INTRODUCTION
Gun violence has increased in recent decades more than ever. It is defined as violence committed with the use of firearms, for example, shotguns, pistols or machine guns. There are more than 500 people who die every day from gun violence. 44% of all homicides globally involve gun violence [6]. In 2016, Chicago led the country with 4,367 shooting victims and 780 homicides [3]. The increase of gun violence has affected both the physical and physiological health of Americans, specifically African Americans.

Overview
This study focused on examining the physiological effects of exposure to nearby gun crimes, such as shootings, to document the lived experiences of African American mothers.

Goals
• Research previous research on wearable biosensors used to monitor the effect of environments on individuals’ physiology (specifically environments with high levels of violence).  
• Write a literature review that summarizes the latest research in the field and identifies gaps in the literature particularly as it relates to Black women living in neighborhoods with high levels of violence.  
• Create a short documentary about the process using video from the project.

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Study Measures
Participants
• 15 African American women  
  - Located in Englewood, Chicago.  
  - Experience high level of violence
Data Collected
• Physiological data using biosensors  
  - Fitbit Charge HR 2 & E4  
  - Real crime data from Chicago police district  
  - Subjective experience of crime measures  
  - Photos, diaries & audio recordings

METHOD
Searching examples of wearable biosensors and their uses in public health  
• Fitbit Charge HR 2 and E4

Search Engines
• Google Scholar  
• Research Gate  
• EBSCO  
• PubMed

Key Phrases
• African American  
• Physiological Effects  
• Mental Health  
• Stress  
• Biosensors  
• Gun violence  
• Front Liners

RESULTS
Research in this topic produced about 50 article that were relevant to the topic. After analyzing and summarizing these articles, there were 3 articles that were significant.

Technical Side
Biosensors in public health
• Ajami, S & Teimouri, F (2015)  
  - Article review concluded that biosensors could be used in monitoring and transmitting physiological signals outside a hospital setting
Fibit sleep analysis
• Zambotti, M. et Al (2017)  
  - Research compared the analysis technique of Fitbit Charge 2 sleep assessment against a golden standard polysomnography  
  - Fitbit Charge HR 2 accuracy and reliability needs further investigations in different settings.

Cultural Side
Walking Adherence and crime incidence
• Oh, A. et Al (2010)  
  - Research used Polar Accurex Plus Heart Rate Monitor (HRM) to measure heart rate as well as record a daily log to track women’s movement in high crime area.  
  - Results showed weak correlation between walking adherence and crime levels.

Discussion
Biosensors overall had a positive correlation with detecting the physiological effects on humans and detecting their overall well being. There was no clear studies found that focused on the use of biosensors to examine the physiology of African American Mothers and how it is affected by high rates of gun violence.

Conclusion
This research topic is significant as it appears to be one of the first studies to examine the effects of gun violence on the physiological African American Women.

Future Recommendations
• Collect more data from a larger sample African American women from different areas around the nation.  
• Expand research topic to utilize the use of Fitbit and biosensors to measure the physiological effects of gun violence on African American Children.

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