

Increasing Awareness of Hypertension Management in African
American Population Originally from Cameroon.
A Group Educational Intervention

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Abstract

Hypertension is a significant, global public health concern. An educational intervention one-group, pre-test/post-test, was conducted in an African American community social group to improve awareness and knowledge. Thirty-nine individuals participated and completed the pre and posttest on hypertension knowledge.

The mean age was 43.15 years, age range 28-60. For the overall study, there was a significant difference in participant's pre-intervention knowledge ($M=25.3$; $SD.=2.7$) and post-intervention hypertension knowledge ($M=22.8$; $SD.85$); $t(39)$, $p<0.001$. Effective community education considers cultural background and social norms, hypertension knowledge and awareness is particularly critical for the African American community.

Background and Significance

The prevalence of hypertension in African Americans and its impact on that ethnic group has been well documented by multiple researchers. The effort to educate the public about hypertension has met with some success in the USA, but a lot more needs to be done particularly in the African American population. Hypertension is a chronic, long-term medical condition in which blood pressure in the arteries is persistently elevated. The standard for diagnosis and treatment of hypertension includes treating anyone with a blood pressure reading of or above 130/80 mmHg (Muntner et al., 2018). Since hypertension is typically symptom-free, it often goes undiagnosed. Roger et al. (2011) estimated that 20% of people with hypertension in the United States are unaware of their diagnosis, with only half of those who are aware of the hypertension diagnosis having their blood pressure under control (Roger et al., 2011).

According to the U.S. Centers for Disease Control (CDC, 2014), an estimated 75 million American adults (or 29%) have high blood pressure. Education and lifestyle modification in the form of improved nutrition and increased physical activity can help prevent hypertension and decrease its complications. The U.S. spends \$46 billion annually to treat hypertension, its complications, and the medical issues that arise from it.

The incidence of hypertension is greater within the African American community, disproportionately affecting that segment of the population. Lifestyle modification including weight loss, limited alcohol consumption, increased physical activity, increased consumption of fruits and vegetables, reduced fat, and smoking cessation are crucial interventions for hypertension prevention and management. In general, the African American population poorly manages the risk factors contributing to hypertension (Roger et al., 2011).

The CDC (2012) estimated that between 2007 and 2010, approximately 71.5% of African American men and 51% of African American women who had been diagnosed with hypertension had uncontrolled blood pressure. Hypertension remains a major health concern globally and particularly in the USA amongst African Americans. Even though behavior change through knowledge influence is slow, focusing on education at the community level can in the long run bring more awareness.

High blood pressure is the leading cause of stroke and heart disease, which are two of the leading causes of death in the United States. Because high blood pressure often shows no signs and symptoms, it has been nicknamed the “silent killer.” This researcher sought to develop an educational program that could increase awareness of the dangers of hypertension and could be replicated in other areas by other practitioners. Multiple researchers have focused their scholarship on the prevention, education, and management of hypertension in African Americans. Shortcomings of those existing studies included: a lack of implementation, failure to address socio-economic barriers, and the failure of African Americans to adhere to recommendations for healthy diets and physical activity (Warren-Findlow et al.,2012).

This project was developed in response to the national-and even global-warnings about hypertension, its associated complications, and its disproportionate impact on African Americans. The African American members of the general population have the highest hypertension rates in the United States and in the world (CDC,2014). This disparity is attributed to the lack of knowledge among African Americans regarding hypertension, its management, and its associated complications. The purpose of this project was to measure the effect of education on community awareness of hypertension among African Americans of Cameroon origin.

Methods

The project was based on the assumption that providing a group education opportunity within the community would result in increased understanding regarding hypertension, increased compliance with lifestyle changes, improved prevention, and increased adherence to therapy. Lack of awareness and knowledge contribute significantly to inadequate control of hypertension. This project included the development of a hypertension education program for African Americans of Cameroon origin. A one-group, pretest/posttest design for examining the impact of the educational intervention and increased awareness on hypertension was utilized. The research question was “does an educational intervention on hypertension prevention and management in a community of African American men and women increased their knowledge and awareness of the disease?”. IRB approval for the project was obtained. Participants confidentiality and human right protections were assured throughout the project. There were no expected risks to the participants. All participants’ data were de-identified, with all collected data coded by the researcher. Table 1 describes the sample characteristics.

Measures

The Hypertension Knowledge Level Scale (HK-LS) was used to measure participants’ knowledge in the areas of definition, medical treatment, drug compliance, lifestyle, diet, and complications of hypertension (Erkoc, Isikli, Metintas, & Kalyoncu, 2012). Permission to use the scale was obtained from the authors. The Test-Retest reliability indicated > 90% agreement between responses at test-retest. The scale is reported to ensuring internal consistency in reliability, stability overtime and construct validity. The Cronbach alpha coefficient has indicated reliability of this scale with a coefficient alpha value for various items and subscales >.59 and <0.95 (Eshah,, & Al-daken, 2016). Topics addressed in the different subscales: definition,

understanding systolic and diastolic hypertension. Medical treatment explains duration and why anti-hypertensives are needed. Drug compliance identify need to staying on medications even with lifestyle changes. The lifestyle and diet subscales emphasize on weight loss, limiting alcohol consumption, increasing physical activity, increasing consumption of fruits and vegetables, reducing total fats, reducing salt intake, and stopping smoking. Lastly the complication subscale, educate on managing hypertension to avoid heart diseases, stroke, kidney failure and visual disturbances.

The project was conducted in a community hall setting in the Northshore area of Massachusetts. The convenience sample were adult members of a community social group who were originally from Cameroon in sub-Saharan African. The final sample consisted of 39 individuals who were able to read and write in English and who were age 18 and above.

Program Implementation

The project was conducted in the Northshore area of Massachusetts, with the pre-test HK-LS conducted in June 2018, followed by the educational intervention, and with the post-test HK-LS conducted four weeks later in July 2018. The pre-test and post-test dates were selected to coincide with the monthly social gathering of this community organization. Interested participants who were at least 18 years of age ($n=48$) completed pre-test HK-LS and a demographic questionnaire before being provided with an educational intervention in the form of a PowerPoint presentation. The Power Point presentation was created to include a basic definition of hypertension and to include basic information regarding drug compliance, diet, lifestyle, hypertension complications, and medical treatment. The educational intervention was adapted from material provided by the CDC (2017), with emphasis on answering the questions posed by the HK-LS tool. The participants were provided with printed copies of the presentation

and with copies of an educational leaflet from the Massachusetts Department of Public Health. Ample time was given for questions and discussions. The post-test HK-LS was administered the month following the intervention. Participants were given the opportunity to ask questions to clarify content in July meeting after completing the post-test survey.

The Hypertension Knowledge Level Scale HK-LS addresses six dimensions of knowledge regarding hypertension: definition, treatment, drug compliance, lifestyle, diet, and complications (Erkoc, Isikli, Metintas, & Kalyoncu, 2012). The Permission received from developer s.baliz@mynet.com on 4/17/2019 to published this project with the tool in its original version or modified per situation as needed. The only modification I made was, originally each correct answer was worth “1” point, and incorrect “0”. In this project each correct answer is worth “1” and incorrect worth “2”.

The student researcher selected the HK-LS tool based on evidence from previous usage regarding its validity and reliability.

Results

The mean age of 43.1538 years ($SD \pm 9.88497$ years) and a median age of 45.000 years. Participation age range was between 28 and 61 years. Of these participants, 56.4% were females and 43.6 were males. A personal history hypertension diagnosis was observed in 43% of the sample, a history of at least one chronic disease reported in 61.5% and > 94% of participants indicated exercising regularly and watching health program on TV. The statistical distribution of the study sample according to various demographics and subscales characteristics is shown on Table 1. There was a significant difference in participant's pre-intervention hypertension knowledge ($M=25.3$; $SD. =2.7$) and post intervention hypertension knowledge ($M=22.8$; $SD.85$); $t(39) =6.7$, $p<0.001$. For the subscales; Table 2 compares the pre-post HK LS scores. Lower

scores indicate improvement in knowledge. The statistical analysis was done with right coded as “1” and wrong answer coded as “2”.

There was a significant difference in participant’s pre-intervention definition knowledge ($M=2.15$) and post intervention definition knowledge ($M=2.0$); $t(39)=2.6$, $p=0.012$. There was a significant difference in participant’s pre-intervention medical TX. Knowledge ($M=4.7$) and post intervention medical TX knowledge ($M=4.2$); $t(39)=3.8$, $p<0.001$. There was a significant difference in participant’s pre-intervention drug compliance knowledge ($M=4.5$) and post intervention drug compliance knowledge ($M=4.0$); $t(39)=4.2$, $p<0.001$. There was a significant difference in participant’s pre-intervention lifestyle knowledge ($M=5.8$) and post intervention lifestyle knowledge ($M=5.1$); $t(39)=2.5$, $p=0.016$. There was a significant difference in participant’s pre-intervention diet knowledge ($M=2.38$) and post intervention diet knowledge ($M=2.12$); $t(39)=2.6$, $p<0.001$. There was a significant difference in participant’s pre-intervention complications knowledge ($M=5.64$) and post intervention complications knowledge ($M=5.25$); $t(39)=3.8$, $p=0.001$.

Discussion

With this community project, the researcher was able identify the level of knowledge about hypertension among this group of African Americans of Cameroon origin, while educating them on the management and prevention of the disease. The project relied on the six dimensions of the HK-LS. Untreated or inadequately treated hypertension can result in irreversible organ damage and can cause life-threatening complications including stroke and heart disease (CDC, 2014). Hypertension treatment is a complex process involving lifestyle modifications and therapeutic intervention. A patient’s lack of knowledge regarding the disease, preventive steps, and treatment can prevent him or her from managing the disease adequately.

This sample might not be a true representation of the greater African American population as fewer than 5% of participants scored below 70% on the pre-intervention survey on their knowledge of hypertension. Most participants reported engaging in regular exercise (>94. %), > 97.4% reported watching health channels, and 100% were college educated. The project found no significant differences in knowledge levels between performance of married and non-married participants or between male and female participants.

The project demonstrated that while the HK-LS is a reliable and valid tool for gauging hypertension education levels within the community, it is limited in application when literacy issues are concerned. A total of eight community members were prevented from participation because of their language fluency barrier at pre-test. The project was suggestive of positive relationship between the intervention and outcome based on the enthusiastic community response and the project findings that was overall significant with $P < .001$. Even though these participants were very knowledgeable on hypertension, they scored lower on definition and lifestyle subscales questions indicating areas of greater emphases in future research and education.

This community project, unlike several other published studies, did not show a clear delineation of the lack of knowledge on hypertension (Kingue et al. 2015; Tiptaradol & Aekplakorn 2012; Sanne, Muntner, Kawasaki, Hyre, & DeSalvo, 2008). However, those studies consisted of rural population groups who may have had inadequate health care access, lower socioeconomic status, lower levels of education, and advanced age.

The unintended results from this project can be attributed partly to the high literacy rates and medical savviness of this sample population. As shown in appendix Table 2. As a result, this sample population may have been more aware than other groups about the disease.

The disproportionate effect of hypertension in the African American population as discussed in public health epidemiological research clearly indicate increased morbidity and mortality in the group. The literature review indicates that little is known about this group's attitudes and beliefs (Douglas et al. 2002). While the African American community is not a homogenous group, a one size fit all approach has not and will not work in the management and prevention of hypertension. Knowledge of the group's attitude and beliefs related to hypertension-prevention will go a long way to helping health care professionals manage the disease and narrow disparity.

Culturally appropriate and sensitive measures and community-based approach will help engagement and increased participation rates in research and sensitization campaigns.

Community- based research is intended to be culturally sensitive, yet unintended superficial infusions of poor symbols, language, certain rituals can impede participation. An understanding of why African American experience poor health outcome with hypertension will require a deep-dive into the culture and to their experiences to break the patient-related and as well as provider-related barriers to the disease proper management.

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Table 1**Distribution of study group according to various demographic variables and medical characteristics**

| Variables | Number(n=39) | Percentage (%) |
|---------------------------------------|---------------------|-----------------------|
| sex | | |
| Male | 17 | 43.6 |
| Female | 22 | 56.4 |
| Education | | |
| Less than High School | 0 | 0.0 |
| High School | 0 | 0.0 |
| Some College | 7 | 17.9 |
| Undergraduate | 24 | 61.5 |
| Master | 7 | 17.9 |
| Doctorate | 1 | 2.6 |
| How Long in USA (years) | | |
| 0-5 | 4 | 10.3 |
| 6-10 | 9 | 23.1 |
| 11-15 | 8 | 20.8 |
| >16 | 18 | 46.2 |
| Job status | | |
| Full Time | 23 | 59.0 |
| Part Time | 12 | 30.0 |
| Unemployed | 4 | 10.3 |
| Diagnosis of Hypertension | | |
| yes | 17 | 43.6 |
| no | 16 | 41.0 |
| unknown | 6 | 15.4 |
| Age group (years) | | |
| 18-28 | 2 | 5.1 |
| 29-39 | 17 | 43.6 |
| 40-50 | 9 | 23.1 |
| 51-61 | 9 | 23.1 |
| >61 | 2 | 5.1 |
| Marital status | | |
| Married | 26 | 66.7 |
| Not married | 6 | 15.4 |
| Divorce | 6 | 15.4 |
| Separated | 0 | 0.0 |
| Not Applicable | 1 | 2.6 |
| Any chronic disease Diagnosis, | | |
| Yes | 24 | 61.5 |
| No | 14 | 35.9 |
| Missing data | 1 | 2.6 |
| Exercise | | |
| yes | 37 | 94.9 |
| No | 2 | 5.1 |
| Watch Health programs | | |
| Yes | 38 | 97.4 |
| No | 1 | 2.6 |

Table2

Hypertension Knowledge Level Scale (HK-LS) (Reprinted with permission from the**developer (Erkoc et al.2012)** (Permission to publish Tool received from developer s.baliz@mynet.com on 4/17/2009 .

Please use the pencil to check mark correct, incorrect or unknown for each question.

| | Definition | correct | incorrect | unknown |
|-----------|---|---------|-----------|---------|
| <u>1</u> | Increase diastolic blood pressure also indicate increase blood pressure | | | |
| <u>2</u> | High diastolic or systolic blood pressure indicates increased blood pressure. | | | |
| | Medical treatment | | | |
| <u>3</u> | drugs for increased blood pressure must be taken every day | | | |
| <u>4</u> | Individuals with increased blood pressure most take their medication only when they feel ill. | | | |
| <u>5</u> | Individuals with increased blood pressure most take their medication throughout their life. | | | |
| <u>6</u> | Individuals with increased blood pressure must take their medications in a manner that makes them feel good | | | |
| | Drug Compliance | | | |
| <u>7</u> | If the medication for increased blood pressure can control blood pressure, there is no need to change lifestyles. | | | |
| <u>8</u> | Increased blood pressure is the result of aging, so treatment is unnecessary | | | |
| <u>9</u> | If individuals with increased blood pressure change their lifestyles, there is no need for treatment | | | |
| <u>10</u> | Individuals with increased blood pressure can eat salty foods as long as they take their drugs regularly. | | | |
| | Lifestyle | | | |
| <u>11</u> | Individuals with increased blood pressure can drink alcoholic beverages. | | | |
| <u>12</u> | Individuals with increased blood pressure must not smoke | | | |
| <u>13</u> | Individuals with increased blood pressure must eat fruits and vegetables frequently. | | | |
| <u>14</u> | For individuals with increased blood pressure, the best cooking method is frying. | | | |
| <u>15</u> | For individuals with increased blood pressure, the best cooking method is boiling or grilling. | | | |
| | Diet | | | |
| <u>16</u> | The best type of meat for individuals with increased blood pressure is white meat. | | | |
| <u>17</u> | The best type of meat for individuals with increased blood pressure is red meat. | | | |
| | Complications | | | |
| <u>18</u> | Increased blood pressure can cause premature death if left untreated | | | |
| <u>19</u> | Increased blood pressure can cause heart diseases, such as heart attack, if left untreated. | | | |
| <u>20</u> | Increased blood pressure can cause strokes, if left untreated. | | | |
| <u>21</u> | Increased blood pressure can cause kidney failure, if left untreated. | | | |
| <u>22</u> | Increased blood pressure can cause visual disturbances, if left untreated | | | |

Table 3

Paired sample statistics for overall study and subscale (definition, medical treatment, drug compliance, lifestyle, diet, and complications)

| Paired sample statistics | | | | |
|---------------------------------|-----------------------------|----------|----------|---------------------|
| | Mean | d | t | Significance |
| Overall study | Pre-25.3077 Post 22.8205 | 2.48718 | 6.741 | .000 |
| Definition | Pre- 2.1538 Post- 2.000 | .15385 | 2.629 | .012 |
| Medical Tx | Pre- 4.7179 Post- 4.2308 | .48718 | 3.849 | .000 |
| Drug Com. | Pre- 4.5897 Post- 4.0769 | .51282 | 4.234 | .000 |
| Lifestyle | Pre- 5.8205 Post- 5.1282 | .69231 | 2.515 | .016 |
| Diet | Pre- 2.3846 Post- 2.1282 | .25641 | 3.213 | .003 |