined beliefs about avoiding pregnancy, that it is determined by fate/God, just happens, or is a natural

process that happens when it is meant to. Promoting accurate contraceptive and reproductive knowledge is important. However, instead of defaulting to attempts to correct what have been historically perceived as flawed beliefs, scholars and clinicians alike should consider that beliefs such as pregnancy being determined by fate/God or nature, just happening, or a natural process that happens when it is meant to, may be widespread and acceptable in their own right. Perhaps we should redirect our focus toward understanding what supportive resources can be provided to facilitate individuals' realization of their reproductive autonomy and pregnancy desires.<sup>22,31</sup>

Given the implicit assumption in the majority of research on reproductive behaviors that individuals' beliefs about avoiding pregnancy are based on rational (intentions-based) models,<sup>32</sup> the results of this study provide an important contribution in reexamining this notion. Our findings augment a growing body of literature that suggests that responses to close-ended pregnancy intentions questions do not completely capture how people actually think about and approach pregnancy and questions if researchers should implement new measures.<sup>21-23,25,26</sup> Collectively this work points to continuing to improve our level of sophistication in how we conceptualize and measure pregnancy using new, alternative measures. Such measures, as the ones we used here, can include beliefs about avoiding pregnancy that incorporate predetermined approaches and pregnancy desires that account for not actively trying to become pregnant, but being okay with it. Understanding and studying pregnancy de-

sires and beliefs in this way is critical in order to document and intervene where needed, to ensure all individuals can achieve reproductive autonomy.<sup>22</sup>

### Study Limitations

This study has important limitations to note. Although this study has representation of individuals across sex, age, and geographic region, the sample is not representative of the general US population, and thus the results cannot be generalized as such. From these data we are not able to determine how such nuanced beliefs about pregnancy are associated with contraceptive behavior, knowledge, or access, or religious beliefs. However, this investigation is the first, to our knowledge, to collect survey data using more comprehensive, nuanced questions that incorporate predetermined beliefs of pregnancy among a diverse, national sample of women and men.

### CONCLUSION

For decades in the United States, the reproduction of people of color has been controlled by pervasive, racist policies and practices, including forced and coerced sterilization and reproduction.<sup>9,19,20,33-35</sup> Thus, modern-day interventions directed toward Black and Latinx populations to reduce unintended pregnancies may be seen as continued efforts to limit their reproductive freedom.<sup>36</sup>

Sexual and reproductive health research and practice require a more thoughtful and inclusive approach. Our findings suggest reconsideration of public health research that problematizes unintended pregnancy and

focuses on racial and ethnic minority group identity. Instead, it supports adopting a new conceptualization of pregnancy as one that can be thought of as both planned and predetermined. Further investigation is needed as to how geographic region, parity, religiosity, pregnancy desires, and other factors unaccounted for here, may account for racial/ethnic differences in thoughts about pregnancy. Ideally, this would then allow for a deeper understanding into if/how diverse beliefs about pregnancy may be associated with reproductive health outcomes such as contraceptive behavior, reproductive autonomy, pregnancy desires, and birth outcomes.

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### CONFLICT OF INTEREST

No conflicts of interest to report.

### AUTHOR CONTRIBUTIONS

Research concept and design: Manze, Romero; Acquisition of data: Manze; Data analysis and interpretation: Manze, Romero; Manuscript draft: Manze, Romero; Statistical expertise: Manze; Acquisition of funding: Manze, Romero; Administrative: Manze; Supervision: Romero

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