



### AUTHORS

**Grace S. Hubel, PhD**, Associate Professor, Department of Psychology, College of Charleston

**Nada Goodrum, PhD**, Assistant Professor, Department of Psychology, University of South Carolina

**Aditi Srivastav Bussells, PhD, MPH**, Adjunct Faculty, University of South Carolina

**Bett F. Williams**, Chief Communications Officer, Children's Trust of South Carolina

### How can we best inform mothers with high levels of childhood adversity and parenting stress about reproductive health care options?

The greatest level of success in preventing child adversity and promoting child well-being is achievable through the support of nurturing, mutually responsive relationships between children and their caregivers (Shonkoff & Fisher, 2013). This will require an intentionally and effectively coordinated system of interventions with a two-generation approach (Daro & Cohn-Donnelly, 2015). Whereas children are understandably often the focus in these interventions, the instrumental role of mothers can be substantially diminished by stressors, health issues, and other problems that interfere with caregiving capacities (Green et al., 2020; Panisch et al., 2020; Patwardhan et al., 2017).

Community service providers that promote maternal and child health should consider maternal reproductive health. Problems caused by poor health and stress during pregnancy, such as preterm births, are threats to child well-being and risk factors for adversity (Madigan et al., 2017; Bilgin et al., 2018; Puls et al., 2019). Further, there is evidence that health services that assist mothers in fertility planning can lead to reduction in child maltreatment and adversity (Crowne et al., 2012; Eckenrode et al., 2017; Thompson et al., 2012). For example, a long-term follow-up of the Nurse Family Partnership home visiting intervention demonstrated that improved birth spacing was a mediator of the relationship between the intervention and reduction in maltreatment (Eckenrode et al., 2017). An important part of supporting maternal reproductive health is communicating to mothers about the availability and benefits of existing community services.

Communication about reproductive health with mothers involved in systems that intend to prevent child adversity and promote child well-being should be informed by knowledge of unique risks and barriers faced by these mothers. One such factor is mother's own history of exposure to adverse childhood experiences (or ACEs). ACEs are stressful occurrences that can have a toxic effect, such as child abuse or having a parent who is incarcerated (Felitti et al., 1998). Evidence suggests that ACEs are especially prevalent among mothers served by preventative child-focused interventions (Ammerman et al., 2013; Mersky et al., 2017; Stevens et al., 2002). A large body of research connects ACEs to health risk behaviors and poor health outcomes, including in reproductive health (Bleil et al., 2011; Cambell et al., 2016; Racine et al., 2018). Given the likelihood that ACEs will have occurred for mothers participating in preventative child-focused interventions, and the impact that ACEs are likely to have on reproductive health, it seems worthwhile to consider their effects when designing health messages for the population.

A second risk or barrier that is important to consider is parenting stress. Issues central to parenting stress, such as difficulty managing child behavior, are common reasons parents choose to participate in preventative child-focused interventions (Rostad et al., 2018). Parenting stress may influence maternal reproductive health. For instance, mothers who experience parenting stress may have difficulty prioritizing reproductive health or be more likely to be influenced by elements of health communication about the relative convenience of certain options (Huberty et al., 2017; Young et al., 2018).

## Our study

We aimed to develop recommendations for creating health messages for mothers exposed to ACEs and who experience high levels of parenting stress during inter-conception periods. To achieve this aim, we conducted a survey of mothers living in South Carolina. The survey included the following:

- **A measure of an expanded concept of ACEs:** To better understand mother's exposure to adversity, we asked about traditional ACEs of child abuse and household dysfunction as well as ACEs that occur at the level of the community and that are directly related to systemic inequality, such as community violence and discrimination.
- **Measures of factors that may influence the relationship between ACEs and maternal reproductive health:** to better understand ways to communicate about reproductive health, we measured regulatory focus and parenting stress. Regulatory focus is defined by the type of goals individuals are driven to pursue and appears to be an important factor in health messaging (Karatekin, Ahluwalia, & Desir, 2018.; Ludolph & Schulz, 2015). Individuals tend to fall into two categories of regulatory focus: prevention (driven to avoid losses and failures) or promotion (driven to achieve success) focus (Lockwood et al., 2002). Examples of ads created for this study with a prevention frame (Ad 1) and a promotion frame (Ad 2) are included in Appendix 1 of this document. We assessed regulatory focus using an established measure of the construct, The Promotion/Prevention scale (Lockwood et al., 2002). Parenting stress was assessed using the Parenting Stress Index-Short Form (Abidin, 1990), a 36-item questionnaire with three subscales: parental distress, parent-child dysfunctional interaction, and difficult child.
- **Six ads advertising reproductive health services:** After completing the measures described above, mothers viewed ads and were asked to rate how likely they would be to use the advertised service. The ads are included in Appendix 1 of this document. The ads varied in the following ways:
  - Ad 1:** language consistent with **prevention regulatory** focus
  - Ad 2:** language consistent with **promotion regulatory** focus
  - Ad 3:** services delivered **in-person at a local clinic**
  - Ad 4:** services delivered via **telehealth**
  - Ad 5:** services for mothers that **did not address partner relationships**
  - Ad 6:** services for mothers that **addressed partner relationships**

## Our questions and answers

481 mothers living in South Carolina completed the survey. A summary of the participants reported demographic information is below.

Survey Participants Reported Demographic	
VARIABLE	MEAN OR %
Age (SD = 4.94 and Observed Range: 15-59)	33.43
<b>Ethnicity</b>	
Hispanic/Latino	17.3%
Non-Hispanic	82.7%
<b>Race<sup>1</sup></b>	
White	69.7%
Black/African American	27.1%
American Indian or Alaska Native	3.3%
Native Hawaiian or Other Pacific Islander	0.2%
<b>Relationship Status</b>	
Married	91.2%
Single	2.9%
Living with partner	5.6%
Separated, widowed, or divorced	0.2%

*1. Percentages add to >100% because participants could select more than one race  
SD = Standard Deviation*

**How prevalent are ACEs?** Mothers reported an average of three ACEs (SD = 2.37). Percentages of mothers who endorsed each ACE are listed to the right. The most common ACE was lack of neighborhood cohesion (50.5%), followed by food insecurity (39.5%), and sexual abuse (37.2%).

**How do ACEs relate to regulatory focus, parenting stress, and current reproductive health?**

Experiencing ACEs was related to:

- A higher level of prevention regulatory focus
- Reporting a higher level of parenting stress

**Which advertised services were more persuasive to mothers? How does exposure to ACEs and parenting stress play a role?**

**Which advertised services were more persuasive to mothers?**

- **Ad 1 and 2 (prevention vs. promotion messaging)**
  - » The prevention ad was more persuasive (not accounting for other predictors)
- **Ad 3 and 4 (in person vs. telehealth)**
  - » Overall, no difference between ads 3 and 4 (not accounting for other predictors)
- **Ad 5 and 6 (individual vs. partner)**
  - » Overall, the partner ad (Ad 6) was more persuasive not accounting for other predictors

**How does exposure to adversity play a role?**

- **Ad 1 and 2 (prevention vs. promotion messaging):** People in the low ACEs group found ad 1 more persuasive than ad 2
- **Ad 3 and 4 (in person vs. telehealth):** People in the high ACE group were more persuaded by both ads
- **Ad 5 and 6 comparison (individual vs. partner):** People in the high ACE group were more persuaded by both ads

**How does parenting stress play a role?**

- **Ad 1 and 2 (prevention vs. promotion messaging):** Mothers with high parenting stress were more persuaded by ad 1/prevention (the difference between the two ads was greater for people with high parenting stress)
- **Ad 3 and 4 (in person vs. telehealth):** People with low parenting stress were more persuaded by the telehealth ad whereas parents with high parenting stress did not differ in their preference for the two ads
- **Ad 5 and 6 (individual vs. partner):** People with high parenting stress were more persuaded by the partner ad but people with low parenting stress did not differ between the two ads

Number of ACEs Reported	
<b>NUMBER OF CONVENTIONAL ACEs (SD = 1.71 and Observed Range: 0-8)</b>	<b>1.51</b>
0	41.1%
1	17.3%
2	13.2%
3	18.2%
4	4.4%
5	2.1%
6	2.1%
7	1.3%
8	0.4%
Parental mental illness	5.0%
Parental substance use	7.9%
Incarceration of household member	2.7%
Divorce or separation of caregivers	7.3%
Domestic violence exposure	26.5%
Physical abuse	31.1%
Emotional abuse	33.0%
Sexual abuse	37.2%
<b>NUMBER OF EXPANDED ACEs (SD = 1.14)</b>	<b>1.41</b>
0	21.7%
1	36.3%
2	27.1%
3	10.9%
4	2.5%
5	0.6%
6	0.8%
Unsafe neighborhood	13.8%
Lack of neighborhood cohesion	50.5%
Bullying victimization	12.7%
Witnessing community violence	7.5%
Food insecurity	39.5%
Racial discrimination	17.3%
<b>Total Number of ACEs (Conventional and Expanded)</b>	<b>2.92</b>

*SD = Standard Deviation*

### Does a congruency between a person's regulatory focus and a message's focus make the ad more convincing?

- Overall, participants were more persuaded by the prevention ad
- Those with high prevention regulatory focus (in comparison to low) found the prevention ad more persuasive
- Those with high promotion and low promotion also preferred prevention ad
- In the low ACE group, those with high prevention regulatory focus found the prevention ad more persuasive
- No effect of regulatory focus in the high ACE group

### Suggestions for communicating with mothers

**1. Increase availability of reproductive health services and communicate about them to mothers who have experienced ACEs:** After each of the six presented ads, we asked mothers: How likely would you be to use the service if it were available? In comparison to those exposed to less ACEs, the mothers exposed to a high number of ACEs were overall more likely to say they would use all the advertised services. It may be the case that due to continuing inequalities present for those exposed to ACEs in childhood, disparities exist in knowledge of or access to reproductive health care. However, this study suggests individuals exposed to ACEs likely would be responsive to many types of advertisements about available services!

**2. Prevention focused ads may be more persuasive to many, especially those exposed to less ACEs and those currently experiencing parenting stress.** Unexpectedly, whereas those exposed to a higher number of ACEs were more likely to describe their regulatory focus style as prevention focused, those in the high ACEs group did not seem to prefer the prevention regulatory focus ad.

**3. Telehealth services may be the best fit for parents with low levels of parenting stress:** Mothers who described low levels of parenting stress were the only subgroup examined who seemed to prefer telehealth services over in-person services. When it comes to reproductive health, it may be the case that the logistics of a telehealth visit seem most feasible among those who feel more competent in managing childcare and other household responsibilities. For others, having a private and dedicated space for a visit with a provider in a healthcare clinic may be equally as important as the convenience of telehealth.

**4. Maternal reproductive health services that address partner relations are appealing to mothers, especially those experiencing parenting stress:** Overall, the ad for maternal health services which included a picture of a woman with her partner and used the message "We also offer classes and programs to help women and their partners build teamwork, reduce stress and strengthen their relationship" was more persuasive than the ad that did not address partner relations. This was especially true among the group of women who reported a high level of parenting stress. Offering more holistic services and acknowledging the importance of mother's relationships with their significant others may be an important way of increasing the reach of reproductive healthcare, especially for those experiencing strain in the parenting role.



## Appendix 1

Ad 1

AVOID UNPLANNED PREGNANCIES, PREGNANCY COMPLICATIONS, & SEXUALLY TRANSMITTED INFECTIONS.

### PROTECT YOUR HEALTH!



All women ought to receive high quality and confidential reproductive health services. Relax knowing your rate will be based on a sliding scale, helping you avoid high costs.

Ad 2

PLAN THE SIZE OF YOUR FAMILY, HAVE HEALTHY PREGNANCIES, AND STAY SEXUALLY HEALTHY.

### TAKE CHARGE OF YOUR HEALTH!



Accessing high quality and confidential reproductive health services is a goal you can meet for yourself and your family. Rates are based on a sliding scale, so you can gain affordable care.

Ad 3

### APPOINTMENTS AVAILABLE NOW AT YOUR LOCAL CLINIC



Visit us for women's healthcare, including educational resources, medical referrals and access to community resources. Convenient. Confidential. Women-centered.

Ad 4

### VIRTUAL VISITS NOW AVAILABLE!



See the doctor from your phone, computer, or the computer at your local library. Visit us for women's healthcare, including educational resources, medical referrals, and access to community resources. Convenient. Confidential. Women-centered.

Ad 5

### WORKING WITH YOU



We are proud to offer a wide range of services for women's health including pre-post pregnancy care, family planning, preventive screening, and maternal care. We welcome women of all backgrounds, ages and ethnicities and strive to provide high quality care.

Ad 6

### WORKING WITH YOU AND YOUR PARTNER



We are proud to offer a wide range of services for women's health including pre-post pregnancy care, family planning, preventive screening, and maternal care. We understand parenting can be stressful. We also offer classes and programs to help women and their partners build teamwork, reduce stress and strengthen their relationship. We welcome women of all backgrounds, ages and ethnicities and strive to provide high quality care.