DETERMINANTS OF COGNITIVE HEALTH AMONG AGING ADULTS IN AGINCOURT, SOUTH AFRICA

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BACKGROUND

- Cognition is the ability to become aware of one's environment

- Maintaining a strong cognitive ability is crucial for independence in old age.

- Dementia, outcome of cognitive degeneration is increasing in low and middle income countries.

- This project examines the determinants of cognitive functioning among aging adults in Agincourt, South Africa.

INTRODUCTION

- Factors that effect cognitive health:
  - Age
  - Education
  - Gender
  - Depression
  - HIV

INTRODUCTION CONT.

- More factors that effect cognitive health:
  - High blood pressure
  - Diabetes
  - Duration of residence
  - Marital status
  - Ability to read and write

COGNITIVE IMPAIRMENT

- Different measures have been used to assess cognition, such as language tasks (picture naming, semantics), memory tasks (orientation, word encoding) etc.

- Orientation– person's mind being aware of time, place and person is what is used in this study.

- Cognitive impairment measures used are memory task focused. These are:

  - Orientation to the year;

  - Orientation to the month;

  - Orientation to the date;

  - Orientation to the president.

- Research Question: What factors significantly impact cognitive health –orientation to time and person - in South Africa.

SETTING –AGINCOURT SOUTH AFRICA

- Population : 70,000 people (nearly a third are Mozambican immigrants) in 21 villages and 11,700 households

- SES:

  - low income communities

  - The poorest people in the population have a high burden of HIV/AIDS and tuberculosis mortality

- Educational: Growing number of schools, but most of the older people have little to no education

- Agriculture: Mostly rural farming

METHOD

- Data

  - Data came from the Health and Aging in Africa: A Longitudinal Study of an INDEPTH Community in SA (HAALSI) Cohort from Agincourt. This is a baseline data collected between 2014 and 2015.

  - Binary Logistic regression analysis was used, using SPSS 22.

- Measures

  - Outcome measures (Dependent variables)

    - Orientation to the year

    - Orientation to the month

    - Orientation to the date

    - Orientation to the president

  - The responses were

    - Correct

    - Incorrect

METHOD CONT.

- Independent variables
  - Duration of residence
  - Age
  - Depression
  - Number of deceased children
  - Number of grandchildren residing with respondent
  - Tested positive for HIV
  - Sex
  - Marital status
  - Ever been told to have high blood pressure
  - Education

RESULTS

- Sample

  - Participants mostly female (53.60%)

  - Married (50.90%)

  - Average age 62 years

  - Lost on average 1.36 children

  - Lived in Agincourt for an average of 36 years

  - Had little over two grandchildren living with them at the time of survey

  - Had mostly no formal education (45.70%)

  - 12.40% were HIV positive

  - About 42% had ever been told to have high blood pressure

Table 1. Descriptive statistics of variables

	N	Mean	%	SD
Dependent Variables				
Orientation to time –YEAR				
Correct answer	3701		76.50	
Incorrect answer	1139		23.50	
Orientation to time –MONTH				
Correct answer	4035		82.60	
Incorrect answer	850		17.40	
Orientation to time –DATE				
Correct answer	3545		73.30	
Incorrect answer	1294		26.70	
Orientation to person – PRESIDENT				
Correct answer	4063		83.30	
Incorrect answer	1139		16.70	
Independent Variables				
Duration of residence in Agincourt	3265	36.20		14.86
Age	5017	62.43		13.02
Depression score	4936	1.71		1.42
Number of deceased children	4728	1.36		1.74
Number of grandchildren residing with respondent	4054	2.18		2.20
Tested positive for HIV				
Yes	623		12.40	
No	4402		87.60	
Sex				
Male	2345		46.40	
Female	2714		53.60	
Marital status				
Married	2575		50.90	
Not married	2482		49.10	
Ever been told to have high BP				
Yes	2118		41.90	
No	2937		58.10	
Education				
No formal education	2306		45.70	
Some primary (1-7 years)	1612		32.00	
Some secondary (8-11 years)	537		10.70	
Secondary or more (12+ years)	585		11.60	

BINARY LOGISTIC REGRESSION RESULTS

- <u>Regression Results of correctly naming the president (Table 2)</u>

- Male respondents almost three times (2.887) more likely to correctly name the president compared to female their counterparts.

- Married respondents and people who had been told to have high blood pressure were respectively 1.6 and 1.7 times more likely to correctly name the president compared to unmarried and people who have never been told to have high blood pressure.

- Compared to people with at least a secondary school education, respondents with no formal education and those with some primary education were, respectively, 85.5% and 58.3% less likely to correctly name the president.

- Age and having lost a child increase the odds of incorrectly naming the president, 3.1% and 8%, respectively.

Table 2. Binary logistic regression results of orientation to person – President

	SE	Odds ratio	P-value
Constant	0.492	96.247	0.000
Age	0.006	0.969***	0.000
Duration of residence in Agincourt	0.004	0.998	0.687
Number of deceased children	0.031	0.921**	0.009
Number of grandchildren residing in home	0.026	1.010	0.714
Depression score	0.039	0.970	0.435
Sex			
Male	0.148	2.887***	0.000
Female	--	--	--
Married status			
Married	0.133	1.626***	0.000
Not married	--	--	--
Ever tested positive for HIV			
Yes	0.185	1.193	0.381
No	--	--	--
Ever been told to have high BP			
Yes	0.114	1.738***	0.000
No	--	--	--
Education			
No formal education	0.374	0.145***	0.000
Some primary (1-7 years)	0.385	0.417*	0.023
Some secondary (8-11 years)	0.689	2.242	0.242
Secondary or more (12+ years)	--	--	--

*p<0.05   **p<0.01   ***p<0.001

- Table 3 shows factors associated with orientation to year. Age, number of deceased children, depression, and formal education are all negatively associated with correctly naming the year, while gender, marital status, and having been told to have high blood pressure all increase the odds of correctly naming the year. For instance, age and number of deceased children reduced the odds of correctly reporting the year by 3.7% and 9.6% respectively. Also, compared to people with at least a secondary education, respondents with no education were 92.3% less likely to report the year correctly. Men were 3.6 times more likely to correctly report the year.

Table 3. Binary logistic regression results of orientation to time – Year

	SE	Odds ratio	P-value
Constant	0.501	373.640	0.000
Age	0.006	0.963***	0.000
Duration of residence in Agincourt	0.004	1.007	0.083
Number of deceased children	0.031	0.904***	0.001
Number of grandchildren residing in home	0.025	1.029	0.262
Depression score	0.038	0.904**	0.009
Sex			
Male	0.141	3.615***	0.000
Female	--	--	--
Married status			
Married	0.126	1.419**	0.005
Not married	--	--	--
Ever tested positive for HIV			
Yes	0.191	1.185	0.374
No	--	--	--
Ever been told to have high BP			
Yes	0.118	1.828***	0.000
No	--	--	--
Education			
No formal education	0.373	0.077***	0.000
Some primary (1-7 years)	0.391	0.569	0.149
Some secondary (8-11 years)	0.589	1.304	0.653
Secondary or more (12+ years)	--	--	--

*p<0.05   **p<0.01   ***p<0.001

- The odds of correctly naming the month is positively associated with gender, marital status, ever been told to have high blood pressure and negatively associated with age, number of deceased children, and formal education as shown in Table 4. For example, while age reduced the odds of correctly reporting the month by 5%, respondents that had been told to have high BP were 2.2 times more likely to correctly state the month.

Table 4. Binary logistic regression results of orientation to time – Month

	SE	Odds ratio	P-value
Constant	0.518	163.367	0.000
Age	0.006	0.955***	0.000
Duration of residence in Agincourt	0.004	1.008	0.169
Number of deceased children	0.032	0.924*	0.014
Number of grandchildren residing in home	0.027	1.024	0.363
Depression score	0.041	0.991	0.830
Sex			
Male	0.149	2.164***	0.000
Female	--	--	--
Married status			
Married	0.138	1.734**	0.000
Not married	--	--	--
Ever tested positive for HIV			
Yes	0.214	1.382	0.131
No	--	--	--
Ever been told to have high BP			
Yes	0.128	2.175***	0.000
No	--	--	--
Education			
No formal education	0.397	0.113***	0.000
Some primary (1-7 years)	0.431	1.021	0.962
Some secondary (8-11 years)	0.812	3.037	0.171
Secondary or more (12+ years)	--	--	--

*p<0.05   **p<0.01   ***p<0.001

- Table 5 shows that age, number of deceased children, and education reduce the odds of correctly naming the date, while gender, marital status, ever been told to have high blood pressure, and having HIV increase the likelihood of correctly naming the date. For example, men were 3.2 times more likely to correctly state the date compared to women. Also, people who were HIV positive (odds ratio = 1.476) and those who had been told to have high BP (odds ratio = 1.314) were more likely to correctly state the date compared to their counterparts who have not ever been told to have high BP and those who were not HIV positive, respectively.

Table 5. Binary logistic regression results of orientation to time– Date

	SE	Odds ratio	P-value
Constant	0.403	105.474	0.000
Age	0.006	0.951***	0.000
Duration of residence in Agincourt	0.004	1.006	0.101
Number of deceased children	0.029	0.930*	0.013
Number of grandchildren residing in home	0.023	1.002	0.935
Depression score	0.036	1.004	0.921
Sex			
Male	0.130	3.165***	0.000
Female	--	--	--
Married status			
Married	0.116	1.348**	0.010
Not married	--	--	--
Ever tested positive for HIV			
Yes	0.182	1.476*	0.032
No	--	--	--
Ever been told to have high BP			
Yes	0.108	1.314*	0.012
No	--	--	--
Education			
No formal education	0.269	0.153***	0.000
Some primary (1-7 years)	0.282	0.750	0.307
Some secondary (8-11 years)	0.418	1.338	0.486
Secondary or more (12+ years)	--	--	--

*p<0.05   **p<0.01   ***p<0.001

CONCLUSION/DISCUSSION

- Several results concur with previous findings. For instance, education is positively associated with cognitive function, it looks like education is also positively associated with orientation among the aging people in Agincourt.

- Gender – women seem to be more affected by cognitive impairment than men in this study.

- Married respondents were more advantaged than their unmarried counterparts with regards to cognitive health

- Stressors such as losing a child is harmful for cognitive health

- Depression is also detrimental to cognition

UNEXPECTED RESULTS

- Surprising results: While people who had been told to have high blood pressure showed better cognition than those without high blood pressure, studies on the relationship between cognitive impairment and hypertension have been inconsistent. Some have shown a positive relationship, others have shown a negative relationship.

- Another surprising result is the positive association between HIV and orientation to date. This could be that people with HIV were younger.

- CONCLUSION

  - This study adds to the nascent literature on cognitive health among aging populations in Africa

QUESTIONS?