The Biopsychosocial Religion and Health Study (BRHS)
AKA Adventist Religion & Health Study

Funding from the NIH: National Institute of Aging

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Presentation based in part on:

Cohort Profile: The biopsychosocial religion and health study (BRHS) Jerry W Lee; Kelly R Morton; James Walters; Denise L Bellinger; Terry L Butler; Colwick Wilson; Eric Walsh; Christopher G Ellison; Monica M McKenzie; Gary E Fraser

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Specific Aims

- To examine manifestations of religious experience and their possible associations with quality of life, CHD and all-cause mortality in Seventh-day Adventists, a group characterized by general good health outcomes and considerable diversity in lifestyle.

- To investigate whether these manifestations of religious experience have different associations with quality of life, CHD and all-cause mortality in African and Euro Americans; and

- To examine the possible relationships of these manifestations of religious experience to biochemical and physiological indicators of stress, immune system function, coronary artery disease and aging.
Our basic model

Cumulative Risk Exposure

Positive
Religion Related Behaviors, Beliefs, and Emotions
Negative

Positive
Lifestyle, Psychological and Social Mediators of Health
Negative

Allostatic Load

Morbidity, Mortality, and Quality of Life
Aggregates risk exposure across

- Physical risks such as
  - Poverty
  - Poor housing quality
  - Violence exposure

- Psychosocial risk such as
  - Poor parental bond
  - Poor marital bond
  - Poor job satisfaction
Allostatic Load

- Allostasis—achieving biological stability through change. May involve changes in multiple biological and behavioral systems.
- Allostatic load—cumulative burden that both acute and lifetime stress place on the organism.
- Primarily assessed by a combination of biologic, biometric, physical performance and cognitive function measures.
Our basic model

Cumulative Risk Exposure

Positive

Religion Related Behaviors, Beliefs, and Emotions

Negative

Positive

Lifestyle, Psychological and Social Mediators of Health

Negative

Allostatic Load

Morbidity, Mortality, and Quality of Life
Two arms of the study

- **PsyMRS**
  - Psychosocial Manifestations of Religion
  - 20 page questionnaire sent to a random sample of AHS-2 participants

- **BioMRS**
  - Biological Manifestations of Religion
  - Biometric, biologic, cognitive function and physical performance measures
Note: Current year 1 enrollment is 10,988 in PsyMRS and 508 in BioMRS.
PsyMRS—Questionnaire Assessment of

- Cumulative Risk Exposure
- Religious/spiritual commitment, attitudes, beliefs, and behaviors
- Psychosocial and lifestyle mediators of a religion/health connection
- Quality of life indicators
- Control variables (including demographics)
Cumulative Risk Exposure

- Early relationships
  - Father love & abuse
  - Mother love & abuse
- Risky family (of origin)
- Adult relationships
  - Spouse or partner positive
  - Spouse or partner negative
- Trauma History
  - Last year, 1 to 5 years ago, more than 5 years ago, total impact
- Job
  - stress
  - control
  - satisfaction
- Unfair treatment (gender, race, age, religion, other)
  - Lifetime
  - Everyday discrimination
- Housing
  - Growing up
  - Current
- Difficulty meeting expenses
  - Under 18
  - 18 to 35
  - Last year
- Perceived Stress
Religious/spiritual commitment, attitudes, beliefs, and behaviors

- Church attendance
- Congregational activity
- Percent co-religionist contact
- Spouse & Children’s religion
- Children’s church schooling
- Congregational sense of community
- Religious support
  - Emotional Support Received
  - Emotional Support Given
  - Negative Interaction
  - Anticipated Support
- Prayer
  - Confession
  - Habit
  - Meditation/Contemplative
- Gratitude
- Forgiveness
- Spiritual meaning in Life
- Intrinsic religiosity (DUREL)
- Loving versus controlling God

- Positive and negative religious coping
  - Control:
    - Self-directed
    - Collaborative
    - Passive Deferral
    - Active surrender
  - Meaning:
    - Benevolent Reappraisal
    - Punishing God Reappraisal
  - Comfort:
    - Seeking Spiritual Support
    - Spiritual Discontent
  - Transformation
- Sabbath keeping
  - Sabbath rest
  - From social pressure/guilt
  - Builds relationship with God
  - Sacred activities
  - Secular activities
- Positive and negative eschatological attitudes
Psychosocial and lifestyle mediators of a religion/health connection (Based on Ellison & Levin, 1998)

- Health behaviors & lifestyle
  - Exercise
  - Diet
  - Sleep Hours
  - All AHS-2 lifestyle indicators

- Healthy & Unhealthy Beliefs
  - Optimism
  - Pessimism

- Positive (& negative) emotions
  - Positive & negative affect
  - Hostility
  - Depression

- Self-esteem & Personal efficacy
  - Self-esteem
  - Mastery

- Social integration & support
  - Informational support
  - Instrumental support
  - Emotional support
  - Companionship
  - Unwanted advice or intrusion
  - Failure to provide help
  - Unsympathetic or insensitive behavior
  - Rejection or neglect

- Coping resources & behaviors
  - These are included under religious coping and prayer
Quality of life indicators

- Physical & Mental Health (SF-12)
  - Physical functioning
  - Role physical (Also SF-36)
  - Role emotional
  - Bodily pain
  - General health (Also SF-36)
  - Vitality
  - Social functioning
  - Mental Health

- SF-12 Composite scores
  - Physical Health
  - Mental Health

- Life satisfaction

- Medical History
  - Diagnosed medical conditions
  - Physical symptoms
  - Influenza
  - Upper respiratory infection
  - Sleep problems
Control variables

- Gender
- Age
- Income
- Other demographics
- Balanced Inventory of Desirability Responding
  - Self-deception
  - Impression Management
- Neuroticism
**D. Your Religious/Spiritual Life**

This section asks about your religious and spiritual behaviors and beliefs.

1. On how many Sabbaths in an average month do you have responsibilities in your church? (For example, giving sermons and prayer, teaching Sabbath School, providing music, preparing for a pulpit, etc.)

   - No Sabbath
   - 1
   - 2
   - 3
   - 4 or more Sabbaths

2. On a Sabbath when you have responsibilities, how many hours do they usually take up? (Indicate preparation time on Sabbath such as preparing a lesson study, practicing music, preparing a meal for the pulpit, etc.)

   - Less than 1/2 hour
   - 1/2 to 1 hour
   - 1 to 2 hours
   - More than 2 hours

**Listed below are a number of statements. Read each item and decide whether the statement is True or False as it pertains to you personally.**

**Social Support**

In the last month, how often did the people you know (spouse, family, friends, relatives, etc.)...

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**Religious Support**

In the following questions we are asking about people you worship with — people in your local church, Bible study class, or Sabbath school class.

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BioMRS Clinical assessment of

- **Biometrics**
  - height, weight, body fat (bioimpedance), waist/hip, B/P
- **Physical performance including**
  - gait, balance, grip strength
- **Cognitive performance**
  - California Verbal Learning Test—over 20 indicators including
    - Short and long-delay recall, semantic clustering, primacy and recency, total learning slope, total response bias, intrusions
- **Independent Activities of Daily Living (IADLs)**
- **Blood, Saliva and urine including:**
  - Stress—Waking salivary cortisol, urinary norepinephrine & epinephrine
  - Metabolism—HbA1c, Plasma Albumin
  - Inflammation Markers—Plasma IL-6 & C-reactive protein
  - Lipid Profile—Total and LDL cholesterol, Triglycerides
  - Creatinine clearance
  - Additional blood and urine samples frozen in liquid nitrogen
AHS-2 linked data

- AHS-2 questionnaire (collected up to 3 years before PsyMRS)
  - Ethnicity
  - Education: self & parents
  - Occupation
  - Diet
  - Exercise & Napping: Week day, Saturday, & Sunday
  - “Female History”
  - Sun exposure
  - Age at baptism, mother’s & fathers religion
  - Rearing history (who did it & why)

- Biennial hospitalization questionnaire
- Mortality
Samples of possible analyses

Proposed in grant application
The lifestyle/stress model

- Religious Attendance
- Healthy Lifestyle
- Perceived Stress
- Physical Quality of Life

Relationships:
- Positive (+) relationship between Religious Attendance and Healthy Lifestyle.
- Positive (+) relationship between Healthy Lifestyle and Physical Quality of Life.
- Negative (-) relationship between Religious Attendance and Perceived Stress.
- Negative (-) relationship between Perceived Stress and Physical Quality of Life.
Prayer and Quality of Life

Interactions: Habit with Compassionate Petition & Petition

Interactions: Habit with Confession & Meditation/Improvement

Life Events

Compassionate Petition

Petition for self

Confession

Meditation/Improvement

Optimism

Perceived Stress

Physical Quality of Life
Some possible biological associations

- Congregational Support
- Physical Performance
- Mental Performance
- Physical Performance
- Cortisol
- HgA1c
- IL-6

Relations:
- Allostatic Load
  - Congregational Support
  - Perceived Stress
  - Lifetime trauma
  - C-reactive Protein

Arrows indicate positive (+) or negative (-) associations.
Characteristics of the Sample

Compared to the General Social Survey

Gender & Ethnicity
Marital Status

Male

Female

Marital Status
- Married
- Widowed
- Divorced
- Separated
- Never Married

White

Black

GSS  BRHS  GSS  BRHS
Church Attendance

Church Attendance

- Weekly or more often
- Monthly or several times a month
- A few times a year or less
- Never

Male
- White
- Black

Female
- White
- Black

GSS
- BRHS
Physical and Mental Health

Compared to national norms for the SF-12 version 2
Composite Physical Health (SF-12) Self Report

Scale Score

Age of Female

Age of Male

U.S. Norm (n = 3,343)
Black SDA (n = 2,231)
White SDA (n = 3,544)

U.S. Norm (n = 2,298)
Black SDA (n = 819)
White SDA (n = 2,043)
Composite Mental Health (SF-12)
Self-Report

U.S. Norm (n = 3,347)
Black SDA (n = 2,231)
White SDA (n = 3,544)

U.S. Norm (n = 2,297)
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