Religious Involvement and Cognitive Functioning at the Intersection of Race-ethnicity and Gender in Older Adults.

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Cognitive Functioning Among Older Adults

- **Cognitive functioning** refers to the mental capacities involved in thinking, understanding, learning, remembering, problem solving and decision making.[1]

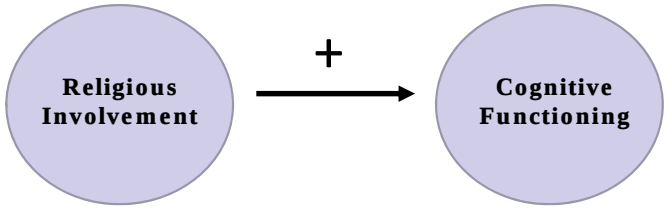
  - Research finds race-ethnic and gender differences in cognitive functioning among older adults.[2,3] Few studies examine cognitive functioning at the **intersection** of these important identities.[4]

  - Understanding what **social and cultural factors** preserve cognitive functioning at multiple axes of social stratification is essential to promoting healthy aging.[5,6]

Cognitive Functioning and Religion

- Religious involvement may preserve cognitive functioning among older adults by
  - Reducing engagement in **risky health behaviors**
  - Promoting mental and **social engagement**
  - Lowering **anxiety and depression**
  - Conferring **meaning, control and comfort** [6,7,8]

Conceptual Model

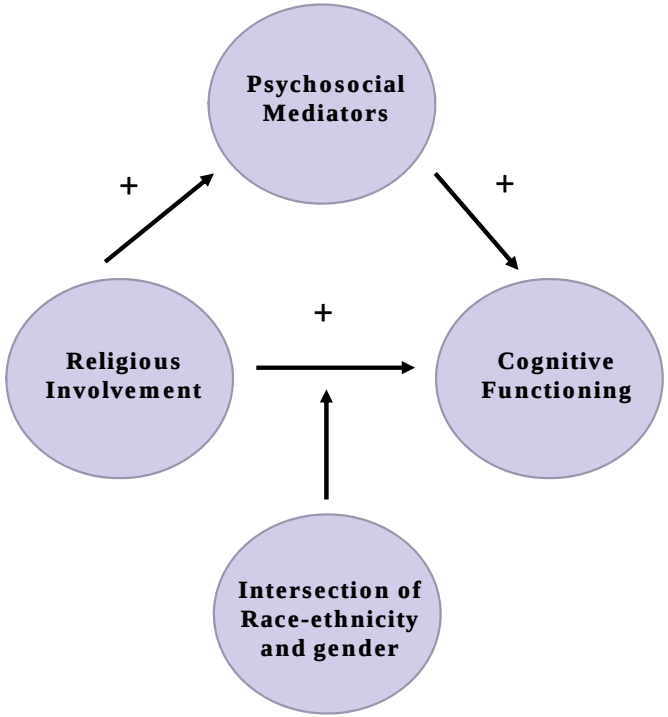


Cognitive Functioning and Religion

- Important **differences in religion by race-ethnicity and gender**.[9,10]
  - Particularly important for Black women.[11]

- **Psychosocial factors** may explain, in part or total, the link between religion and cognitive functioning among older adults.[12]
  - Positive self-perception, coherence, optimism

Conceptual Model



Purpose of the Study

- Examine whether the association between religious involvement and cognitive functioning varies at the intersection of race-ethnicity and gender among older adults.

- Examine whether psychosocial factors explain the association between religious involvement and cognitive functioning.

Data and Methods

HRS HEALTH AND RETIREMENT STUDY

The HRS is a nationally representative multi-disciplinary panel study of Americans over age 50.

Oversamples of African American and Latino older adults.

- Data from 2010/2012 Leave Behind Questionnaires.

Methods

Series of weighted OLS regression models and cross-product interaction terms (religion x race-ethnicity/gender subgroups).

All models control for: age, relationship status, birth cohort, education, household income, and stroke history.

Study Measures

Cognitive Functioning

- 7 tests of memory and mental status, (e.g., immediate and delay word recall and backwards counting)
  - Ranging from 0-35, higher scores reflect higher cognitive functioning

Religious Involvement

- **Religious service attendance**
  - 3 dummy variables: never attend, infrequent attendance (i.e., once a month), and frequent attendance (i.e., daily or weekly) which serves as the reference category.
- **Religiosity**
  - 4-items capturing beliefs, values and coping (e.g., find strength and comfort; belief in a God who watches over me, etc.). Ranges from 6-24; higher scores reflect higher religiosity

Psychosocial Mediators

- 5 independent items measuring psychosocial resources: (1) Purpose in life; (2) Hopelessness; (3) Optimism; (4) Self-mastery; and (5) Constraints

Table 1: Descriptive Statistics

	White Men (n=3,841)	**White Women** (n=5,222)	**Black Men** (n=655)	**Black Women** (n=1,340)	**Latino Men** (n=507)	**Latino Women** (n=731)
	Mean or %	**Mean or %**	**Mean or %**	**Mean or %**	**Mean or %**	**Mean or %**
Cognitive Functioning	23.07	24.2	20.1	20.4	20.9	20.5
Religiosity	17.6	19.7	20.4	21.9	19.7	20.5
Religious attendance						
Never	34.4%	27.6%	19.2%	11.2%	24.6%	18%
Infrequent	35.8%	34.7%	40.3%	32.3%	44.4%	37.1%
Frequent	29.7%	37.8%	40.6%	56.6%	31%	44.9%
Mediators						
Purpose in Life	32.3	32.3	33.1	33.2	31.5	31.2
Hopelessness	9.2	8.8	9.8	9.4	10.7	10.5
Optimism	26.5	27.3	25.6	26.3	25.6	25.8
Mastery	23.8	23.6	23.5	23.4	24.7	23.4
Constraints	10.5	10.6	11.2	11.1	11.8	12

Table 2: Weighted Linear Regression Models Predicting Cognitive Functioning by Religious Involvement and Race-ethnicity and gender

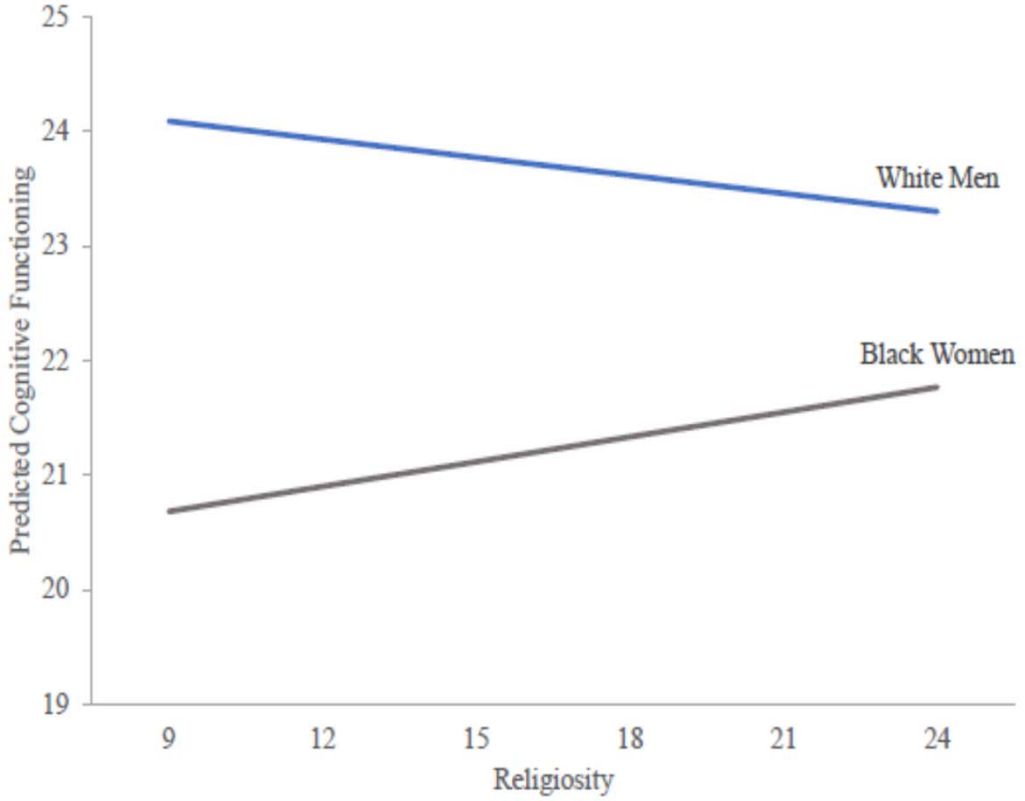
- Religiosity is inversely associated with cognitive functioning.
- Compared to individuals who frequent attend religious services, those who never attend report lower cognitive functioning.
- Compared with older White men, all race-ethnic and gender subgroups report lower cognitive functioning except for White women.

	Main Effects Model
Religiosity	-.03 (.01)*
Religious attendance[1]	
Never attend	-.47 (.12)*
Infrequent attendance	-.09 (.10)
Race/ethnicity & gender[2]	
White women	1.00 (.09)*
Black men	-2.24 (.22)*
Black women	-1.87 (.17)*
Latino men	-1.41 (.25)*
Latino women	-1.21 (.23)*

Note: *p<.05; All models control for: age, relationship status, birth cohort, education, income and stroke history. [1]Reference category: Frequent attendance. [2]Reference category: white men

Differences in the Association between Religion and Cognitive Functioning by Race-ethnicity and Gender

Figure 1: Predicted cognitive functioning by religiosity at the intersection of race and gender



Note. Predicted values when all covariates are set to the referent group and age and household income held constant at the mean. Among Black women, slope for religiosity is significantly different from zero ($p<0.05$).

Religion, Cognitive Functioning and Psychosocial Factors: Mediation Analysis

Table 2: Weighted Linear Regression Models Predicting Cognitive Functioning by Religiosity and Psychosocial Resources for White Men and Black Women, Stratified Estimates

	White Men (n=3,841)		Black Women (n=1,340)	
	Reduced Model	**Full Model**	**Reduced Model**	**Full Model**
Religiosity	-.04 (.01)*	-.05 (.01)*	.08 (.04)*	.06 (.03)
Mediators				
Purpose in life		.02 (.01)		.06 (.02)*
Hopelessness		-.04 (.02)		-.01(.04)
Optimism		.02 (.02)		.06 (.03)*
Mastery		.00 (.01)		-.00 (.03)
Constraints		-.06 (.02)*		-.02 (.03)

Note: *p<.05; All models control for: age, relationship status, birth cohort, education, income and stroke history

Conclusions and Future Directions

- Frequent religious service attendance protects cognitive function, while religiosity is inversely associated with cognitive health among older adults.

- Black women receive greater benefit from their religiosity
  - Results suggest a **distinct, overt importance of religion in daily life and a unique orientation and experience** with religion among Black women.[10,11]
  - Religiosity is inversely associated with cognitive functioning among older white men. Future research examining the meaning of religion among older white men may be important.

- This work speaks to the importance of examining the social factors that influence healthy aging at the intersection of multiple identities.[4]

Thank you!

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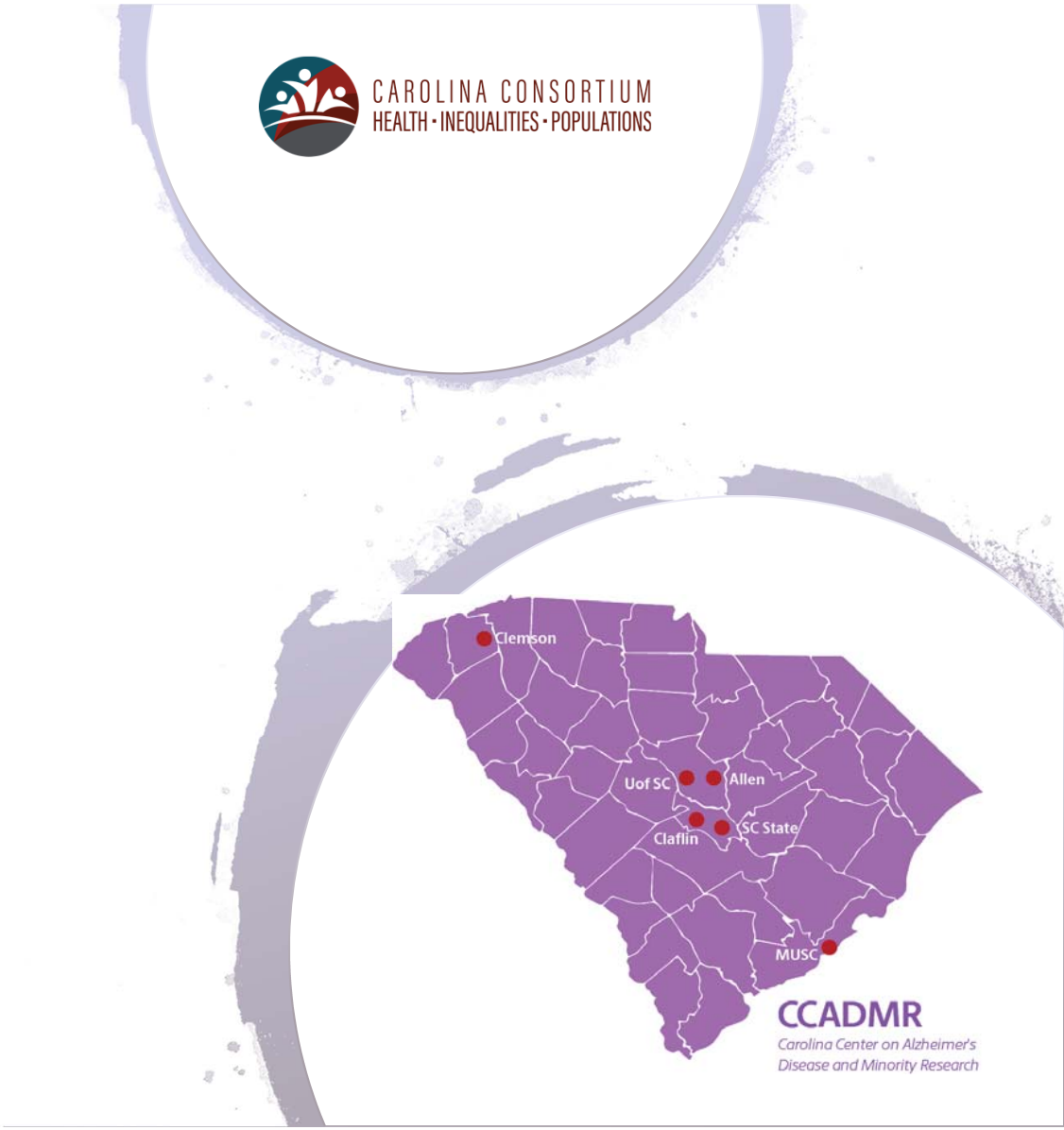

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Supplemental Slides

Table 1: Characteristics of HRS Leave Behind 2010-12 Sample, Weighted estimates (n=12,296)

	White Men n=3,841 Mean (SE) or %	White Women n=5,222 Mean (SE) or %	Black Men n=655 Mean (SE) or %	Black Women n=1,340 Mean (SE) or %	Hispanic Men n=507 Mean (SE) or %	Hispanic Women n=731 Mean (SE) or %
Cognitive functioning	23.7 (0.08)	24.2 (0.07)	20.1 (0.25)	20.4 (0.19)	20.9 (0.27)	20.5 (0.25)
Religiosity	17.6 (0.13)	19.7 (0.10)	20.4 (0.32)	21.9 (0.15)	19.7 (0.29)	20.5 (0.27)
Church attendance						
Not at all	34.4%	27.6%	19.2%	11.2%	24.6%	18.0%
Infrequent	35.8%	34.7%	40.3%	32.3%	44.4%	37.1%
Frequent	29.7%	37.8%	40.6%	56.5%	31.0%	44.9%
Demographics						
Age	64.6 (0.17)	66.1 (0.17)	62.2 (0.40)	63.9 (0.36)	61.7 (0.44)	63.2 (0.43)
Marital status						
Married	73.1%	57.4%	49.7%	29.5%	65.8%	50.1%
Unmarried	11.0%	7.9%	24.3%	20.6%	14.7%	10.8%
Separated/divorced	10.9%	14.3%	19.7%	27.2%	15.8%	21.9%
Widowed	5.0%	20.4%	6.3%	22.8%	3.8%	17.2%
Cohort						
AHEAD	2.5%	4.7%	1.3%	3.1%	1.4%	1.9%
CODA	7.0%	9.0%	3.6%	5.8%	2.5%	4.5%
HRS	19.8%	20.8%	16.9%	18.3%	15.0%	17.9%
War Babies	18.1%	18.0%	14.8%	15.6%	14.9%	16.7%
Early Boomers	25.4%	22.6%	26.5%	25.5%	28.8%	24.6%
Mid Boomers	27.3%	24.9%	36.8%	31.7%	37.3%	34.5%
Education						
< High school	7.9%	8.2%	25.4%	24.7%	39.4%	44.5%
HS graduate or GED	31.3%	36.0%	34.2%	32.6%	27.1%	27.1%
Some college	25.0%	27.9%	27.0%	28.3%	19.7%	18.2%
College and above	35.8%	27.9%	13.4%	14.4%	13.8%	10.2%
Household income (logged)	11.0 (0.02)	10.8 (0.02)	10.1 (0.11)	9.8 (0.07)	10.1 (0.10)	9.6 (0.12)
Ever had stroke	5.6%	4.6%	12.4%	8.0%	6.9%	5.1%
Mediators						
Purpose in life	32.3 (0.13)	32.3 (0.11)	33.1 (0.34)	33.2 (0.23)	31.5 (0.36)	31.2 (0.35)
Hopelessness	9.2 (0.10)	8.8 (0.08)	9.8 (0.27)	9.4 (0.19)	10.7 (0.33)	10.5 (0.27)
Optimism	26.5 (0.12)	27.3 (0.10)	25.6 (0.29)	26.3 (0.21)	25.6 (0.35)	25.8 (0.28)
Mastery	23.8 (0.10)	23.6 (0.09)	23.5 (0.30)	23.4 (0.20)	24.7 (0.31)	23.4 (0.32)
Constraints	10.5 (0.11)	10.6 (0.09)	11.2 (0.30)	11.1 (0.21)	11.8 (0.36)	12.0 (0.32)

Table 2: Weighted linear regression models predicting cognitive functioning in 2010/12 by religiosity and race/gender

	Model 1 b (SE)	Model 2 b (SE)	Model 3 b (SE)
Religiosity	-0.03 (0.01)*	-0.05 (0.01)*	-0.06 (0.01)*
Religious attendance (Ref=frequent)			
Never attend	-0.47 (0.12)*	-0.50 (0.12)*	-0.36 (0.12)*
Infrequent	-0.09 (0.10)	-0.10 (0.10)	-0.01 (0.10)
Race/ethnicity & gender (Ref=White men)			
White women	1.00 (0.09)*	0.59 (0.28)*	0.45 (0.28)
Black men	-2.42 (0.22)*	-2.95 (0.84)*	-3.12 (0.84)*
Black women	-1.87 (0.17)*	-4.53 (0.85)*	-4.40 (0.80)*
Hispanic men	-1.41 (0.25)*	-2.68 (0.90)*	-2.65 (0.86)*
Hispanic women	-1.21 (0.23)*	-2.49 (0.87)*	-2.57 (0.93)*
Interactions			
White women x religiosity		0.02 (0.01)	0.03 (0.01)
Black men x religiosity		0.03 (0.04)	0.03 (0.04)
Black women x religiosity		0.12 (0.04)*	0.11 (0.04)*
Hispanic men x religiosity		0.07 (0.04)	0.06 (0.04)
Hispanic women x religiosity		0.06 (0.04)	0.07 (0.04)
Mediators			
Purpose in life			0.03 (0.01)*
Hopelessness			-0.02 (0.01)
Optimism			0.05 (0.01)*
Mastery			0.01 (0.01)
Constraints			-0.04 (0.01)*
Intercept	24.19 (0.25)*	24.56 (0.28)*	24.70 (0.28)*

Note: *p<.05; **p<.01; ***p<.001; All models control for: age, relationship status, birth cohort, education, income and stroke history.