2013 GSA Research Grant Grantee

**2013 Research Grant Report, by Joseph Darko** (2013 Grantee)

I can still remember my face beaming with smiles when I read through the email notifying me of the grant I had been given by the Ghana Studies Association. In the 2011/2012 academic year, I enrolled on an MPhil Programme in Statistics at the University of Ghana, Legon. As part of the requirements for the award of the degree, I had to submit a thesis to the Department of Statistics in an area of statistical interest. I submitted a proposal entitled “THE INFLUENCE OF URBAN RESIDENTIAL STRUCTURE ON CANCER MORTALITY IN URBAN ACCRA”.

The aim of the study was to analyze the pattern of cancer mortality in Ghana and its association with urban structure, Socioeconomic Status (SES), environmental conditions and contextual factors. The study also further sought to investigate the relationship between the built environment and cancer mortality in urban Accra.

Routinely generated health data (death events) collected from the Ghana Vital Registration System, and environmental as well as socioeconomic data from the Ghana Census database were extracted and used in the analysis. Though secondary data was an important part of the study, considerable time and effort was invested in extracting the required primary data for the project. Consequently, data capture personnel were recruited to extract data from the Births and Deaths Registry in Accra. The extraction took about five months to be completed, leading to the extraction of a total of about 72,350 death events.

Funds received through the grant made the data capture process possible. Part of the funds was used in renting canopies to shelter a section of the data entry personnel as they performed their duties. Part was also used in purchasing computer accessories to facilitate the data extraction activity.

Variables considered in the survey were entry level age, sex, date of death, and the site of the primary tumor. Underlying causes of cancer deaths were coded using the International Classification of Diseases: 9th revision (ICD-10).

Findings of the study revolved around two sections; (1) neighbourhood urban environmental conditions and socioeconomic status, (2) neighbourhood deprivation and cancer mortality. With regards to neighbourhood urban environmental conditions and socioeconomic status, significant differences were discovered between socioeconomic status and total waste generation. These differences however pertained to only the Middle and Lower Middle classes. The three remaining classes recorded differences, though their differences were insignificant. Consequently, the Middle and Lower Middle classes generated more waste than the other three classes.

Differences were also observed with socioeconomic class and waste collection/clearing. The amount of waste collected for the Upper Middle Class was more than the amount of waste collected for the Lower and Middle classes. Waste deposition figures were statistically insignificant across the socioeconomic classes. The implication of this is that uncollected waste does not pose much of a problem because it is within manageable limits, as evidenced by its statistically insignificant status.

Neighbourhood Deprivation and Cancer Mortality also presented interesting results. Its dynamics were assessed within the context of three models. With regards to the first model, it was observed that people in Highly Deprived areas were 1.12 times more likely to die from cancer than people in Low Deprived areas. Similarly, people in Moderately Deprived areas were 1.09 times more likely to die from cancer than people in Low Deprived areas. The introduction of age as a confounding variable in the second model did not reverse the trend observed. People in Highly Deprived areas across varying age groups still faced the highest risk of dying from cancer at an Odds Ratio of 1.09. Moderately Deprived areas followed next with 1.07 odds of dying compared to the Low Deprived category. The cancer mortality trend remained the same in the third model, which saw the inclusion of Outer Wall and Roofing materials into the model. With regards to Outer Walls, people living in houses with metal sheet/slate walls stood the greatest risk of dying from cancer at an odds ratio of 5.49, while people with palm leaf/thatch/raffia stood the least risk of dying from cancer at odds of 2.2. Roofing material dynamics revealed that people living in wooden roof structures stood the greatest chance of dying from cancer at 6.5 Odds Ratio, compared to people living in sandcrete roof structures who stood the least chance at 0.05 odds.

In conclusion, it is the impression of the researcher that the study benefited tremendously from the grant awarded by the Ghana Graduate Students Association. The researcher therefore takes this opportunity to express his heartfelt gratitude to the Association, and to pray that their reach extends to other researchers as well. Only then can research and scientific enquiry be actively pursued for progressive national development.