

Association of Acculturation and Cardiovascular Disease in South Asian Immigrants of Hampton Roads

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Background

- Acculturation – Changes that take place in an individual or group, as a result of contact with culturally dissimilar people, groups and social influences
- South Asian Immigrants (SAI's) are individuals who originate from countries in the Indian sub continent including India, Pakistan, Bangladesh, Sri Lanka, and Nepal
- 6th Largest and fastest growing ethnic group in the United States (3.6 Million U.S. residents)
- 7,000 residents in Hampton Roads



Significance



- India is the diabetes capital of the World
- Amongst all Asians in the U.S., SA's have the highest rates of overweight/obesity
- They develop Insulin Resistance at a lower body mass index
- Higher prevalence of Diabetes, Metabolic Syndrome and Coronary Artery Disease
- Could Genetics play a factor?
- Highly understudied in medical research

Purpose

- *To determine the association between level of Acculturation and Cardiovascular Disease in SAI's living in the Hampton Roads area.*
- Our desire is that results from this study will serve as a foundation for a future longitudinal study and eventually lead to improvements in preventative interventions in this population.

Methods

- Utilized a cross-sectional design to examine demographics, acculturation and cardiac risk factors.
- Annual Temple Health Day
 - 10 medical groups conduct procedures
 - EVMS Staff and HADSI collected data on several health services, results pending
 - Participants then completed one Demographic Questionnaire and one Acculturation Questionnaire
- Relationship between acculturation score and demographic and/or acculturation factors was determined using two-tailed t-test or analysis of covariance (ANOVA) when groups were 3 or more.
- Relationship between acculturation group and demographic and/or acculturation factors, was determined using chi-square test for categorical demographics.
- Statistical Analysis was performed using SAS 9.4

Significant Demographic Results

- 115 Participants completed the Demographic Questionnaire
- The majority of responders were:
 - Asian Indian decent (72%)
 - Practice Hinduism as their main religion (97%)
 - Employed either as a Physician (18%) or business owner (32%)
 - Have an annual household income of greater than 50k (61%)
 - Having at least a Bachelors Degree (72%)
- Hart-Cellar Immigration Act of 1965
 - restricted immigration from the eastern hemisphere to family members of U.S. citizens and permanent residents, as well as those in occupations of importance and to those who were pursuing higher education

Significant Acculturation Results

- 101 Participants completed the Acculturation Questionnaire

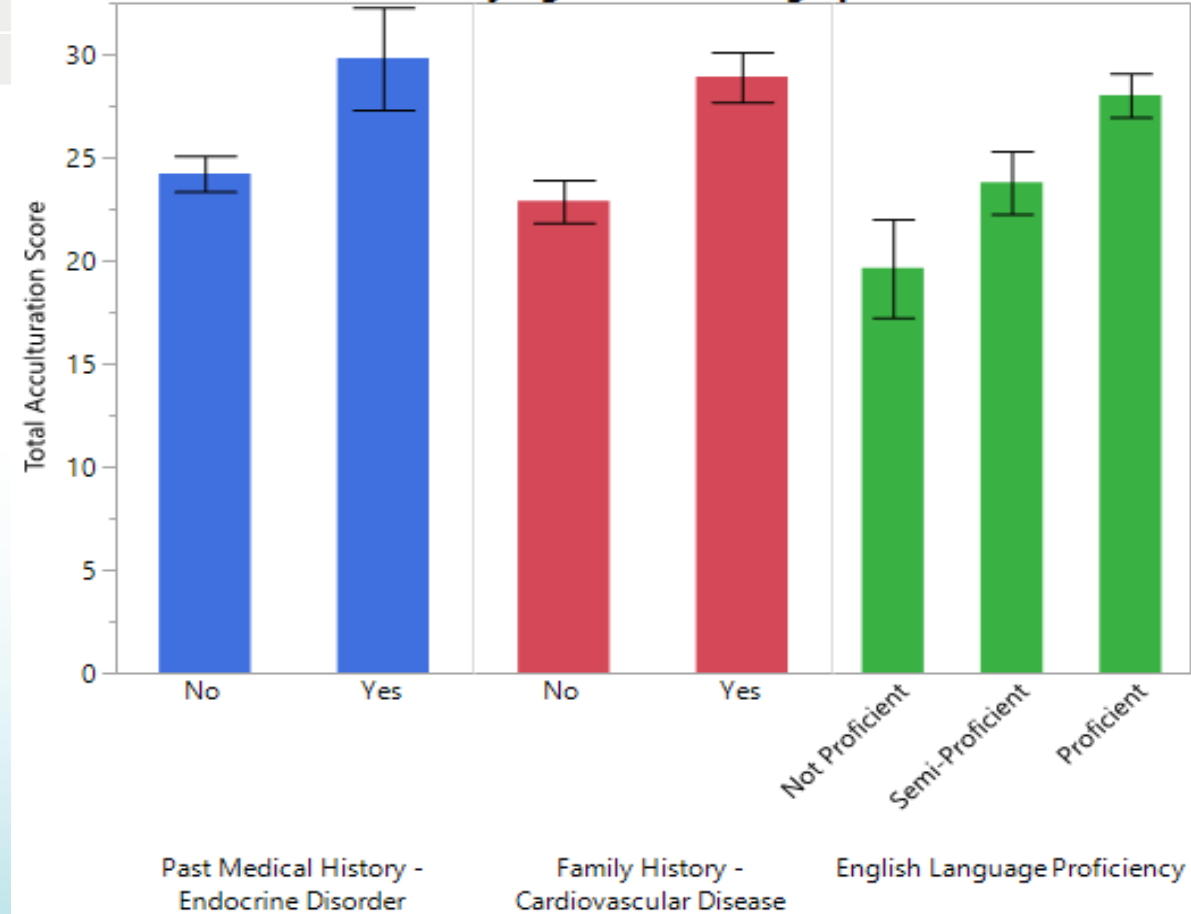
- Acculturation Score:
 - *Low (<12-20) (32% of our participants)*
 - *Medium (21-32) (55% of our participants)*
 - *High (>33) (14% of our participants)*

- Mean Score of 24.7, SD 8.21, Range 9-45



Characteristic	Acculturation Score	P-Value
Personal History of Endocrine Disorder		0.04
Yes	29.80 ± 2.54	
No	24.22 ± 0.86	
Family History of Cardiovascular Disease		0.0005
Yes	28.91 ± 1.32	
No	22.88 ± 1.32	
English Language Proficiency		0.0027
Proficient	28.02 ± 1.02	
Semi-Proficient	23.78 ± 2.03	
Not Proficient	19.63 ± 2.29	

Total Acculturation Score by Significant Demographic Characteristics

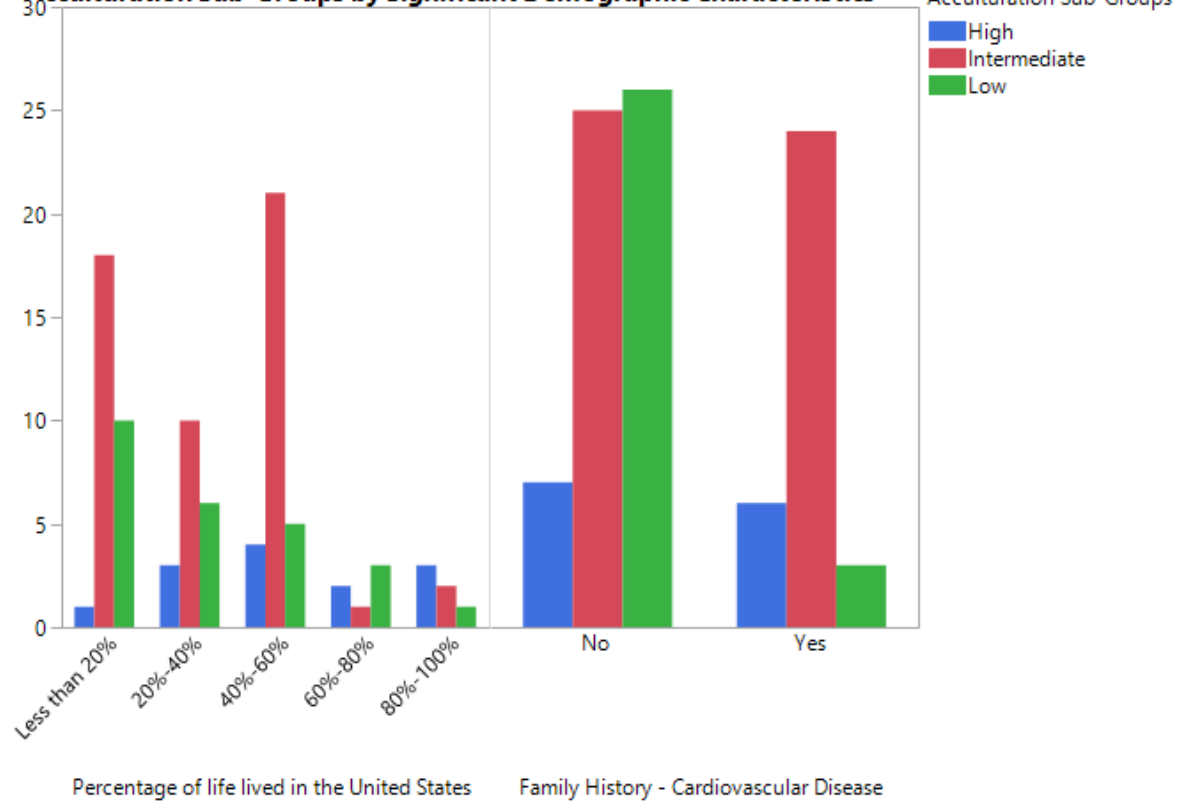


Statistical Analysis Results

Variable (n(row%))	Acculturation Group			P-Value*
	1	2	3	
Family History of Cardiovascular Disease				0.002
Yes	3 (9.09)	24 (72.73)	6 (18.18)	
No	26 (44.83)	25 (43.10)	7 (12.07)	
Percentage of life lived in the United States				0.0457
Less than 20%	10 (34.48)	18 (62.07)	1 (3.45)	
20-40%	6 (31.58)	10 (52.63)	3 (15.79)	
40-60%	5 (16.67)	21 (70.00)	4 (13.33)	
60-80%	3 (50.00)	1 (16.67)	2 (33.33)	
80-100%	1 (16.67)	2 (33.33)	3 (50.00)	

*Fisher's Exact Test

Acculturation Sub-Groups by Significant Demographic Characteristics



Results Continued

Question (n(column%))	Very Important	Important	Moderately Important	Slightly Important	Not at all	P-Value
Family History of Cardiovascular Disease						
Fasting on specific occasions						0.0207
Yes	0 (0.00)	7 (31.82)	3 (20.00)	9 (56.25)	12 (46.15)	
No	10 (100.00)	15 (68.18)	12 (80.00)	7 (43.75)	14 (53.85)	
Living in a joint family						0.0015
Yes	7 (15.22)	8 (53.33)	4 (44.44)	5 (71.43)	8(57.14)	
No	39 (84.78)	7 (46.67)	5 (55.56)	2 (28.57)	6 (42.86)	
Having an arranged marriage						<0.0001
Yes	5 (12.50)	4 (30.77)	3 (27.27)	8 (88.89)	11 (61.11)	
No	35 (87.50)	9 (69.23)	8 (72.73)	1 (11.11)	7 (38.89)	
Having a staple diet of chattis, rice, daal, vegetables, and yogurt						0.003
Yes	7 (18.42)	14 (41.18)	3 (37.50)	3 (75.00)	6 (60.00)	
No	31 (81.58)	20 (58.82)	5 (62.50)	1 (25.00)	4 (40.00)	
Using spices for healing and health						0.0161
Yes	4 (14.29)	9 (36.00)	12 (63.16)	3 (42.86)	4(44.44)	
No	24 (85.71)	16 (64.00)	7 (36.84)	4 (57.14)	5 (55.56)	

Data are represented as count(percentage); Fisher's Exact Test used, *p <0.05

Discussion

- *Our transitioning group (those with a mid acculturation score) yielded the most statistically significant results*
 - *73% of them said “yes” to family h/o CVD vs only 9% in the low acculturation group*
- *Diet*
 - *Approximately 60% of those who reported it was “not at all important” to have a staple diet of chatis, rice, daal, vegetable and yogurt, said “yes” to having a family history of CVD.*
 - *In stark contrast, roughly 82% of those who reported that this diet was “very important”, said “no” to having a family history of CVD.*
 - *We saw a similar trend in the uses of Spices for healing and health*

Conclusion

- The results of our study do suggest an Association between degree of Acculturation, and family history of CVD.
- While we are unable to suggest a causal determinant between acculturation and CVD, the results suggest that these two factors are linked.
- Ideally this study model, can be used as a basis to fund a larger study that is able to analyze similar data, from a longitudinal perspective

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Questions?

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