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Original Research Article

ROLE OF GOVERNMENT POLICY AND STRATEGIES ON DIETARY SALT REDUCTION TO REDUCE THE BURDEN OF HYPERTENSION IN NIGERIA

Authors: Umar Abdullahi[1], Abdullahi Shehu[2].

[1]Department of Internal Medicine, Federal Medical Centre Gusau, Zamfara State, Nigeria.
[2]Department of Community Medicine, Federal Medical Centre Gusau, Zamfara State, Nigeria.

Corresponding author: Abdullahi SHEHU.
Department of Community Medicine, Federal Medical Centre Gusau, Zamfara State.
Email: abdulshehu78@gmail.com.

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ABSTRACT
The leading cause of cardiovascular disease, hypertension, is responsible for 49% of heart disease and 62% of strokes. In Nigeria, the incidence of hypertension is on the increase. The increased prevalence of hypertension is mostly caused by behavioural risk factors, including bad eating habits, excessive salt consumption, tobacco use, alcohol abuse, and a lack of physical activity. The unhealthy diet and salt intake contribute to the burden of hypertension more than that of physical inactivity, tobacco and alcohol intake combined. The changes in the intake of the traditional African diet in Nigeria today to a more energy-dense food of animal origins and processed food (unhealthy diets) have encouraged the increase in the burden of hypertension. These unhealthy dietary lifestyles were adopted because they are more readily available to middle- and high-class consumers. Although various studies have reported high prevalences of salt sensitivity among Blacks compared to Whites, effective salt reduction strategies have not been implemented in Sub-Saharan Africa. Therefore, the need to concentrate and have strong dietary salt reduction strategies as the best way to reduce the burden of hypertension in Nigeria is highly encouraged.

Keywords: Burden of hypertension, Salt reduction, Strategies.

INTRODUCTION
Non-communicable diseases (NCD), including diabetes, hypertension, cardiovascular disease, cancer and stroke, have become important risk factors for morbidities and mortalities in Sub-Saharan African countries (Dalal et. al., 2011; Guwatudde, 2015). About 80% of these mortalities occurred in low and middle-income countries, and Nigeria is included (World Health Organisation, 2005). Hypertension is the commonest risk factor of cardiovascular diseases; it accounts for 62% of stroke and 49% of heart disease (World Health Organisation, 2002). A lot of experimental and epidemiological data have demonstrated a strong relationship between salt consumption and several non-communicable diseases, including hypertension and stroke (Strazzullo, 2009). The strategies to modify the risk factors for hypertension as suggested by the International Forum for Hypertension Control and Prevention in Africa include reducing salt intake, promoting healthy diets and increasing physical

activity, which could lower the prevalence of hypertension and subsequently reduce the burden of cardiovascular disease (Lemogoum *et. al*., 2003). These combined strategies are also recommended in guidelines for the management of hypertension (Appel et. al., 2006; Mansia, 2007). The incidence of hypertension in Nigeria is on the increase (Akinkugbe, 1997; Ike, 2009; Isezuo et. al., 2010). A nationwide survey done in Nigeria in 1992 showed that about 11.2% of the adult population is hypertensive,[10] but most of the studies done recently in a different geographical area of Nigeria showed an increase in the prevalence rate of hypertension, which ranged from 28.8% - 36.6% (Isezuo et. al., 2010). This rising burden of hypertension is stretching the limited health facilities in the country, as evidenced by the increased rate of both in-patient and out-patient hospital attendance for heart disease and stroke (Ekere et. al., 2005; Ike, 2009). The risen incidence of hypertension is largely from behavioural risk factors such as tobacco use, harmful use of alcohol, unhealthy diet, excessive use of salt, and insufficient physical activity. The unhealthy diet and salt intake contribute to the burden of hypertension more than that of physical inactivity, tobacco use and alcohol intake combined (Lim et. al., 2012).

The changes in the traditional diet that is largely on staple grain, legumes, vegetables and fruits to more energy-containing food of animal origins and processed food rich in saturated fat, sugar, artificial trans-fatty acid and sodium, encouraged the risen incidences of hypertension in Nigeria. These unhealthy diets are more readily available and easier to access by the consumers (Popkin, 1994; Swinburn et. al., 2011). A Diet rich in sodium is ranked as the leading risk factor for disability-adjusted life years and death globally (Stanaway et. al. 2018). Habitual consumption of excessive sodium is mostly through intake of salt, and this predisposes people to hypertension, which is a major risk factor for cardiovascular disease, leading to premature death worldwide (World Health Organisation, 2009; Subasinghe et. al., 2016). Therefore, the need to have population-based strategies to reduce salt intake is recommended as the best way of prevention and control of hypertension in Nigeria. This is to reduce hypertension before it becomes an uncontrollable epidemic and to decrease the consequences associated with it in terms of morbidity and mortality (Kuller, 2007). While several studies have reported a high prevalence of salt sensitivity among blacks compared to whites, effective salt reduction strategies can be implemented easily in Sub-Saharan Africa (Forrester et. al., 2005; Cappuccino, 2006). Despite the apparent understanding of this very low-cost effective public health strategy for prevention of hypertension in Nigeria, the population-wide implementation of salt reduction is affected by a lack of reliable countrywide data on salt consumption (Odili et. al., 2020).

There is overwhelming evidence linking high salt intake to cardiovascular disease (Dajen et. al., 2020). Therefore World Health Organisation has recognised that a reduction in salt consumption at the population level is the most important strategy to reduce the burden of hypertension (Dajen et. al., 2020). It was agreed by member states that a 30% reduction in salt intake at the population level should be achieved by 2025 to a value of not more than 5g per day (World Health Organisation, 2009). There are limited effective strategies to reduce dietary salt consumption in the population globally, especially from African countries (Trieu, 2015; Muthuri, 2016). Therefore, the need to concentrate and have strong dietary salt reduction strategies to reduce the burden of hypertension in Nigeria is encouraged.

According to evolutionary theory, the early human species typically consumed and eliminated less than 1g of salt daily. They also report that they have difficulty preparing a meal that contains more than 50 mmol/l (1.2 g) of sodium per day (Karppanen & Mervaals, 2006). The addition of salt to food started in China 5000 years ago, and the sole purpose of adding salt to meats, vegetables and fish was to preserve them from decay (Stamler, 1989). The salt intake currently between different countries ranges from 6g per day to 12g per day, and it is more than 10 times what the body requires for it to function normally and effectively (Stamler, 1989). Consequently, some institutions and organisations advise that an individual's daily salt consumption be kept to fewer than 5 grammes (World Health Organisation, 2007). Diverse researchers postulated a strong relationship between hypertension and salt intake and showed that low salt intake will lead to lower blood pressure in hypertensive patients (Stamler, 1989; Meneton et. al., 2005). This will also reverse hypertension-related complications such as retinopathy and left ventricular hypertrophy even before drug therapy to lower blood pressure becomes available (Stamler, 1989; Meneton et. al., 2005). Moreover, they showed a strong correlation between salt intake, urinary sodium excretion level and blood pressure level (Stamler, 1989; Meneton et. al., 2005). A lot of studies on African people showed that Africans are more salt sensitive than other populations in the world, which means they are more prone to blood pressure reduction with decreased salt intake compared to other populations. (Morris et. al., 1999; Mezue, 2013). Therefore, based on this, it can be debated that salt

reduction strategies will lead to a widespread decrease in blood pressure if implemented in a population of African origin, like Nigeria. (Mezue, 2013).

THE STRATEGY OF DIETARY SALT REDUCTION.

THE BENEFIT OF COMMUNITY-WIDE STRATEGY: Salt reduction strategies at the community level are aimed at a relative decrease in the blood pressure of individuals, but a larger health benefit may also be achieved by decreasing it in the community (Mezue, 2013). Hypertension is an asymptomatic disease (the silent killer); hence, a lot of people in the community are carrying high blood pressure without being diagnosed (Mezue, 2013). The most important rationale for community-wide implementation of salt reduction programmes is that it will be of serious benefit to the large number of undiagnosed hypertensive people in the population (Mezue, 2013). The strategies to achieve a decrease in salt in the diet could be a multisectoral approach through reducing the salt content of processed foods available to the population (product reformation); health promotion and advocacy to increase awareness of reducing salt intake in the population to get people to change their attitude and behaviour and reduce added salt in the meal (consumer awareness and education); and environmental changes through adequate labelling of the sodium content of each food product (Mezue, 2013). It is more cost-effective to employ a salt reduction strategy at the national and individual levels than to manage hypertension and its complications with an associated decrease in quality of life (Mezue, 2013).

SALT REGULATION IN THE FOOD INDUSTRY: Salt serves many functions, such as increasing the taste of meals, adding salt to meat and other products, increasing the weight of those products by up to 15% and also preventing decay by acting as a water-binding agent.[32] In addition, salt causes thirst; a decrease in salt quantity in food products could drastically reduce the demand for soft drinks (Strauss, 2010; Mezue, 2013). The strategy to use involves forcing the food industry to reduce the salt in processed food products to the lowest possible level, either voluntarily or by legislation (Strauss, 2010; Mezue, 2013). This reduction can be done gradually over time in such a way that society becomes used to the small amount of salt in the products without losing customers (Strauss, 2010; Mezue, 2013). Another modality is substituting the salt with a substitute that contains a lesser amount of salt or the salt content is released gradually as a means of making society have less salt intake (Strauss, 2010; Mezue, 2013). There should be very strong stakeholder meetings with relevant industries, community leaders and government agencies on the need for monitoring and evaluation of the salt content of food, as agreed upon. Staff could be trained on this with an appropriate budget to facilitate these activities using different methods, such as spot urine collection to assess the salt excretion of the community and to punish the offenders. Analyses of the salt content of food from restaurants and food vendors could also be helpful (World Health Organisation, 2007; World Health Organisation, 2009).

HEALTH EDUCATION AND PROMOTION OF LOW SALT INTAKE: This involves social marketing techniques, media, jungles, billboards, posters, leaflets, social media, drama and different communication methods in educating individuals on the dangers of high salt in the food and attending to the negative consequences of the high salt content of the food (Mezue, 2013). Strong advocacy and legislation together with community participation to make individuals in the community voluntarily reduce their salt intake by decreasing the amount of salt added when cooking and buying less salty products in supermarkets and restaurants (Mezue, 2013). In a randomised parallel design study to find out whether health promotion and dietary education as an intervention could achieve a decrease in salt intake over 12 weeks (Ireland et. al., 2010). This study used urinary salt excretion as an outcome measure; it showed a significant decrease in salt intake in the group that had health education and promotion intervention (Ireland et. al., 2010). However, individuals who try to change their lifestyle to adopt a low-salt diet usually encounter difficulties, such as difficulty in controlling salt in the diet when eating outside the home or in restaurants (Mezue, 2013). Varieties of diet with low salt are limited, with a lot of time wasted in identifying low-salt food when shopping (Mezue, 2013). The language to be used should not only be directed to the general population but also to the most vulnerable group in the community; it should be simple and action-oriented to strengthen the perception that good and healthy food is low in salt (Mezue, 2013). Similarly, there must be training and education of vulnerable groups on how to read and interpret the labelling of food products, and adequate provision of relevant information in their products should be emphasised by relevant stakeholders (World Health Organisation, 2007; World Health Organisation, 2009). Reducing salt intake could be a challenge, as it requires a lot of personal effort to change the dietary habit of not adding salt to cooked

meals. However, this difficulty may be overcome by focusing on having people who are motivated and have insight into a low-salt diet (Mezue, 2013).

ENVIRONMENTAL CHANGES: This is to make healthy food easily available and affordable in the community by setting national targets and standards for food manufacturers and providers. It was also recognised by experts that the synergy of salt reduction intervention is important through adequate collaboration and cohesion toward monitoring and evaluation, research, policy development, implementation, communication and advocacy at all levels of the country (World Health Organisation, 2007; World Health Organisation, 2009).

PLANNING FOR SALT REDUCTION: There is a need to have a national strategic team in Nigeria that will plan the nationwide intervention. This team should have a multi-sectoral, multi-stakeholder approach with collaboration from other government agencies, non-governmental Organisations, and traditional and community leaders responsible for health promotion (Mezue, 2013). The team will be responsible for knowing the source of salt and the current level of salt intake. A policy needs to be drafted with achievable objectives, targets, time limits and a realistic goal.

PROPER TARGETING AND ADVOCACY: A blanket approach to health promotion should be avoided, and a target audience should be employed. Women should be the most important in this campaign because they are involved in cooking food for their male counterparts (Mezue, 2013). This message should carry along women's groups in schools, churches, markets, clubs and associations in both rural and urban areas (Mezue, 2013). This is to appeal to them on quantity and the choices of salt. Women usually respond to the information that tells them certain food products are good for their children, and it will serve as motivation to reduce salt in the cooked meals of the family (Mezue, 2013). Traditional rulers and religious leaders should be engaged to convince them of the importance of the community to reduce their salt intake and to seek their assistance in the dissemination of the message (Mezue, 2013). This will encourage their followers to change their attitude and be part of the planning and execution of the campaign as an important priority to make the message acceptable to the community (Mezue, 2013).

MONITORING AND EVALUATION: The programmes should be audited to ascertain the effectiveness of intervention efforts; this can be done annually (Mezue, 2013). It can also help policymakers to know whether the intervention is working or not, and it can be amended appropriately (Mezue, 2013). Studies of knowledge, attitude and practice in the general population are important to check if there is a change in behaviours and attitudes regarding salt intake. Likewise, studies on the prevalence of hypertension will be useful to understand if the intervention has an impact on reducing disease morbidity and mortality in the population.[31]

OUTCOMES OF SALT REDUCTION STRATEGIES: The prevalence of hypertension and cardiovascular mortality has decreased in various nations that use salt reduction techniques. In Finland, there is a marked decrease in salt intake using intense public health campaigns (World Health Organisation, 2007). This gradual decrease in salt intake has played an important role in decreasing the average blood pressure; a 30% decrease in the prevalence of hypertension and a 75–80% reduction in mortality have been observed over time (World Health Organisation, 2007). This is achieved as a result of extensive legislation, media campaigns and cooperation of the food industry (Karppanen & Mervaals, 2006). Moreover, a randomised parallel design study to find out whether health promotion and dietary education as an intervention achieved a decrease in salt intake over 12 weeks (Ireland et. al., 2010). This study used urinary salt excretion as an outcome measure; it showed a significant decrease in salt intake in the group that had health education and promotion intervention compared to the other arm (Ireland et. al., 2010). Therefore, health promotion is an important strategy to transform and change the situation of salt addiction. Employing the above strategies through product reformation and food labelling will significantly impact salt content and health education to limit salt intake and will go a long way in reducing the burden of hypertension.

CONCLUSION: Salt reduction strategies are a means of decreasing the burden of hypertension; the benefit of salt reduction is widely accepted as a strategy with a low cost of implementation. If salt reduction is effectively implemented, there will be a significant decrease in morbidity and mortality. Both the overstretching of health

services and the cost of healthcare can be considerably decreased. Good political will, a shift in mindset, and strong lobbying are all crucial tactics for lowering salt consumption.

IMPLICATIONS FOR PRACTICE:

Establish National Salt Reduction Targets

Nigeria should adopt and enforce clear, measurable goals aligned with WHO recommendations, such as limiting salt intake to less than 5 grams per day per individual.

Legislate Food Industry Regulations

Cap the sodium content in processed foods, snacks, and restaurant meals through legislative policies.

Mandatory Food Labelling

Implement strict labelling policies that inform consumers about sodium content, empowering informed dietary choices.

POLICY IMPLICATIONS:

The escalating prevalence of hypertension in Nigeria, driven largely by unhealthy dietary habits, particularly excessive salt intake, necessitates urgent and targeted policy actions. To effectively curb the burden of hypertension and associated cardiovascular diseases, policymakers should consider the following strategic implications:

Development and Enforcement of National Salt Reduction Policies

Governments should formulate and implement comprehensive national policies aimed at reducing dietary salt consumption. This involves establishing clear target goals aligned with the World Health Organisation's recommendation of not more than 5 grams per day per individual, targeting a 30% reduction by 2025. Such policies need enforceable standards for salt content in processed foods and fast foods prevalent in Nigeria.

Regulation of Food Industry Practices

Regulatory frameworks should be strengthened to monitor and limit salt content in packaged foods, restaurant foods, and street foods. Mandatory labelling of salt content and public awareness campaigns can empower consumers to make healthier choices and pressure food manufacturers to reduce salt levels voluntarily.

Public Awareness and Education Campaigns

Effective public health education campaigns are crucial in changing dietary behaviours. These should focus on raising awareness about the risks associated with high salt intake, promoting the adoption of traditional low-salt diets rich in vegetables, legumes, and grains, and encouraging consumers to read nutrition labels critically.

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