Influence of Dietary Salt Knowledge, Perceptions, and Beliefs on Consumption Choices after Stroke in Uganda

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Background: Previous research on Uganda's poststroke population revealed that their level of dietary salt knowledge did not lead to healthier consumption choices. *Purpose:* Identify barriers and motivators for healthy dietary behaviors and evaluate the understanding of widely accepted salt regulation mechanisms among poststroke patients in Uganda. *Methods:* Convergent parallel mixed methods triangulation design comprised a cross-sectional survey (n = 81) and 8 focus group discussions with 7-10 poststroke participants in each group. We assessed participant characteristics and obtained insights into their salt consumption attitudes, perceptions, and knowledge. Qualitative responses were analyzed using an inductive approach with thematic analytic procedures. Relationships between healthy dietary salt compliance, dietary salt knowledge, and participant characteristics were assessed using logistic regression analyses. *Results:* Healthy dietary salt consumption behaviors were associated with basic salt knowledge ($P < .0001$), but no association was found between compliance and salt disease-related knowledge ($P = .314$). Only 20% and 7% obtained health-related salt knowledge from their health facility and educational sources, respectively, whereas 44% obtained this information from media personalities; 92% of participants had no understanding of nutrition labels, and only 25% of the study population consumed potash—an inexpensive salt substitute that is both rich in potassium and low in sodium. *Conclusion:* One barrier to healthy dietary consumption choices among Uganda's stroke survivors is a lack of credible disease-related information. Improving health-care provider stroke-related dietary knowledge in Uganda and encouraging the use of potash as a salt substitute would help reduce hypertension and thereby lower the risk of stroke.
Key Words: Sodium—dietary salt—stroke—hypertension—sub-Saharan Africa—Uganda.

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Introduction

High salt consumption is an important determinant of hypertension and cardiovascular risk, having a population-attributable risk for hypertension of 9%-17%.[1,2] According to World Health Organization statistics, over 80% of cardiovascular disease (CVD) deaths occur in low- and middle-income countries with high blood pressure (BP) as a major contributor.[3] In Uganda, more than 65% of poststroke patients have uncontrolled hypertension.[4] Decreasing BP on a population level is one strategy for reducing the rate of CVDs.[5,6] Lowering dietary salt consumption is a potentially effective approach for decreasing BP and thereby the risk of stroke and CVDs.[7] Well in excess of the World Health Organization recommendation of 5 g/d or less,[8] 65% of Uganda's poststroke population registered 24-hour urine sodium levels of 8.5 g/d or higher.[9]

Multiple factors including culture, patient age, educational level, and income contribute to dietary behaviors.[10] In Uganda, knowledge of the impact of diet on stroke risk, as well as perceptions of stroke prevention, is generally poor[4]; however, even the limited dietary salt knowledge that exists is not associated with either healthy consumption choices or BP control.[9] Studies assessing the disparity between knowledge and healthy behaviors in Uganda are not available. The data are crucial in resource-limited settings such as Uganda, in which chronic disease-care costs are prohibitive, making effective, inexpensive primary prevention interventions an imperative. The main objectives of the present study were to explore Ugandan's knowledge, attitudes, and behaviors related to their salt consumption decisions after stroke, identify barriers and motivators to healthy dietary compliance, and examine participants' understanding of widely accepted salt regulation mechanisms, including the use of salt substitutes and the interpretation of nutrition labels. We hypothesize that stroke survivors do not fully understand the risks associated with high salt consumption and are largely unaware of related health effects.

Methods

Study Design

Data were collected between July 2015 and January 2016 at Uganda's Mulago National Referral Hospital. The hospital's neurology clinic serves as a tertiary referral center for neurological disorders for the entire country. We utilized a mixed-methods triangulation design[11] to obtain complementary data on stroke, patient salt consumption behaviors, and associated motivating factors. We used quantitative data to measure patient salt-related dietary knowledge and associated behaviors and to assess the demographic and clinical characteristics of stroke survivors within the Stroke Clinic. Qualitative data were used to provide context for the interpretation of the quantitative data by determining patient perceptions and inform how identified gaps might be addressed. Focus group discussions (FGDs) to obtain qualitative data were moderated by an experienced qualitative researcher who was fluent in English and Luganda (the area's main local language). FGDs were conducted to give in-depth insights into the beliefs, attitudes, and knowledge pertaining to the participants' salt consumption and their knowledge of its impact on health. All participants were adult (older than 18 years) poststroke patients identified from neurology and other medical data files using purposive sampling. Stroke was defined as a neurological deficit of abrupt onset lasting more than 24 hours, localizable to a vascular territory and attributable to a vascular cause with compatible findings on brain computed tomography scan.[4]

Focus Group Methods

A total of 8 focus groups were formed, each including 7-10 adults selected by purposive sampling with a history of stroke or an attendant with at least some responsibility for caring for a stroke-affected participant (n = 81). Patients who could not provide a reliable history or did not have an attendant and those who declined consent were excluded. The topics for the FGDs were identified after a preliminary analysis of qualitative results from a test group of 5 poststroke subjects and included respondents' understanding of "sodium," perceptions and attitudes toward salt consumption, level of dietary salt knowledge, salt measurement and regulation, salt substitutes, and nutrition labels. Group interviews were conducted to stimulate interaction, encourage participants to respond and react to each other, and compare experiences.[12] Questions were open-ended so as not to limit the range/breadth of discussion. Participants were positioned so that each could have eye contact with others in the group. Each interview lasted approximately 60 minutes, was recorded, and then transcribed verbatim. Information collected from focus group sessions included interview and observation. Figure 1 gives an overview of the semistructured interview protocol.

Salt knowledge was assessed in 3 ways: (1) basic knowledge (quantified by whether the subject is aware of the harm high salt has on general health); (2) diet disease-related knowledge (quantified by responses to the question "*what is the impact of high salt on health?*"); and (3) procedural knowledge (quantified by patients' reports on deliberate actions taken to cut down their salt intake).

Qualitative Analysis

The focus group transcripts were first read in their entirety to gain familiarity with the data. Segments of text were labeled and assigned codes that described the meaning of the content.[13] The codes were subsequently collapsed into broad themes or categories. The finalization of codes was based on the consensus of the qualitative team.