BIOMEDICAL & VETERINARY SCIENCES

GRADUATE PROGRAM

ANNOUNCES

The Doctor of Philosophy Seminar and Examination of

Tosin Ogunmayowa
"Neighborhood historical redlining, present-day social vulnerability and sports and recreational injury hospitalizations in the United States"

Friday, May 26th, 2023
11:00AM
VMIA 220
Zoom information: https://virginiatech.zoom.us/j/6156027654

Bio

Tosin is a dedicated researcher who cares deeply about the health and wellbeing of people and the environment. He earned an M.S. degree in Environmental Sciences from Virginia Tech in 2020 and an M.S. degree in Agriculture from Tennessee State University in 2015. Before pursuing his M.S. degree at Virginia Tech, Tosin worked as a lecturer at the University of Benin, Nigeria. After completing his M.S. degree at Virginia Tech, Tosin joined Dr. Charlotte Baker's lab for his PhD. His PhD research focused on understanding and identifying the social and structural determinants of sports and recreational injury hospitalizations in the United States. His research aims to promote health equity in the United States. During his PhD, Tosin worked as a research intern at the Center for Biostatistics and Health Data Science at Virginia Tech.

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Lay Language Abstract

Every year, around 9 million people get hurt while playing sports or participating in recreational activities in the United States. Out of these, more than a third go to the emergency department for treatment, and several thousands need to stay in the hospital because their injuries are more serious. Even though only a small number of sports and recreational injuries (SRI) require hospitalization compared to those treated in the emergency department or outpatient clinics, these injuries tend to be more severe. They can cause significant harm to a person's physical, mental, and emotional well-being, and they also put a lot of pressure on the healthcare system and society as a whole. This dissertation assessed how historical discrimination against certain neighborhoods, called redlining, and present-day social vulnerability affect sports and recreational injury hospitalizations in the United States. This research found that the neighborhood where people live or are hospitalized matter for how often they are hospitalized for SRI, their length of stay in hospital, the amount of money they pay while in hospital, and how often they receive follow-up care after leaving hospital. While historical redlining was not directly linked to higher odds of hospitalization, it was associated with longer hospital stays for Black and Hispanic patients and higher costs for Hispanic patients. This research also found that children from socially vulnerable backgrounds were more likely to be hospitalized for sports-related traumatic brain injuries (SR-TBI) and stay in hospital longer, but were less like to receive follow-up care after leaving hospital. For instance, children from Native American backgrounds were three times more likely to be hospitalized for SR-TBI and stayed in the hospital 27% longer, but were 99.9% less likely to receive follow-up care after leaving hospital compared to White children. Also, children with public health insurance tended to have longer stays in hospital for SR-TBI compared to those with private health insurance. This research highlights how structural discrimination can impact health outcomes, and suggests that policymakers should address the root causes of health disparities in order to promote health equity.

Awards and Adademic Achievements

- Virginia Tech GRDP Research Grant Award ($2000; 2022)
- Virginia Tech TFP Travel Grant Award ($1050 in total; 2022)
- Ecological Society of America (ESA) Annual Meeting Registration Award (2020)
- Golden Key International Honor Society Research Grant Award ($2,500; 2015)
- Tertiary Education Trust Fund (TETFund) Scholarship Award ($39,000; 2013)

Publications

PEER REVIEWED PUBLICATIONS

Ogunmayowa, O., & Baker, C. (2022). Neighborhood risk factors for sports and recreational injuries: a systematic review of studies applying multilevel modeling techniques. Inj. Epidemiol. 9, 6 (2022). https://doi.org/10.1186/s40621-022-00370-0

Jian, J., Yuan, X., Steele, M. K., Du, C., & **Ogunmayowa O.** (2020). Soil respiration spatial and temporal variability in China between 1961 and 2014. Eur J Soil Sci. 2020;1–17. https://doi.org/10.1111/ejss.13061

Dzantor, E. K., Adeleke, E., Kankarla, V., **Ogunmayowa, O.**, & Hui, D. (2015). Using coal fly ash in agriculture: combination of fly ash and poultry litter as soil amendments for bioenergy feedstock production. CCGP, 7, 33-39. doi: 10.4177/CCGP-D-15-00002.1

Publications continued

MANUSCRIPTS UNDER REVIEW

Ogunmayowa, O., Lozano, A., Hanlon, A., Paige, F., Cook, N., & Baker, C. (2023). Historical redlining and current neighborhood social vulnerability in the United States. Under review.

Ogunmayowa, O., Lozano, A., Hanlon, A., Paige, F., Cook, N., & Baker, C. (2023). Historical redlining and current racial disparities in sports and recreational injury hospitalizations in the United States. Under review.

Ogunmayowa, O., Lozano, A., Hanlon, A., Paige, F., Cook, N., & Baker, C. (2023). Social vulnerability and traumatic brain injury hospitalizations from sports and recreation among pediatric patients in the United States. Under review.

Nappier, N., Bartl-Wilson, L., **Ogunmayowa, O.**, Lozano, A., Hanlon, A., Shoop, T., Alvarez, E., Boynton, E., Horvath, S., Ng, Z., Welborn, N., & Wuerz, J. (2023). Differences in sleep quality and sleepiness among veterinary medical students at multiple institutions before and after the pandemic induced transition to online learning. Under review

NON-REFERRED PUBLICATIONS

Nicchitta, N., **Ogunmayowa, O.**, Baker, C., & Atkinson, M. M. (2022). Sickle cell disease in southwest Virginia: Morbidity, acute care utilization, and the effects of social determinants of health in a mixed rural/urban medically underserved community. Authorea. March 30, 2022. https://doi.org/10.22541/au.164865137.74003196/v1

Presentations

Ogunmayowa, O., Lozano, A., Hanlon, A., Paige, F., Cook, N., & Baker, C. (2023, March 14). Historical redlining and current racial disparities in sports and recreational injury hospitalizations in the United States. [Poster presentation]. BMVS Annual Research Symposium, Blacksburg, VA.

Ogunmayowa, O. & Baker, C. (2022, November 27-30). Historical racial residential segregation and present-day social vulnerability in the United States [Oral presentation]. 14th World Conference on Injury Prevention and Safety Promotion (Safety 2022), Adelaide, Australia. http://dx.doi.org/10.1136/injuryprev-2022-safety2022.88

Ogunmayowa, O. & Baker, C. (2022, November 27-30). How does historical racial residential segregation and neighborhood vulnerability influence sports/recreational injuries [Oral presentation]. 14th World Conference on Injury Prevention and Safety Promotion (Safety 2022), Adelaide, Australia. https://www.worldsafety2022.com/_files/ugd/a52314_42e9a68b94914e56b27 52bba651213ac.pdf

Ogunmayowa, O. & Baker, C. (2022, November 6-9). How has social vulnerability changed in the past two decades in historically redlined neighborhoods? [Roundtable presentation]. American Public Health Association Annual (APHA) Meeting, Boston, MA, United States. https://apha.confex.com/apha/2022/meetingapp.cgi/Paper/518509.

Ogunmayowa, O. & Baker, C. (2022, June 14-17). The effects of historical redlining on present-day neighborhood vulnerability in the United States. [Oral presentation]. Society for Epidemiologic Research Annual Conference, Chicago, IL, United States. https://epiresearch.org/event/the-effects-of-historical-redlining-and-current-neighborhood-disinvestment-on-health/.

Ogunmayowa, O. & Baker, C. (2022, March 26). The effects of historical redlining on present-day neighborhood vulnerability in the United States. [Poster presentation]. Virginia Public Health Association Annual Conference and Research Day, Blacksburg, VA, United States. https://drive.google.com/file/d/1G8jsvtMNfUV3kpRxi9U0pFGjfXE2bh7G/v iew.

Presentations continued

Ogunmayowa, O. & Baker, C. (2021, March 22-26). Application of multilevel modeling in sports and recreational injuries studies. [Oral presentation]. Virtual Pre-conference Global Injury Prevention Showcase 2021. http://dx.doi.org/10.1136/injuryprev-2021-safety.97.

Ogunmayowa, O. & Baker, C. (2021, February 26). Area-level risk factors for sports and recreational injuries: A systematic review of studies applying multilevel modeling techniques. [Poster presentation]. VCOM Via Research Recognition Day, Blacksburg, VA, United States. https://cld.bz/xWLxicy/114/.

Ogunmayowa, O. & Steele, M. K. (2020, August 3-8). Cross-scale interactions alter stream nutrient responses to watershed land development. [Poster presentation]. Ecological Society of America (ESA) Annual Meeting. https://eco.confex.com/eco/2020/meetingapp.cgi/Paper/88339.

Ogunmayowa, O. & Steele, M. K. (2018, December 10-14). Exploring the macroscale variation in nutrient loads via scaling function. [Poster presentation]. American Geophysical Union (AGU) Fall Meeting, Washington, DC, United States. https://agu.confex.com/agu/fm18/meetingapp.cgi/Paper/445859.

Ogunmayowa, O., Dzantor, E. K. & Adeleke, E. (2015, November 15-18). Coupling bio/phytoremediation with switchgrass to biofuel feedstock production in mixed-contaminant soils. [Poster presentation]. Soil Science Society of America (SSSA) Annual Meeting, Minneapolis, MN, United States. https://scisoc.confex.com/scisoc/2015am/webprogram/Paper91492.html.

Ogunmayowa, O. and I. A. Ogboghodo (2012). Effects of pH on Soil Bacteria and Fungi Under Four Different Land Use Types. [Oral presentation]. Soil Science Society of Nigeria (SSSN) Annual Conference, Nigeria.

Examination Graduate Committee

Major Advisor/Chair:

Charlotte Baker, DrPH, MPH, CPH
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Graduate Advising Committee Members:

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