determinants (health status, gender, education, age) in the conceptualization of health and health outcomes within an aging population.

DETERMINANTS OF GENERAL WELL-BEING IN BLACK MALES WITH CHRONIC ILLNESS
Darlingtina Atakere¹, 1. University of Kansas, Lawrence, Kansas, United States

Over the last decades, considerable attention has been directed towards examining the well-being of people living with chronic illness. The presence of one or more chronic illnesses challenges their quality of life and general well-being, thus, impacting their abilities to function physically, psychologically, and socially. I investigated reports of general well-being in Black males with chronic illness(es) in a sample of N=242 participants. The males were aged 35–63 and identified as Black/African American males. The participants responded to items assessing general well-being; ethnic identity; self-esteem; active coping; the presence of chronic illness(es); and additional demographic, social and ecological characteristics. Analyses of responses indicated that marital status, ethnic identity, self-esteem are significant determinants of general well-being in Black males with chronic illness(es). Data further showed active coping to be negatively correlated with well-being. I discuss the implications of results for the understanding of health outcomes among this marginalized population.

SPIRITUALITY IN CHRONIC PAIN SELF-MANAGEMENT: LOWER USE BUT EQUAL IMPORTANCE IN OLDER AFRICAN AMERICANS
Staja Booker¹, 1. The University of Florida, Gainesville, Florida, United States

Spirituality is a key social determinant of health for African Americans (AAs) and strongly impacts management of chronic pain. Older AAs (average age 68 ± 12.37) from urban and rural communities completed questionnaires (N=110) and audio-recorded, semi-structured individual interviews (N=18) describing osteoarthritis pain self-management. Prayer was used by 42% of AAs, with substantially fewer attending church (23.6%), watching religious television or reading the Bible/Christian literature (20.9%), listening to gospel music (18.2%), and laying of hands (8.2%). Interestingly, prayer and church attendance were the only pain strategies rated by more participants as very helpful. Regardless of religiosity, most AAs believed that spirituality was “an important aspect, whether we realize it always or not”. Specifically, prayer was considered “number one...cause I know it’s gonna be all right once I do pray...prayer help heal the pain”. Spiritual strategies remain integral for chronic pain self-management despite lower than expected use among AAs.

SESSION 2085 (SYMPOSIUM)

POLICY SERIES: INTERDISCIPLINARY PUBLIC POLICY DISCUSSION SESSION
Chair: Linda K. Harootyan, Wilmington, North Carolina, United States

Discussant: Brian W. Lindberg, The Gerontological Society of America, Washington, District of Columbia, United States

This session, organized by the GSA Public Policy Committee, will provide both GSA section leadership and attendees an opportunity to have an open dialogue on important public policy issues of significance to the aging population. Section leaders will discuss key policy issues of particular relevance to their section’s mission and purpose. They also will comment on improving physical and mental health to illustrate how their different disciplines and perspectives inform and apply to public policy on that issue. This will be an interactive session with plenty of opportunity for audience feedback and input.

PUBLIC POLICY ISSUES OF SIGNIFICANCE TO THE BIOLOGICAL SCIENCES
Scott Leiser¹, 1. University of Michigan, Ann Arbor, Michigan, United States

This presentation will cover public policy issues of significance to the aging population, focusing on the perspective of the biological sciences and on policies that may improve physical and mental health.

PUBLIC POLICY ISSUES OF SIGNIFICANCE IN SOCIAL RESEARCH, POLICY, AND PRACTICE
Robert Harootyan¹, 1. Senior Service America Inc., Silver Spring, Maryland, United States

This presentation will cover public policy issues of significance to the aging population, focusing on the perspective of the social research, policy and practice community and on policies that may improve physical and mental health.

POLICY PRIORITIES: PERSPECTIVES FROM THE BEHAVIORAL AND SOCIAL SCIENCES
Karl Pillemer¹, 1. Cornell University, Ithaca, New York, United States

This presentation will cover public policy issues of significance to the aging population, focusing on the perspective of the behavioral and social sciences and on policies that may improve physical and mental health.

SIGNIFICANT PUBLIC POLICY ISSUES IN THE HEALTH SCIENCES
Stephen Kritchevsky¹, 1. Wake Forest School of Medicine, Winston-Salem, North Carolina, United States

This presentation will cover public policy issues of significance to the aging population, focusing on the perspective of the health sciences and on policies that may improve physical and mental health.

SESSION 2090 (SYMPOSIUM)

IS AGING AN ACQUIRED MITOCHONDRIAL DISEASE?
Chair: Alessandro Bitto, University of Washington, Seattle, Washington, United States

Mitochondrial dysfunction is a hallmark of aging, but severe mitochondrial dysfunction leads to rare childhood
disorders such as Leigh Syndrome. This session explores the similarities and differences between normative aging and mitochondrial disease and the potential for interventions to positively impact both conditions.

AGING AND MITOCHONDRIAL DISEASE: SHARED MECHANISMS AND THERAPIES?
Alessandro Bitto,1 Herman Tung,2 Kejun Ying,3 Daniel L. Smith,4 Ernst-Bernhard Kayser,5 Philip G. Morgan,3 Margaret M. Sedensky,2 and Matt Kaehlerlein6. 1. University of Washington, Seattle, Washington, United States, 2. Allen Institute for brain science, Seattle, Washington, United States, 3. School of Life Sciences, Sun Yat-sen University, Guangzhou Shi, Guangdong, China (People’s Republic), 4. Department of Nutrition Science, University of Alabama, Birmingham, Alabama, United States, 5. Seattle Children’s Research Institute, Seattle, Washington, United States, 6. Department of Pathology, University of Washington, Seattle, Washington, United States

Mitochondrial disease describes multiple pathologies characterized by a wide array of disease symptoms and severity, caused by mitochondrial dysfunction in one or multiple organs. Aging organisms display a similar variety of disease phenotypes, which are often characterized by mitochondrial impairment. Despite the heterogeneity of aging phenotypes, several interventions have been identified which can increase lifespan and delay the onset of age-related diseases in multiple organisms. Two age-delaying interventions, rapamycin and acarbose, dramatically suppress pathology in a mouse model of mitochondrial disease caused by depletion of the NADH-Ubiquinone Oxidoreductase Complex (Ndufs4−/−). This model recapitulates human Leigh syndrome, a childhood mitochondrial disease. Upon treatment with either drug, disease suppression is accompanied by a remodeling of nutrient metabolism and restoration of the NAD+/NADH ratio in the brain without affecting the electron transport chain. Thus, we propose that metabolic derangements induced by mitochondrial dysfunction may be a shared mechanism of aging and mitochondrial disease.

TURNING THE OXYGEN DIAL AS A THERAPY: HYPOXIA TREATMENT FOR MITOCHONDRIAL DYSFUNCTION
Isha Jain1. 1. University of California, San Francisco, San Francisco, California, United States

Mitochondrial disease affects 1 in 4800 live births, with little in the way of therapies. We found that chronic hypoxia extends the life of a Complex 1 disease model by 5-fold. Starting hypoxia therapy at a late-stage of disease can even reverse the MRI-detectable lesions. At the other extreme, mild hyperoxia greatly exacerbates disease and leads to death within several days. These findings have now led to a phase 1 clinical trial in healthy volunteers, with the ultimate goal of human translation. We believe we have identified a new mode of treatment that will be broadly applicable to different forms of mitochondrial dysfunction, ranging from rare inborn errors of metabolism to more common, age-associated pathologies. We believe that “turning the oxygen dial” to low or high oxygen will serve as a novel therapeutic for a range of conditions in the coming years.

MITOCHONDRIA AS REVERSIBLE REGULATORS OF AGING ASSOCIATED SKIN WRINKLES AND HAIR LOSS IN MICE
Keshav K. Singh1. 1. University of Alabama at Birmingham, Birmingham, Alabama, United States

To evaluate the consequences of the decline in mtDNA content associated with aging we have created an inducible mouse model expressing, in the polymerase domain of POLG1, a dominant-negative mutation that induces depletion of mtDNA. We utilized this inducible mouse model to modulate mitochondrial function by depleting and repleting the mtDNA content. We demonstrate that, in mice, ubiquitous expression of dominant-negative mutant POLG1 leads to 1) reduction of mtDNA content in skin, 2) skin wrinkles, and 3) hair loss. By turning off the mutant POLG1 transgene expression in the whole animal, the skin and hair phenotypes revert to normal after repletion of mtDNA. Thus, we have developed whole-animal mtDNA depleter-repleter mice. These mice present evidence that mtDNA homeostasis is involved in skin aging phenotype and loss of hair and provide an unprecedented opportunity to create tissue-specific mitochondrial modulation to determine the role of the mitochondria in a particular tissue.

DOES AUGMENTATION OF MITOCHONDRIAL THIOREDOXIN REDUCTASE 2 IMPROVE METABOLIC FITNESS?
Sandra Chocron,1 and Andrew Pickering2. 1. Barshop Institute for aging and longevity studies, University of Texas Health Science Center, San Antonio, Texas, United States, 2. Barshop Institute for aging and Longevity studies, UTHSCSA, San Antonio, Texas, United States

Mitochondrial Thioredoxin Reductase (TrxR2) is a rate limiting enzyme in the mitochondrial thioredoxin system which serves as one of the major mitochondrial ROS scavenging pathways. Txnrd2 is also a repressor of the ASK-1 oxidative stress induced apoptotic pathway. Our group previously identified a correlation with the expression of this protein and long-lived species and its overexpression prolonged lifespan in Drosophila. We have generated a TrxR2 transgenic (T-tg) mouse which has ubiquitously heightened (two-fold) TrxR2 expression. We found that overexpression of TrxR2 leads to enhanced mitochondrial metabolism and increased resistance to mitochondrial oxidative damage in MEFs (data not shown). We also found that female T-tg mice showed a leaner trend and reduced food consumption, with improved glucose tolerance but no difference in insulin sensitivity. These mice showed a lower Oxygen consumption and CO2 production with lower energy expenditure in individual metabolic cages. We further tested their exercise capacity where T-tg mice had a similar performance to control mice. These results suggest that TrxR2 overexpression can lead to some beneficial metabolic changes that need to be further understood. (Acknowledgments to Nathan Shock Lifespan assessment Core for the help developing all these assays in mice).