Abstract #98185

Sigma's 30th International Nursing Research Congress

Distance to Pharmacies, Medication Adherence, and Health Status in a Low-Income Community

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Purpose: U.S. healthcare systems continue to be plagued by health inequalities associated with social, economic, and environmental barriers to health (Suliman et al., 2012). One such barrier is limited access which includes access to treatments, including medications that can mediate or eliminate the effects of both acute and especially chronic disease (Shepherd, Locke, Zhang, & Maihafer, 2014). It is estimated that 125,000 people die annually due to inadequate medication adherence (U.S. Department for Health and Human Services & Office of Disease Prevention and Health Promotion, 2014; Agency for Healthcare research and Quality & U. S. Department of Health and Human Services, 2015). Additionally, between one to two thirds of medication related hospitalizations are due to non-adherence (Shepherd, Locke, Zhang, & Maihafer). In summary, a lack of access to pharmacies within an individual's neighborhood known as pharmacy deserts could have a direct impact on the quality of an entire population's health (Amstislavski et al., 2012; Wood, 2012). The purpose of this pilot study was to explore the relationships among distance to pharmacies, adherence to medication regimen, health behaviors, and outcomes in a southern low-income community.

Methods: The research design was a mixed methods design with a descriptive correlational and qualitative focus group methodology.

Results: The sample (N= 197) had a median age of 59 years and a range of 48-67 years. The majority of the sample were African American (85%), female (64%), with personal incomes less than $10,000/year (77%) and less than a high school diploma/GED (43%). All of the respondents reported not having a neighborhood pharmacy with the majority (82%) of the sample reported using pharmacies within a 1 to 2 mile radius to the neighborhood boundaries. Difficulties obtaining medications (N=186) included system, time, travel, and financial and barriers. A significant negative Spearman rho correlation was found between the number of difficulties obtaining medications and driving distance (-0.24; p=.0001). The mean score for medication adherence was 0.8 indicating a high level of adherence with no statistical significance to the driving distance or obtaining medications. Bonferroni post hoc analyses revealed that having more than one difficulty obtaining medications was positively related to driving distance to pharmacies along with lack of faith in police prevention and monitoring potential crime (p<.05).

A two-step cluster analysis was conducted to examine the characteristics of individuals who used pharmacies based on distance from the community. Individuals who used pharmacies that were greater than a 1 to 2 mile radius tended to be single, never married, had annual incomes of less than $2,500, with a minimum of a high school
diploma/general equivalency diploma and reported only 1 barrier to getting their medications. Individuals clustering around less than a 1 mile radius tended to be divorced or single, never married with personal incomes ranging from $5,001 to $20,000, less than a high school diploma/general equivalency diploma and reported having at least 3 barriers to obtaining medications.

**Conclusion:** Despite barriers to obtaining medications, reported levels of health status and medication adherence remained high and uncorrelated to distances to pharmacies. The number of barriers to obtaining medications impacts the driving distance to pharmacies. As the number of barriers decreased the distance to pharmacies used increased. Nurses and other health care providers must continue to serve as patient advocates and health navigators to assist with mitigating the effects of barriers on health.

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**Abstract Describes:**
Completed Work/Project

**Applicable category:**
Researchers

**Keywords:**
African American, community health and pharmacy deserts

**References:**

Abstract Summary:

Healthcare systems are plagued by inequalities associated with socioeconomic barriers. Pharmacy deserts have a direct impact on the quality of health. This study explored the relationships among pharmacy distances and health behaviors in a low-income community. Nurses must continue to be patient advocates while mitigating barriers to health.

Content Outline:

1. Health Status of African Americans
   A. Life Expectancy
   B. Influencing Factors

II. Pharmacy Deserts
   A. Overview
   B. Relationships to Mitigating Other Factors

III. Practice Implications
A. Consumer Level  
B. Provider Roles