The prevalence of preterm birth is higher in the US than in any other developed nation (12-13% in the US, 5-9% in other developed countries)

The etiology of preterm birth is unknown in one-half to two-thirds of all cases

Preterm birth is associated with long-term problems and high costs
RISK FACTORS FOR PRETERM BIRTH

- Maternal race
- Age
- Cervical length
- Nutritional status
- Multiple gestation
- Interpregnancy interval
- Substance use
- Infection
- Stress

CONTROLLABLE RISK FACTORS FOR PRETERM BIRTH

- Maternal race
- Age
- Cervical length
- Nutritional status
- Multiple gestation
- Interpregnancy interval
- Substance use
- Infection
- Stress
What do we mean by stress?
- Type of stress (e.g., acute, chronic)
- Type of stress (e.g., controllable, uncontrollable)
- Number of stressors
- Timing of stress

What influences the likelihood of preterm birth due to stress?
- Appraisal of stress
- Social support
- Coping resources
CAN STRESS REDUCTION INFLUENCE PREGNANCY LENGTH?

- Studies of prenatal stress reduction
  - Massage
  - Progressive relaxation
  - Guided imagery

- Results of stress reduction during pregnancy
  - Reduced heart rate
  - Reduced cortisol concentrations
  - Reduced self-reported stress
  - Lengthened gestation
  - Reduced fetal activity

SURRENDER TO GOD AND PRETERM BIRTH

- A certain proportion of preterm births are due to prenatal stress
- I propose that people who are “Surrendered to God” experience less stress or cope with stress more effectively than people who are not
- If these are both true, then women who are Surrendered should be less likely to deliver preterm infants
IS THERE SUPPORT FOR THESE IDEAS?

- Stress reduction studies have shown reduced preterm birth
- Study 1: Surrender to God and Stress - Do people who are Surrendered report less stress?
- Study 2: Surrender to God, Stress, and Preterm Birth - Are pregnant women who are Surrendered less likely to deliver preterm infants than women who are not Surrendered?

STUDY 1: SURRENDER TO GOD AND STRESS (N = 561)

- We measured State, Trait, and Overall Stress using the STAI
- We measured Surrender to God using the 12-item Self-Directed Coping Scale from the Religious Problem Solving Scale (RPSS, Pargament), and the 12-item Surrender to God Scale (Wong-McDonald) that was developed based on the RPSS
Surrender to God is significantly negatively related to State Anxiety ($p < .01$), Trait Anxiety ($p < .001$), and Combined Anxiety ($p < .001$).

<table>
<thead>
<tr>
<th></th>
<th>Surrender</th>
<th>State Anxiety</th>
<th>Trait Anxiety</th>
<th>Combined Anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Directed</td>
<td>-.714***</td>
<td>.054</td>
<td>.132**</td>
<td>.097*</td>
</tr>
<tr>
<td>Surrender</td>
<td>-.131**</td>
<td></td>
<td>-.171**</td>
<td>-.160**</td>
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<tr>
<td>State Anxiety</td>
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<td></td>
<td>.754***</td>
<td>.944***</td>
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<tr>
<td>Trait Anxiety</td>
<td></td>
<td></td>
<td></td>
<td>.929***</td>
</tr>
</tbody>
</table>

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Is there really a difference between individuals who are “surrendered” and those who are not?

We defined Surrendered by dichotomizing scores on the two religious coping variables (Median splits of Surrendered Coping and Self-Directed Coping), then grouped them.
**DETERMINATION OF SURRENDER**

<table>
<thead>
<tr>
<th></th>
<th>High Surrender</th>
<th>Low Surrender</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Self-Directed</td>
<td></td>
<td>Self-Directed</td>
</tr>
<tr>
<td>Low Self-Directed</td>
<td>Surrendered</td>
<td></td>
</tr>
</tbody>
</table>

Surrendered = High on Surrender, Low on Self-Directed

Self-Directed = High on Self-Directed, Low on Surrender

**STUDY 1 FINDINGS (CONTINUED)**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Religious Problem Solving Style</th>
<th>Religious Problem Solving Style</th>
<th>p*</th>
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</thead>
<tbody>
<tr>
<td>State Anxiety</td>
<td>Hi Surrender Lo SD SURRENDERED</td>
<td>Hi surrender Hi SD</td>
<td>.124</td>
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<tr>
<td></td>
<td></td>
<td>Lo Surrender Lo SD</td>
<td>.010</td>
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<tr>
<td></td>
<td></td>
<td>Lo Surrender Hi SD SELF-DIRECTED</td>
<td>.008</td>
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<tr>
<td>Trait Anxiety</td>
<td>Hi Surrender Lo SD SURRENDERED</td>
<td>Hi surrender Hi SD</td>
<td>.007</td>
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<tr>
<td></td>
<td></td>
<td>Lo Surrendered Lo SD</td>
<td>.081</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lo surrender Hi SD SELF-DIRECTED</td>
<td>.001</td>
</tr>
<tr>
<td>Combined Anxiety</td>
<td>Hi Surrender Lo SD SURRENDERED</td>
<td>Hi surrender Hi SD</td>
<td>.022</td>
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<td></td>
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<td>Lo Surrendered Lo SD</td>
<td>.016</td>
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<tr>
<td></td>
<td></td>
<td>Lo surrender Hi SD SELF-DIRECTED</td>
<td>.001</td>
</tr>
</tbody>
</table>

*In all cases, means on anxiety measures were lower for Surrendered than for Self-Directed.
STUDY 2: SURRENDER TO GOD, STRESS, AND PRETERM BIRTH

- Collecting Surrender to God and multiple measures of stress in women longitudinally from first trimester through birth
- Collecting birth data from OB charts & hospital birth records
- We will be able to determine which religious coping mechanisms actually were predictive of preterm birth

FUTURE DIRECTIONS

- Intervention
  - Can’t prescribe religiosity
  - Can recommend surrender in individuals who are already professing Christians
  - Biblically, confession is recommended as promoting health
  - Some literature has begun to show the stress reduction benefits of confession
  - We are in the early stages of planning an intervention study using confession as the intervention during pregnancy
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- Erin McNeese Chambers, BS
- Jessica Scott, BA

QUESTIONS?