

Aging Before Birth and Beyond: Aging in America and Egypt

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Aging- A multidimensional Process

Aging, is more than just a physical process, it is a *multidimensional* process of physical, psychological, and social change. Jessica Gonzalez, a sophomore at the University of Southern California in the Lenard Davis School of Gerontology at USC, is currently researching how the effects of psychological, cultural, and geopolitical factors influence health and aging among people in the United States and Egypt with Dr. Cleopatra Abdou. Dr. Abdou, a first-year assistant professor at the Lenard Davis School of Gerontology at USC, is a strong believer in the idea that aging beginning begins before birth.

Whereas we can influence how we age by eating healthy, regularly exercising, sleeping adequately, and practicing other healthy habits like wearing seatbelts, aging is a process that predates one's own life. Studies show that life-long health is shaped at least as far back as our grandparents' generation and, even more strongly, during critical sensitive periods early in life. These early periods *in-utero* and in early childhood shape the process of aging, which occurs over the entire span of an individual's life.



The link between gerontology and Medicine

Jessica Gonzalez's interest in gerontology stems from her desire to become a family physician. When I asked Jessica why the field of gerontology excites her, she enthusiastically replied, "Gerontology not only prepares me to better assess the needs of patients of all ages by using a life-course perspective, but it also allows me to better meet the physical, psychological, and emotional needs of my patients." Jessica's passion for approaching medicine from a holistic approach prepares her to better assess the needs of patients of different cultures and ethnicities.

As an Angelino, this skill of communicating and understanding people of all walks of life is essential. In line with this mentality, Jessica's background in gerontology provides for a strong foundation for understanding the psychological and emotional needs of patients of different backgrounds.

In the future, Jessica plans to work in Hacienda Heights, her hometown, as a family physician. Jessica's background in gerontology and this research subject in particular, supports her goal to work in an area with a large concentration of minorities.

Jessica's mentor, Dr. Cleopatra Abdou, completed her doctoral work in social and health psychology, with a minor concentration in quantitative psychology and statistics at University of California, Los Angeles. Upon completing her Ph.D in 2008, she spent two years as a Robert Wood Johnson Foundation Health and Society Scholar at the University of Michigan, where she trained in social epidemiology and population health. Dr. Abdou dedicates herself to understanding how cultural orientations, views of the self, and the broader social environment promote health and well-being through their influence on the brain and body over the life course.

Dr. Abdou has already impressed her colleagues and students on a grand scale by being invited to speak at the EPS Global Pediatrics summit in Nanjing, China. Dr. Abdou's unique approach to aging and medicine in general has inspired many at USC and beyond.

The Egyptian Revolution and Aging

Currently *The Healthy People Study*, the name dubbed for Dr. Abdou's study is in its early stages, but may already have major implications. Dr. Abdou and her research team are looking at birth outcomes as a stereotype threat after the recent revolution in Egypt (2011). The team is looking for a trend between birth outcomes and the political situation in Egypt. Based on the association between preterm births (resulting in low baby weights) and maternal stress due to the geopolitical environment, Dr. Abdou is trying to evaluate the health of the population.

By assessing data regarding recent birth outcomes of Egyptian Arabs, and comparing them to the birth outcomes of Egyptian Arabs prior to the revolution, Dr. Abdou and her team hope to see how and if emotional and psychological stress affects health. Furthermore, the researchers intend to view how these outcomes manifest themselves in future generations. These birth outcomes such as low birth weight and preterm birth have been used to measure stress in previous studies.

For example, a study published in 2008 in *Ethnicity & Disease* by Abdulrahman El-Sayed, Dr. Craig Hadley, and Dr. Sandro Galea, sought to assess whether the incidence of adverse birth

outcomes among Arab Americans in Michigan changed after September 11, 2001. This study, collected data on all births in Michigan from September 2000 to March 2002. Using techniques of unadjusted and adjusted logistic regression analysis the researchers assessed the relationship between births before and after September 11, 2001. Much like the current study being done by Dr. Abdou, Jessica, and the research team at USC, the Michigan researchers measured low birth weight (LBW), very low birth weight (VLBW), and preterm birth (PTB) as measures of stress.

Table 1. Descriptive statistics and bivariate associations between each covariate and LBW, VLBW and PTB

	Total	%	Low Birth Weight			Very Low Birth Weight			Preterm Birth		
			N	%	P	N	%	P	N	%	P
Ethnoracial Classification					<.01			<.01			<.01
White	97837	75.62	6480	6.62		1264	1.29		8813	9.01	
Arab (Surname)	3133	2.42	184	5.87		20	0.64		223	7.12	
Black	23421	18.1	3317	14.16		782	3.34		3606	15.4	
Asian	3501	2.71	247	7.06		32	0.91		263	7.51	
Native American	614	0.47	44	7.17		9	1.47		67	10.91	
Other	878	0.68	90	10.25		33	3.76		89	10.41	
Ethnoracial Classification					<.01			<.01			<.01
White	97268	75.32	6448	6.63		1255	1.29		8748	8.99	
Arab (Ancestry)	3501	2.71	199	5.68		30	0.86		267	7.63	
Black	23476	18.18	3321	14.15		781	3.33		3612	15.39	
Asian	3375	2.61	243	7.2		31	0.92		257	7.61	
Native American	616	0.48	44	7.14		9	1.46		67	10.88	
Other	910	0.7	93	10.22		34	3.74		93	10.22	
Mother/Infant Descriptives											
Gender					<.01			0.46			<.01
Male	66515	51.41	4957	7.45		1117	1.68		7027	10.56	
Female	62869	48.59	5405	8.6		1023	1.63		6034	9.6	
Parity					<.01			<.01			<.01
0 previous	50238	38.83	4151	8.26		873	1.74		4971	9.89	
1 previous	41323	31.94	2791	6.75		564	1.36		3719	9	
2 previous	22500	17.39	1759	7.82		335	1.49		2295	10.2	
3+ previous	14924	11.53	1605	10.75		339	2.27		2023	13.56	
unknown	399	0.31	56	14.04		29	7.27		53	13.29	
Married					<.01			<.01			<.01
Married	84054	64.96	5420	6.45		1138	1.35		7581	9.02	
Unmarried	45330	35.04	4942	10.9		1002	2.21		5480	12.09	
Mother's age					<.01			<.01			<.01
<20	13446	10.39	1380	10.26		264	1.96		1506	11.2	
20-25	32211	24.9	2615	8.12		506	1.57		3136	9.74	
26-30	35848	27.71	2552	7.12		514	1.43		3258	9.09	
31-35	31359	24.24	2300	7.33		496	1.58		3197	10.19	
36-40	13736	10.62	1216	8.85		292	2.13		1593	11.6	
41+	2770	2.14	292	10.54		62	2.24		369	13.32	

Whereas previous findings such as studies done in California observed a difference in birth outcomes, these researchers observed no difference in adverse birth outcomes before and after the events of September 11, 2001. In fact, the researchers associated Arab American ethnicity with lower risk of adverse birth outcomes compared to other racial and ethnic groups.

Methods

Dr. Abdou also plans to conduct a parallel study of her “Healthy People Study” in the United States to determine whether or not an association exists between the recent revolution in Egypt and birth outcomes.

Next semester, Dr. Abdou plans to travel to Egypt to further her research. Although she is currently relying on quantitative analysis, Dr. Abdou is interested in the participants of her study. And unlike many other researchers, Dr. Abdou approaches her study from a very humanistic

point of view. Jessica described how Dr. Abdou never referred to her subjects as subjects or in cold, technical terms, but rather using the word participants.

The Healthy People Study aims to seek an association between stereotype threat, defined as the experience of anxiety or concern in a situation where one has the potential to confirm a negative stereotype about one's social group, and the birth outcomes following the revolution in Egypt.

Dr. Abdou's multi-generational research focuses on the health effects caused by stress from one generation on the next. This study aims to trace psychological and emotional stress caused by the revolution in Egypt and correlate it to physical health. An increase in premature births and low baby weights would support the hypothesis that the revolution's psychological strains have translated themselves into physiological strains.

While an increase in premature births and low baby weights would support Dr. Abdou's hypothesis, this cannot be used to support the hypothesis that revolution in general negatively impacts the population's health manifested in the form of birth outcomes. Support for this claim comes from the differing results of post September 11th birth outcomes of the Michigan and California studies. Furthermore, results of Egyptian Arabs and American Egyptian Arabs would be expected to differ due to different environmental and cultural factors.

Implications/ importance

This is an interdisciplinary study that seeks to trace psychological and emotional stress throughout generations and correlate it to physical health. If a correlation between these variables is found, it may allow healthcare providers to better assess and manage pregnancies in stressful times such as these. This study could potentially lead to more healthy babies in Egypt, which has a relatively high infant mortality rate, 27.26 compared to the US's 6.26. Furthermore, parallel studies can be done in other countries or among different ethnic groups to see if similar results arise, contributing to the health of people around the world.

It is also interesting to note that the infant mortality rate has increased in the US over the last six years going from 6.81 To 7.07. Parallel studies can be done in the US to seek if there is in fact a correlation between other stress factors such as economic hardship or war and healthy babies. Overall, this study can have major implications on our health and the health of future generations.