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Use of cooking salt in school meal preparation and quality control practices among food vendors engaged in the national home-grown school feeding programme in Southwest Nigeria

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The study was aimed at investigating practice relating to use of cooking salt in school meal preparation and quality control practices among Food Vendors (FVs) engaged in National Home-Grown School Feeding Programme (NHGSFP) in public primary schools located in Oyo and Ogun States, Southwest Nigeria. An exploratory qualitative study was conducted among 40 selected FVs engaged in NHGSFP in the two States. Data were collected using a pretested Key Informant Interview guide. Interviews were subjected to thematic content analysis. Findings reveal that several FVs usually used packaged cooking salt, while some preferred unpackaged cooking salt sold in open plastic containers. The use of salt combined with other forms of food seasonings including bouillon cubes was a common practice among FVs. Practices they often employed to determine quantity of salt included 'gradual adding of salt to taste', use of bare-hands to add salt and 'use of visual measure to gauge the added salt'. Some FVs usually salvaged meals containing excessive salt, especially rice by adding water and sieving it afterwards. An appropriate nutrition education intervention, which encourages use of packaged dietary salt by FVs as well as graduated measuring spoon to quantify the amount of salt added to school meals is suggested.

Key words: Food vendors; school meals; national home-grown school feeding programme; use of cooking salt control, use of condiments; Southwest Nigeria.

INTRODUCTION

Food preparation requires basic skills to ensure food quality and utmost safety (Benn and Carlsson, 2014). Along this line, food vendors are required to undergo training for skills acquisition that will enhance their

competence in the food preparation (Choudhury et al., 2011). In some instances, local food vendors may not undergo formal training before practicing, which can affect the quality of food prepared in terms of the standard and even health benefits of consumers (Raji et al., 2021). Good nutrition practices contribute to one of the cardinal principles that established the National Home-Grown School Feeding Programme (NHGSFP), which aims to meet the needs of pupils; through the provision of healthy and safe food (Ayoola, 2014; African Union, 2021). In addition, the quality meals in terms of the nutrient and salt content should be of concern. Studies have shown that food handlers' behaviour has an important influence on contamination and can reduce the quality of the final products (Da Cunha et al., 2012, 2013; Ansari-Lari et al., 2010).

In most instances, the quality of prepared foods is considered from the narrow perspective of microbial contamination, with little insight into the sodium content, excess of which is highly detrimental to health (Hunter et al., 2022). Clinical and epidemiological studies have established strong evidence of the link between excessive salt consumption and several chronic diseases (Aminde et al., 2021; Brown, 2022) including hypertension among children (He et al., 2008; Daini and Ajayi, 2018). The World Health Organization (WHO) recommends an intake of less than 5 g/day (WHO, 2012) to prevent hypertension. It is possible that many food vendors, especially those in charge of school meals may not be knowledgeable about this WHO's standard and much less practice it. In Nigeria, many food vendors learn the trade from their parents or by apprenticeship whereby traditional practices of cooking is employed (Akinbule et al, 2019; Ibrahim et al, 2021). While some of these practices are wholesome, some, especially with regards to use of salt in excess as well as use of salt in combination with various food seasonings such as monosodium glutamate, and other additives cited by Ikuomola and Airhihenbuwa (2021) is detrimental to health. There is dearth of literature information on what guides the food vendors' use of cooking salt in preparing school meals.

Outdoor food consumption, including school meals is one of the major sources of sodium intake (Jessen et al., 2022). Therefore, it is imperative to engage school food vendors in the quest to control high sodium intake among the populace, especially children as engaging in consumption in excess at early age could result in hypertension in later years (He et al., 2008; Daini and Ajayi, 2018). There are many ways to stem the use of excessive cooking salt by food vendors. In the case of school meal, providing training to school vendors and quality check by dedicating someone to inspect meals (by tasting) before being served to pupils would help to check the food vendors' excessive use of cooking salt (WHO, 2016).

Furthermore, the level of interaction between health professionals and food vendors is not well documented as regards the standardization of salt content of served school meals in line with the recommended daily intake by WHO. This has revealed some gaps in the available potentials to simultaneously promote good health and avoid dissatisfaction among consumers. There is, thus, the need to explore the practices and behaviours that could assist in formulating interventions with the potentials to reduce salt use and consumption (Geaney et al., 2011). Therefore, this study was aimed at investigating qualitatively the use of cooking salt in school meal preparation and quality control among food vendors engaged in the National Home-Grown School feeding programme in Southwest Nigeria.

METHODS

Study setting

The study was carried out in 2021 in two selected states, Oyo and Ogun States in South West Nigeria (Figure 1). Both neighbouring states are mainly inhabited by the Yoruba ethnic group. Inhabitants in both states are majorly agrarians. Other occupations residents of the states engage in craftmanship, trading and working in public service (Adegoke and Jegede, 2016).

Oyo State has its headquarters in Ibadan and lies between latitude 7°51′9.25″N and longitude 3°55′52.5″E with 33 Local Government Areas (LGAs). It covers an area of 28,454 km^2 with a projected population of 7,377,170 at the time of this study in 2021 (NPC and ICF, 2019). Ogun State on the other hand lies between latitude 6°54′35.3988″N and longitude 3°15′30.1068″E, it has its headquarters in Abeokuta with 20 LGAs. Ogun State has a land mass of 16,980.55 km^2 with a projected population of 6,153,869 as at 2021 (NPC and ICF, 2019).

Data from the last Nigerian Demography and Health Survey reported 68.0 and 72.4% primary school attendance rates for Oyo State and Ogun States respectively (NPC and ICF, 2019). Accordingly, the projected numbers of pupils in public primary schools in Oyo and Ogun States for the year 2021 were put at 506,348 and 460,064 respectively (Gambo and Adelokun, 2020).

The NHGSFP scheme, which mainly targets pupils in classes one to three took off in both Oyo and Ogun States in January 2017 across 2,408 and 1,510 public primary schools in Oyo and Ogun states respectively (Civil Society Action Coalition on Education for All, 2018; Action Health Incorporated; 2020). It was reported that through the NHGSFP 2,779 and 2,578 direct jobs were created for women to work as food vendors in Ogun and Oyo State, respectively. (Civil Society Action Coalition on Education for All, 2018; Action Health Incorporated, 2020).

Study design, population and sampling process

An exploratory qualitative study involving key informant interviews

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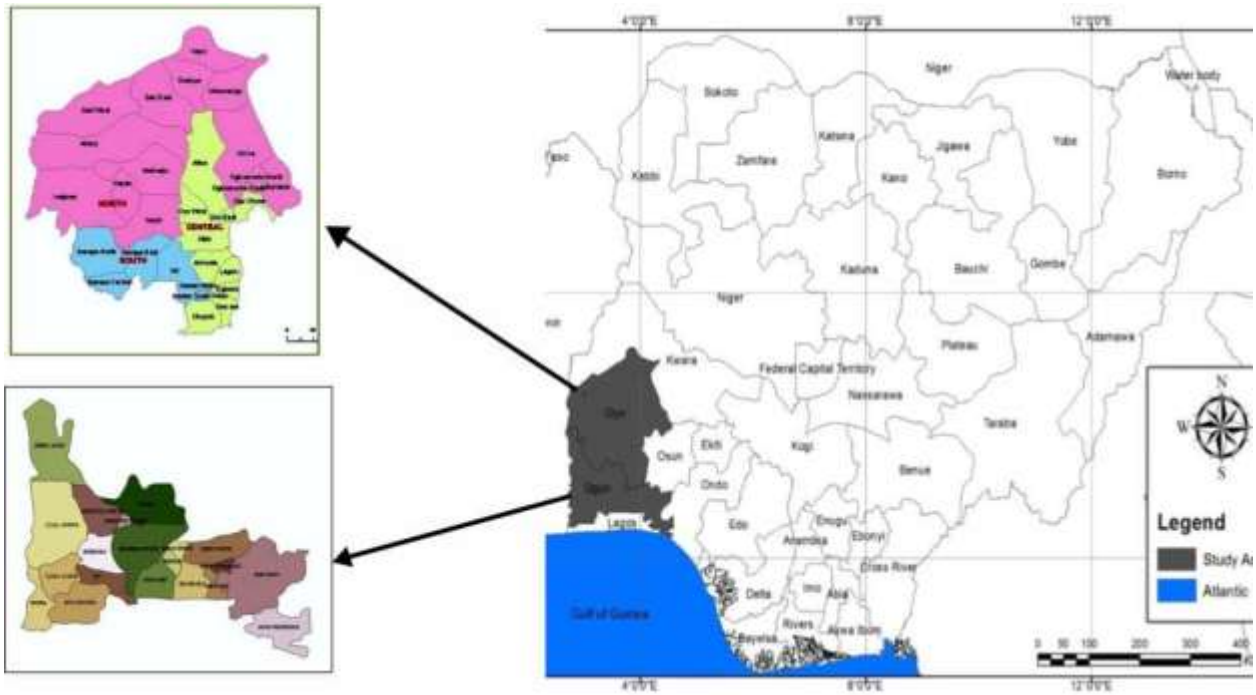

Figure 1. Map of the study area
Source: Nigerian Muse, 2010; Olayinka, 2016

(KIIs) was conducted among food vendors engaged in NHGSFP in Oyo and Ogun States. The interviews were conducted among 40 food vendors (with 20 food vendors in each of states) who were selected from various public primary schools engaged in the NHGSFP in Oyo and Ogun States. Efforts were made to achieve geographical dispersal of interviewees across the various local government areas for holistic views and presentation. The number of food vendors interviewed was decided based on saturation, which is commonly used to determine sample sizes in qualitative research (Hennink et al., 2019).

Data collection instrument, method and process

The food vendors were interviewed using a validated researcher-designed KII guide. The data collection instrument and procedures were pretested for adequacy and consistency prior to the main study. Quality control practices involving use of cooking salt in preparation of school meals was operationally defined in terms of the quality of the cooking salt being used by the food vendors, processes involved in using the salt, which include tasting the salt content of the meal and what the food vendors would do if the school meal prepared is found to be salty. These indicators of quality control are very germane; as lack of effective food quality control practices and proper school meal preparation practices can culminate in food-related non-communicable diseases.

The main sections of the KII guide included the type of cooking salt used in preparing school meals, the use of other forms of food seasonings apart from salt, how the quantity of cooking salt used is determined, methods used to eliminate excess salt when too much cooking salt is accidentally added in the meals during preparation, and checking of the salt content of the school meal before pupils are served. The instrument was initially designed in English language and later forward-back translated into the Yoruba language version.

Twenty research assistants comprising males and females were recruited and trained for data collection in each of the States. The research assistants were all graduates with previous experiences in qualitative research and were proficient in both Yoruba and English languages. They were taken through a 6-h intensive training in each of the study sites with a focus on the study objective, data collection instrument and method. In addition, practical sessions on interviewing skills, note-taking and transcription of recordings were held. Each KII, which entailed asking open-ended questions, was conducted one-on-one in a place and time of interviewee's choice by a pair of research assistants. While one research assistant served as moderator, another was responsible for note-taking, observing and documenting the interview processes and non-verbal cues of the interviewee.

Before the commencement of the interviews, the objectives and nature of the study were explained to the interviewees. The interviewees were assured of anonymity and confidentiality of the data, and their permission was obtained to use audio-tape recorder during the interviews. The interviews were conducted either in quiet environment within the school premises where participants supply school meals after school closing hours or in other convenient places within their communities, where their privacy was guaranteed. The interviewers were open-minded, polite and emphasized the voluntary nature of the interviews. Notably, the interviewers had no prior personal relationship with the interviewees. Each interview lasted an average of 50 min. The interviews were held to the point of saturation, using open-ended questions to elicit more responses.

Prior to the data collection, the instrument was pre-tested in both States among three food vendors drawn from outside the LGAs/communities selected for the main study. Apart from pre-testing the instrument, constant debriefing on the field and monitoring of the data collection process by the field supervisors and project team members were part of the strategies employed to ensure quality data collection.

Figure 2. Sample of unpackaged and packaged salt. Source Authors

Data analysis

The data analysis started with the verbatim transcription of the KII recordings, which was done daily at the end of the field work by the interviewers to avoid losing or omitting important details. Additionally, the interviews that were conducted in Yoruba were subjected to forward-back translation to English to ascertain quality transcripts. All the English versions of the transcribed notes were audited and validated by two field supervisors and a data analyst. The validated transcribed notes were entered into the computer using NVIVO version 12 Pro. Inductive-dominant coding approach was employed to facilitate the coding process (Armat et al., 2018). Primary and secondary codes were generated based on the content of the data. The codes were linked appropriately to the corresponding quotations. The generated codes and the quotations were reviewed and critiqued carefully by the data analyst and by two other experienced qualitative experts. Having memos linked to appropriate codes and quotations as well as keeping of reflexive diaries were part of the strategies used to enhance the trustworthiness and quality assurance of the coded data.

Thematic content analysis was performed. Generated themes were guided by the (a) content of the study instrument (b) sample quotes from transcripts and (c) peer review and reflections (contributions from members of the research team). Following the step-by-step approach of thematic analysis identified by Nowell et al. (2017), the verbatim transcript of each interviewee was carefully read and examined theme by theme and thereafter compared with that of other interviewees to identify relevant texts, similar words and phrases as well as divergent opinions. For each theme, common and peculiar trends as well as similar and divergent opinions were noted. Themes were developed and revised iteratively. Finally, a summary of findings was written in narratives and supported by appropriate verbatim quotes.

Ethical considerations

Ethical approvals for the study were obtained from the Oyo State Ministry of Health Ethics Review Committee (AD 13/479/1645^{B}) and Ogun State Ministry of Health Ethics Review Committee (HPRS/381/332). The research was conducted in accordance with the World Medical Association Declaration of Helsinki (World Medical Assembly, 2000) as well as the provisions of the National Code of Health Research Ethics in Nigeria (National Health Research Ethics Committee of Nigeria, 2007). The study participants were given adequate information on the study, and those who agreed to participate in the study signed a written consent form. Confidentiality was maintained and accesses to data were restricted to only research team members. The data set was de-identified to ensure privacy.

RESULTS

Type of cooking salt used in preparing school meals

More than two-third of the food vendors involved in the KIIs in both States affirmed that they usually made use of well-packaged sachet salt for cooking school meals (Figure 2). The Majority of food vendors specifically mentioned that they usually used a particular brand of sachet salt (‘Salt A’- name of brand withheld). Some other brands of sachet or packaged salts (Salt B and C) were also mentioned (names of brands withheld). The reason many of the food vendors gave for not using unpackaged salt for preparing school meals was that it is exposed to flies and contaminants. One of the participants emphatically opined that apart from unpackaged salt being cheaper than sachet salt, some of them ‘looked rocky’ (congealed) and made soup to taste salty after a while after cooking (Figure 2). Another participant also mentioned that she refrained from using unpackaged salt because she learned that unpackaged salt makes people to develop goiter. The food vendors commonly referred to sachet salt as ‘the good cooking salt’ and the ‘unpackaged salt’ as the ‘ordinary cooking salt being sold in uncovered bowls in the market’.

…. salt that is packaged inside nylon is what I buy and pour into a covered plastic container (KII participant 19

Odogbolu Ogun State).
….there is some salts that look rocky, they are sold in congos (a local measure to sell food stuff), I do not use it. I use the one in Sachet (KII 9 Kudeti Ibadan Oyo State).
The unpackaged salt is cheaper but i do not use it. The reason I don't use it is that they said when the soup is almost finished, it always tastes salty when eating; which is why I don't use it (KII 9 Kudeti Ibadan Oyo State).
I don't use unpackaged salt because it is government food I cook and will not be proper to buy salt that that are sold in open bowls in the market; that houseflies already perched on (KII 15 Lalupon Ibadan Oyo State).
I usually buy the salt in sachet but if we don't see we go for the ordinary one measured in "congo" (KII 11 Iseyin Oyo State).
I use the salt that is in a sachet because they said the other type of salt gives people goitre. I don't know book so I don't know the name of it (KII participant 10 Ipokia Ogun State).

A few of the food vendors admitted that they preferred to use unpackaged salt usually measured with measuring bowl (congo). The reason given by one of these interviewees for the use of unpackaged salt was that '…sachet salt is too salty' (KII participant 16 Abeokuta North Ogun State).

Use of other forms of food seasonings

Most of the food vendors interviewed admitted that they usually use other forms of food seasonings in addition to cooking salt in preparing school meals. The commonly mentioned seasonings used in addition to salt in preparing the school meals included bouillon or stock cubes (the brand names are withheld), spices mentioned included curry powder, dried thyme, ginger, garlic, and grounded crayfish. However, some of the food vendors disclosed that in place of seasonings like 'bouillon cubes' they use fermented locust beans ("*iru"*) or fermented sesame seed or melon seed ("*ogiri"*) and onions in preparing their school meals in adherence to the pre-employment training they had.

For instance, on the days we cook jollof-rice, we use tomato paste, spices curry and thyme, butter, onions, reasonable amount of bouillon cubes, salt, and palm-oil. Because we also eat from the food we prepare for the children, we can't give them "poison" (unwholesome meals capable of causing bodily harms) (KII 15 Lalupon Ibadan Oyo State).
We use bouillon cubes of different types and locust bean (Iru). We use bouillon cubes brands we perceived are not harmful (KII 18 Omi-Adio Ibadan Oyo State).
When I cook, I add a little salt just in moderation to the food and stir, and then I taste it and add bouillon cubes. If it is still not tasty enough, then I add a little more salt to the food. I also use different brands of bouillon especially when cooking jollof rice, I use that one that comes in double cubes something called chicken something…(KII 1 Iseyin Oyo State).
Other food seasoning for cooking like bouillon cubes are used minimally, sometimes when I want to cook vegetable, I use locust beans, for "ifoko/ikokore" (water yam porridge) I use ogiri and add fish(KII participant 19 Odogbolu Ogun State).
For me, I do not use bouillon cubes to cook; I will just add onion in the meat am boiling that is all (KII participant 7 Odogbolu Ogun State).

Practices relating to how the quantity of cooking salt used was determined

Many participants mentioned that they had a measuring spoon, commonly a teaspoon that they usually used to measure salt for school meal preparation. The participants usually kept the spoons they used for measuring salt in the containers being earmarked for keeping salt. Few of the participants in each of Oyo and Ogun States explained they gradually added salt to taste when preparing school meals. Some food vendors admitted that they did not have any specific measurement or measuring spoon for determining the quantity of the salt they used. Several food vendors disclosed that they just relied on their experience and initiative in determining the amount of salt they added to the school meals they prepared.

Few participants mentioned they used their hands to measure the salt they added to the school meals prepared. Moreso, two participants unequivocally attested that they usually used their eyes to gauge the amount of salt that they used their hands to scoop into the meals. There was an instance where one particular participant disclosed that she relied on mere aroma of school meals she cooks to ascertain the adequacy of salt during food preparation.

I use the spoon to measure it, and I already know the right measurement to use so that the salt won't be too much (KII participant 12 Ado-Odo Ota Ogun State).
I pour it in a spoon. I use the spoon to measure and put it in the food and whenever it is not enough, I add more to it. I don't use my hand to measure (KII participant 2 Sagamu Ogun State).
I don't pour or even use my eyes to determine the amount to add, there is a spoon inside my salt that is what I use and the amount depend on the quantity of food too (KII 12 Lalupon Oyo State) .
We will first add small salt and check the taste if it's enough we stop it and of it's not enough we add little to it not that we add salt at once (KII participant 9 Ipokia Ogun State).
…even my mother is a caterer and we do not taste food,

it is from the aroma we know if the food has enough salt and seasoning (KII 9 Kudeti Ibadan Oyo State).

Practices usually engaged to reduce salt in food if too much cooking salt was accidentally added while preparing school meals

Most of the food vendors interviewed mentioned they had never experienced a situation where too much cooking salt was accidentally added to the school meals they prepared. They emphasized that they usually added moderate salt to the meals they prepared. A number of the participants admitted that if they accidentally added too much salt into the school meals, especially rice or beans, they would add more water to the salty food and pour the food in a sieve or strainer to reduce the salt content of the food. Some participants disclosed that what they do to salvage stew if they had accidentally added too much salt is to add some fresh uncooked ingredients (grinded tomato and pepper) without salt to the stew with the excess salt. Some KII participants mentioned there were instances they simply threw the food away, especially if jollof rice and cooked another for the pupils.

I won't bring it to school, I will inform the coordinator and I will make sure I cook another and bring it to school before school meal time (12noon). But it has never happened to me before (KII participant 12 Ado-Odo Ota Ogun State).
If it is stew, I will add more ingredients (grinded tomato and pepper) and if it is rice, I will add water and turn it into sieve (KII participant 7 Odogbolu Ogun State).
No one walks without shaking his or her head, No one is all knowing, no one is above mistake. If I mistakenly put too much salt, I will pour water in it and sieve to reduce the salt (KII participant 15 Sagamu Ogun State).
If it is rice, say jollof rice, I will cook more rice separately without salt and I will add to the cooked salty one and mixed thoroughly (KII 4 Beere Ibadan Oyo State).
There is nothing we will do, because we cannot throw it away. So, when such occur, when we get to the school, we will explain to the person who is the head of the school that this thing occurred… I don't know about another person but for me that is it (KII 17 Iseyin Oyo State).

Practices used to check the quality of school meal as relates to amount of cooking salt

Many of the participants in both States attested there were teachers designated to tasting the school meals brought by vendors before serving the pupils. These were usually the school health officers or health teachers. In addition, few participants mentioned that the head teachers did this occasionally. Several participants acknowledged that school personnel usually tasted the school meals for the saltiness and other quality of meals such as freshness, odours, and colour. Some of the food vendors mentioned that feedback on the tasting was usually given to them. The food vendors affirmed that checking of the school meals by school personnel helped them to control the salt contents of meals and ensured quality of the meals.

The health teacher and sometimes the sanitary inspectors check the cooking salt content of the school meal I prepare before serving the pupils (KII 6 Mokola Ibadan Oyo State).
From the school, they inspect the stew and the food, whether the salt is okay or not. And they do this inspection every day (KII 1 Iseyin Oyo State).
I am rest assured and I can boldly say the quality of my food is good because in that food, I will eat out of it, my children will eat out of it and also the school health teachers will eat out of it. If there is any "comma", they will tell me but I've never had any issue of such (KII 5 Oke-Ado Ibadan Oyo State)
Contrarily, two interviewees reported that no one checked the salt content of the school meals they supplied before serving the pupils.
No one checks the salt content for us o! (KII 20 Ido Ibadan Oyo State).

DISCUSSION

The finding that many food vendors used packaged or sealed cooking salts that were more hygienic and of good nutritional value for preparing school meals is beneficial. Dietary salt that is packaged dry in high-density polyethylene bags and polyethylene laminated bags are recommended for optimal nutritional value (Tsegaye et al., 2016; Ramugondo et al., 2021). The iodine content of the salt remained stable for longer time, and its distribution remained uniform for many months when the salt is packed and kept dry, preferably in a cool place and away from sunlight (Zimmermann et al., 2008). Gebremariam et al. (2013) in their study found that using packed salt was significantly associated with the availability of adequately iodised salt.

Some food vendors preferred the use of unpackaged salts that were usually being displayed openly and measured with bowls in the markets, which is a similar finding of Tsegaye et al. (2016), which is of public health concern. This could be addressed by using one or more combination of behavioural change communication strategies; including training programme and public advocacy as suggested by WHO (2016) for ensuring safe and moderate salt usage. Indeed, unpackaged salts sold in the markets could be salt that is not iodised or industrial salt or salt with deteriorated or reduced iodine

content due to long-term exposure to sunlight, moisture, heat or contaminants as noted in a previous study (Kumma et al., 2018). When iodised salt is not packaged and stored in closed plastic bags, sealed waterproof materials, or closed containers, iodine loss occurs, leading to reduction in the iodine content of salt before it is consumed (Sebotsa et al., 2009). In some instances, industrial salts have been peddled as cooking salt using the open unpackaged way of selling or using the recommended package for cooking salt. The National Agency for Food and Drug Administration and Control (NAFDAC) in Nigeria directed that industrial salt should only be packaged in 50kg but it has been seen to be sold in small sizes as 5kg, 10kg and 20kg recommended for cooking salt (Eagle, 2017). It is advisable that NAFDAC and other regulatory agencies in Nigeria including Standard Organization of Nigeria (SON) ensure strict compliance and monitoring of the quality and standards of cooking salts sold in the Nigerian market.

The use of salt in combination with other forms of food seasonings and spices including salt containing ‘bouillon cubes, ‘curry powder’ and ‘dried thyme’ by vendors could make meals change taste. This practice should be discouraged among food vendors as too many condiments in foods may increase the sodium intake, which may increase the risk of cardiovascular diseases including hypertension (Brown, 2022). Herbs or natural condiments such as locust beans (*iru*) and spicy vegetables including spring onions, carrots as well as meat stock can be used to reduce the need for salt. Food vendors need to learn what combination of flavours tastes well. A randomized controlled study conducted by Dougkas et al. (2019) observed that use of blends of natural herbs and spices instead of salt is a promising approach to reduce salt content in foods and increases legume consumption. Training food vendors on the use of natural spices and spicy vegetables can motivate and empower them to recognize the importance of natural spices and spicy vegetables and adopt them as healthier and safer salt reduction options than seasonings like ‘bouillon cubes, ‘curry powder’ and ‘dried thyme.

The use of spoons for measuring or scooping cooking salts as well as gradual addition of salt to taste was a major practices food vendors used to determine the quantity of cooking salt for the school meals. In addition, some food vendors typically relied on unreliable practices such as using hands to scoop salt to meals, using visual measurement to gauge or measure amount of salt, and using aroma to determine the amount of salt. These afore-mentioned practices are inappropriate for preparing school meal that guarantees adequate salt and prevent meals containing salt above the recommended level of intake of less than 5 g/day (WHO, 2012). Surprisingly none of the food vendors mentioned the practice of weighing salt used for preparing the school meals. The food vendors should be taught about weighing of salt in accordance to the amount recommended in standard recipe as part of ways to control excessive use of cooking salt in food preparation.

The findings revealed some of the ways food vendors salvaged school meals that had too much salt added accidentally. While this could reduce the salt content, it has implications for the quality of the food that would be served.

For instance, the practice of adding water to cooked meals assumed to contain excessive salt and the subsequent draining of the water in a bid to reduce the salt content may lead to some essential nutrients being discarded with the water causing nutrient depletion in the meal. Similarly, the practice of adding some fresh unsalted ingredients (grinded tomatoes and pepper) to already cooked stew with the intent of reducing the salt content could lead to the meals being too peppery, over cooked with nutrient depletion. In addition, foods with hot or too much pepper could pose some potential threats to young children; they could lead to or exacerbate some digestive problems including nausea, vomiting and burning diarrhoea as well as aggravate peptic ulcers (Schultz, 2013; Ada, 2017).

The daily inspection of school meal for salt content by school personnel was a major factor that helped to check food vendors’ use of cooking salts in meals served to the pupils. This is an appropriate practice in line with school nutrition services and should be reinforced in other to discourage the excessive or inappropriate use of cooking salt. It is surprising that some schools did not have this control mechanism in place. Concerted efforts relating to school nutrition services, including food inspections as well as other salt quality assurance and control strategies, need to be put in place in all schools involved in the NHGSFP.

Conclusion

While many food vendors used packaged or sealed cooking salts that are more hygienic and of good nutritional value for preparing school meals, the use of unpackaged or unsealed cooking salts for preparing school meals by few is a cause for concern considering the health implication. Using cooking salts in combination with other forms of condiments is a common practice among the food vendors engaged in NHGSFP, which needs to be addressed through appropriate training. The food vendors rarely practiced the weighing of cooking salt in accordance with recommendation in standard recipe. The use of various unreliable practices such as using hands for scooping and adding salt to meals, using visual for gauging or measuring amount of salt, and using aroma and taste to determine the amount of salt should be discouraged and guidelines should be developed by NHGSFP. Despite the potential benefits of daily inspection or checking of the salt content of school meals by school personnel as part of measures to promoting

reduced salt intake among children; there were reports of some schools not practicing food inspection. The finding suggests that the practice of tasting school meal by designated personnel prior to serving could be an important predictor of quality meal being served to pupils. The findings of this study also underscore the need for capacity building interventions that can help to promote appropriate use of cooking salt in accordance with recommended nutritional standards; which stands to reduce the risks of non-communicable diseases especially hypertension among pupils benefitting in the NHGSFP.

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CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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