SODIUM REDUCTION REGULATIONS IN SOUTH AFRICA – THE CONSUMER PERSPECTIVE

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ABSTRACT

The prevalence of adult hypertension has increased at an alarming rate in recent years in South Africa. Salt reduction legislation is considered a cost-effective way to reduce this burden, as salt is a driver of hypertension. This cross-sectional, descriptive study aimed to determine consumers' awareness of, and perceptions towards, the salt legislation, and their salt consumption habits. An interviewer-administered survey was used to gather data from literate adult consumers (N=583) at four randomly selected shopping malls in the Tygerberg Health sub-district, City of Cape Town. More than half (56.9%) of all participants tried to consume less salt because they thought it was healthier (38.3%) yet processed foods were a major source of salt in their diets (50.4%). Only 16.5% of participants were aware of the national salt legislation. Almost half of participants (47.9%) thought the legislation would affect the taste of food negatively, yet 80.9% have not noticed a change after implementation of the first phase of the legislation. To conclude, regulating manufacturers of food products could facilitate a reduction in population salt intake. An integrative strategy and collaboration between all stakeholders with regards to legislation, labelling and health education is needed in order to achieve health targets for population salt reduction.

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INTRODUCTION

The World Health Organization (WHO) has recognised high salt intake as a key contributor to the rising prevalence of hypertension (HT) in the global population (Hofman and Lee, 2013). According to the 2017 Global Nutrition report, the global mean daily individual consumption of salt is 10g, double the recommended WHO guideline of 5g per day, which is equivalent to 2g sodium. (Development Initiatives, 2017). Recent research found that 77% of South Africans consume too much salt, with a median intake of 7,2g per day (Swanepoel et al., 2016).

To address the prevalence of HT and its dire consequences, the WHO prioritised the reduction of salt intake to less than 5g per person per day by 2025 (WHO, 2014) as there is scientific consensus that a reduction in salt will mitigate the risk of developing strokes and cardiovascular disease (CVD) (Aburto et al., 2013; He and MacGregor, 2002; WHO, 2012). Since May 2013 the impetus for change and subsequent salt reduction strategies have been rolled out by 75 WHO member states in agreement with the reduction target (WHO, 2014).

The South African government responded to the WHO strategy by promulgating an amendment to the South African Foodstuffs, Cosmetics and Disinfectants Act of 1972; Regulation no. 214 namely the “Regulation relating to the reduction of sodium in certain foodstuffs and related matters”, hereafter known as R.214, signed into law in March 2013. (DoH, 2013a; DoH, 2016). The legislation has the potential to decrease the detrimental effect of a high salt intake on health (DoH, 2013b).

This amendment imposes maximum sodium level targets for a variety of commonly consumed foods commercially available (DoH, 2013a). In South Africa (SA), over 50% of salt consumption comes from non-discretionary sources (naturally found in certain foods and in most processed foods) (Charlton et al., 2005).

SA set a global example by being the first country to impose a maximum sodium limit on certain foodstuffs (Webster et al., 2017). The first phase of salt reduction came into effect on 30 June 2016 and required sodium reduction in bread, breakfast cereal, margarine and butter, savoury snacks, potato crisps, processed meats, sausages, soup and gravy powders, instant noodles and stock. The first date of 30 June 2016 was met by all categories, except category 9 (raw, unprocessed meat sausages and similar products), The second phase required further reduction of salt: bread (5%), breakfast cereals and porridges (20%) and cured and processed meat (10%) (Peters et al., 2017). Phase two came into effect on 30 June 2019 and was met by all categories, except categories 7 (processed meat classes 6, 12 and 14) and 8 (processed meat classes 7,10 and 11). An extension to 30 April 2020 was given for categories 7, 8 and 9. (DoH, 2013a)

In recent years, research has focused on the sodium intake of the South African population (Swanepoel et al., 2016); determining the impact of the regulations on sodium intake (Charlton et al., 2021); exploring stakeholder perceptions of the South African salt regulations (Kaldor et al., 2018); and to determine the effectiveness of mass media campaigns to increase the awareness of the need to reduce discretionary salt use in South Africa. (Wentzel-Viljoen et al., 2017) However, limited research (De Kock et al., 2016; Menyanu et al.; 2017; Mushoriwa et al.; 2017) has been done, albeit in different populations and settings, to investigate the South African consumer perspective on the salt regulations (R.214). This study reports results after the implementation of phase one of the salt reduction strategy. The study aimed to determine consumers’ awareness of, and perceptions towards, the salt regulations as well as self-reported salt consumption habits.

This study was conducted according to the guidelines laid down in the Declaration of Helsinki and all procedures involving human subjects were approved by the Undergraduate Research Ethics Committee of Stellenbosch University, Cape Town, South Africa (U17/09/040). Written informed consent was obtained voluntarily from all participants. Confidentiality and anonymity were maintained throughout the research process.

METHODS

Study type, study population and sample size

The study had a descriptive cross-sectional design with an analytical component. The study population consisted of adult consumers over 18 years of age, performing more than 50% of a household's food shopping, literate and able to converse in English. Those who did not want to provide written informed consent, were excluded.

According to the 2011 census, the population of the Tygerberg health sub-district was 597 732 (City of Cape Town, 2021). For a cross-sectional descriptive study, the sample needed to be calculated and this was done by estimating a proportion in the population (adults doing their shopping in the Tygerberg sub-district) within a certain degree of accuracy: a 95% confidence interval and a margin error of 4% was used. The total minimum sample size was calculated to be N= 572.

Methods of data collection

A list of all the shopping malls in the Tygerberg Health sub-district was compiled using various internet sources. Shopping malls included had at least one of the four major food retailers in SA listed in their store directory. This ensured consumers had similar access to a wide variety of food products. From the list of eligible malls (n=30), four shopping malls were randomly selected. One mall was used as the pilot site as well as for study data collection, however data from the pilot study were not included in the findings.

After selecting a shopping mall, permission to collect data was obtained from the shopping mall management and the necessary arrangements were made. Nine fieldworkers collected the data over a 2-week period in 2018. All fieldworkers were trained in a standardized manner on all data collection procedures. Data collection took place at different times of the day, including early morning, during the course of the afternoon, early evening and two Saturdays, to be able to include working and non-working consumers.

Consumers were randomly approached to participate as they walked past the data collection stations. Fieldworkers provided a brief description of the study to all potential participants. Once permission was established, consumers were screened for eligibilty according to the inclusion criteria and written informed consent was obtained. Eligible consumers then participated in the completion of the interviewer-administered questionnaire (IAQ) which took approximately 15 minutes. Afterwards the participants received a small token of appreciation.

Data collection tools

The IAQ was adapted from a combination of three validated tools, the World Health Organization/Pan American Health Organization protocol for population level sodium determination (WHO/PAHO, 2010); a questionnaire developed by a South African research team to determine salt intake of South Africans (Charlton et al., 2007) and the Food and Agriculture Organization of the United Nations' guidelines for assessing nutrition-related knowledge, attitudes and practices (Fautsch and Glasauer, 2014).

The IAQ consisted of two parts. Section A collected socio-demographic information and Section B contained a combination of multiple choice, four-point Likert scale, closed-ended and open-ended questions to assess the awareness and perceptions towards R.214, and self-reported salt consumption habits of participants.

The IAQ was sent to four experts knowledgeable about R.214, consumer behaviour and food

labelling to assess content validity of the questionnaire. The feedback was used to make improvements to the questionnaire prior to commencing with the pilot study. To assess face vailidity, twenty consumers completed the questionnaire and were then given the opportunity to provide feedback regarding the understanding of questions, layout and length of the questionnaire.

Analysis of data

Data was captured in duplicate for quality control purposes using Windows Microsoft Excel and results were compared to ensure accuracy. Anonimity was maintained by allocating participant codes to all participants. STATISTICA (version 13) was used to analyse the data. Descriptive data were reported using frequency tables, means, standard deviations and histograms. For testing hypotheses appropriate tests i.e. Chi-squared, Mann-Whitney and Kruskal-Wallis test were used. A p-value of $p<0,05$ represented statistical significance. Open-ended questions were analysed by the fieldworkers and key themes were identified. Responses were coded and grouped according to emerging themes.

RESULTS

Participant demographics

A total of 583 adult consumers (44.5% male and 54.9% female) completed the questionnaire, thus exceeding the minimum required sample size of 572. The participants had a mean age of 40.7 years (SD±16,9) and, as shown in Table 1, were predominantly Coloured (45.1%, n=263) or Black African (26.6%, n=155) and married (44%, n=258). Thirty nine percent (n=228) completed secondary school (Grade 12), while 38% (n=223) held a tertiary qualification. Approximately one third (n=191, 32.8%) of participants reported a total household income, after deductions, of less than R12 800 per month and 32.6% (n=190) received a government grant.

Twenty nine percent (n=170) of participants reported having one or more chronic diseases and of those, 75.3% (n=128/170) indicated having HT. A negative association was found between income and HT, with more lower-income participants having HT (p=0.04). General health and nutrition information was obtained from the internet (45.1%, n=263), followed by a health care professional (28.1%, n=164) and family and friends (22.9%, n=134). A quarter (23.5%, n=137) of participants have previously received education on their salt intake, mainly from health care professionals. In response to an open-ended question, participants cited a medical diagnosis such as HT and heart disease as the most common reasons for receiving education on salt in their diet.

Awareness of the salt legislation (R.214)

Only 16.4% (n=96) of participants were aware of the salt legislation. However, approximately one third of these participants could not explain in an open-ended question that the legislation entails decreasing the amount of salt used by manufacturers in the production of certain food products. There were no statistical significant differences according to gender, age, income or education level and awareness of R.214.

Regardless of R.214 awareness, almost half (47.9%, n=279) of the participants were of the opinion that reducing the salt content of certain commercial foods will affect the taste negatively. However, 80.9% (n=472) reported they had not noticed a change in the taste of food since the first phase of the salt reduction was implemented in June 2016. Of those participants who said they did notice a change in the taste (19.0%, n=111), more than half (57.7%, n=64/111) said it influenced the products they bought and 27.0% (n=30/111) said they now added extra salt to their food.

In an open-ended question about how participants felt about the implementation of the regulations, the majority were positive about the role of manufacturers to lower the salt in foods they bought e.g. bread. Comments such as “it’s a good thing because people misuse salt”, “it will be wonderful for health in SA” and “we will adapt to the taste” were recorded.

Participants made other valid points by stating “people will just continue to add salt to the food

TABLE 1: DEMOGRAPHIC PROFILE OF STUDY POPULATION (N=583

Consumer attribute	*n*	%
Gender		
Male	260	44.5
Female	320	54.9
Other	3	0.5
Race		
Black African	155	26.6
Coloured	263	45.1
Indian/Asian	13	2.2
White	103	17.7
Other	26	4.5
Not specified	23	3.9
Home language		
English	223	38.2
Afrikaans	217	37.2
IsiXhosa	87	14.9
Other	56	9.7
Age		
18 – 29	195	33.4
30 – 39	126	21.6
40 – 49	82	14.1
50 – 59	83	14.2
60 – 69	54	9.3
70 – 79	33	5.7
>80	10	1.7
Education level		
Grade 7	25	4.3
Grade 8-11	107	18.4
Grade 12	228	39.1
Tertiary education	223	38.2
Relationship status		
Single	175	30.0
In a relationship	94	16.1
Married	258	44.3
Divorced/ Widowed	55	9.4
Not specified	1	0.2
Total household monthly income after deductions		
<R12 800	191	32.8
R12801 – R25600	119	20.4
R25601 – R51 200	89	15.2
R51201 – more	39	6.7
Do not wish to share	63	10.8
Don't know	82	14.1

TABLE 2: CONSUMERS SELF-REPORTED SALT CONSUMPTION PRACTICES (N=583)

Practice	Daily		Weekly		Monthly		Never	
	n	%	n	%	n	%	n	%
Add salt when you cook food at home	421	72.2	74	12.7	15	2.6	73	12.5
Add salt to food at the table	107	18.4	58	9.9	37	6.3	381	65.3
Consume processed foods or ready-made sauces	106	18.1	245	42.0	133	22.8	99	17.0
Consciously choose products lower in salt	85	14.6	61	10.5	62	10.6	375	64.3
Consciously replace salt and salty spices with herbs	121	20.8	105	18.0	70	12.0	287	49.2
Eat out, purchase take-aways or on-the-go snacks	46	7.9	232	39.8	249	42.7	56	9.6

TABLE 3: SELF-REPORTED SOURCES OF SALT IN CONSUMERS' DIETS (N=583)

Source of salt (all options)	*n*	%
Foods that naturally contain salt	152	26.1
Salt added at the table	111	19.0
Salt added during cooking	332	56.9
Salt from processed food sources	294	50.4
I do not know	21	3.6

at home", "we [consumers] should be more informed of this [legislation]" and "we should be able to choose ourselves".

Self-reported salt consumption practices

More than half (56.9%, n=332) of the participants indicated purposefully trying to consume less salt daily, mostly because they were trying to eat healthily (67.2%, n=223/332). The most common reasons for not purposefully consuming less salt daily included a preference for salty food (53.8%, n= 135/251) or that they did not think consuming less salt would influence their health (19.1%, n=48/251).

Participants' self-reported salt consumption habits are summarized in Table 2. The addition of salt while preparing food was a daily practice (72.2%, n=421), while 49.2% (n=287) indicated they never replace salt with healthier options such as herbs. However, only 18% (n=105) confirmed adding salt at the table on a daily basis. Certain foods with an inherent high salt content were consumed daily or weekly: processed foods such as tinned food or ready-prepared meals (60.2%, n=351) and take-aways, on-the-go meals and restaurant foods (47.7%, n=278).

Reading information about the salt content of food products on food labels was an uncommon practice, with 64.1% (n=374) of participants indicating they did not look at the salt content of a product when purchasing it. To test participants' ability to locate and interpret information about the salt content on a food

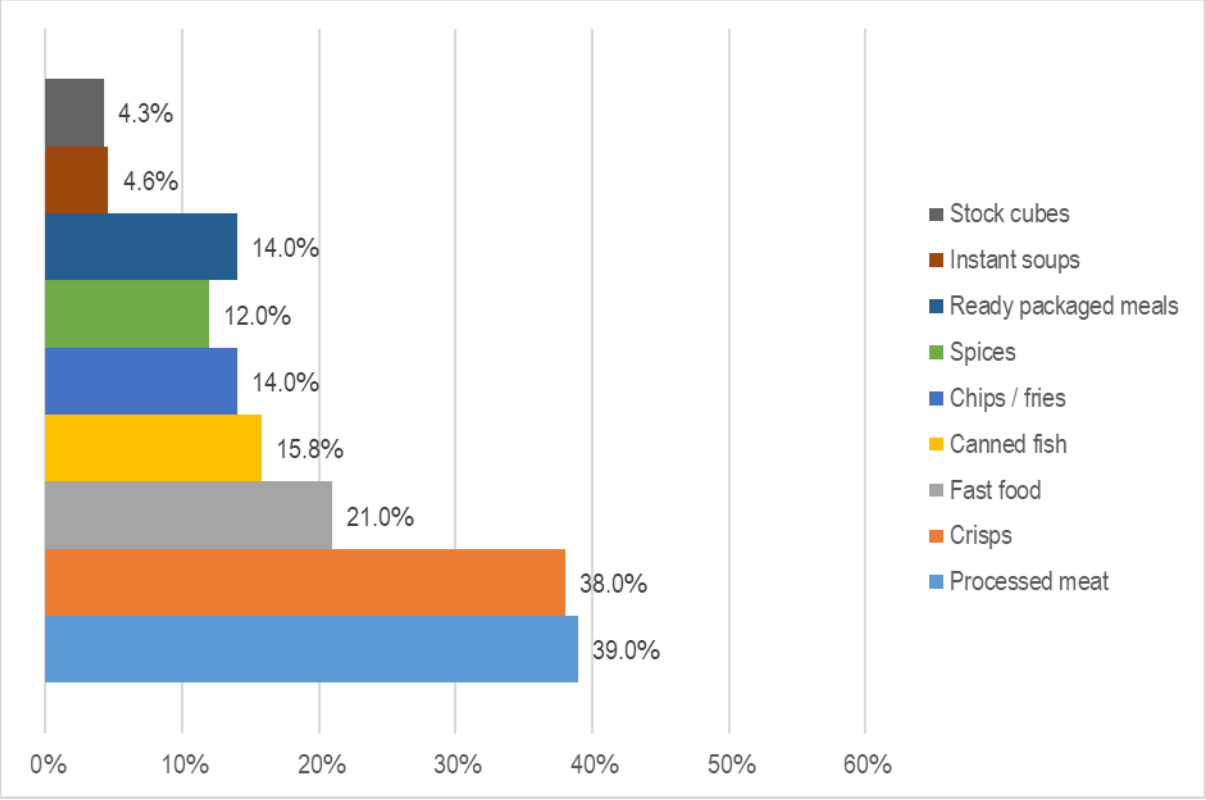

FIGURE 1: FOOD ITEMS WITH A HIGH SALT CONTENT ACCORDING TO THE PARTICIPANTS (N=583)

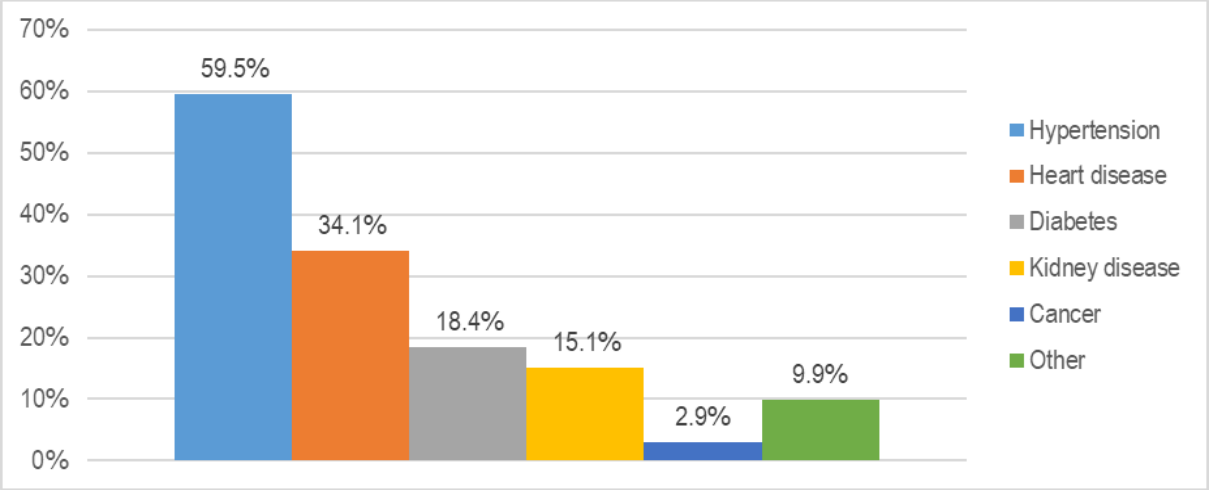

FIGURE 2: HEALTH CONDITIONS CONSUMERS BELIEVE TO BE ASSOCIATED WITH A HIGH SALT INTAKE (N=583)

label, they were asked to indicate the salt content, per 100g, of a well-known South African breakfast cereal. Even though two out of three (64.1%) participants indicated they do not look at the salt content of products on food labels, 68.1% (n=397) of all participants could locate the information on the food label provided. It is interesting to note however that a quarter (26.9%, n=107/397) of these participants incorrectly interpreted the product as being low in salt (containing less than 120mg of sodium per 100g) (DoH, 2010).

Perceptions regarding salt in consumers' diet

Only 25.2% (n=147) of participants could correctly identify the recommended amount of salt (1 teaspoon) to be consumed per day while half (51.8%; n=302) estimated it to be less than a teaspoon. A quarter of participants (23.7%, n=138) thought they consumed more salt than the daily requirement. Nearly half of the participants (48.5%, n=283) thought they consumed just the right amount of salt their body needs.

Table 3 summarises participants' understanding of the major sources of salt in their diets. Salt added during the cooking process (56.9%, n=332) and processed food (50.4%, n=294) were the main sources of salt they consumed. Less than half of the participants were able to correctly identify high salt-containing food items (Figure 1) and only five percent were able to identify commonly used items such as instant soups (n=27) and stock cubes (n=25) as items containing a lot of salt.

The majority (93.3%; n=544) of participants agreed there was a link between salt intake and their health and 78.6% (n=458) said eating less salt would make them healthier. Figure 2 gives a summary of the health conditions participants thought were associated with a high salt intake. As expected, most participants indicated there is a link between consuming too much salt and HT (59.5%, n=347) and heart disease (34.1%, n=199), but only 2.9% (n=17) were aware of the link between high salt intake and certain types of cancers.

DISCUSSION

The overall results of this study highlight consumers' lack of awareness of their dietary salt consumption and practices towards the reduction thereof, emphasizing the crucial role of regulatory intervention to reduce salt consumption as a public health strategy. However, multi-pronged approaches are more successful in reducing population salt intake than any single intervention. Such approaches could involve both regulatory and fiscal interventions, as well as knowledge and awareness strategies, including media campaigns, individual dietary counselling and labelling (Hyseni et. al., 2017).

Regulatory interventions

Regulating salt reduction is far less expensive than labelling and dietary counselling interventions aimed at decreasing population salt intake (Hyseni et al., 2017). In addition to this, mandatory reformulation of food products could consistently achieve greater success with salt reduction than voluntary reformulation, as the latter has to rely heavily on political pressure and independent monitoring (Hyseni et al., 2017). This is underscored in findings from a systematic review which included 75 countries where salt reduction strategies were implemented. Government engagement was found to be essential for success in 10 of the 12 countries reporting a reduction in population salt consumption (Trieu et al., 2015).

In this study in the Tygerberg Health Sub-district, nearly the entire study population believed too much salt can cause health problems and the majority of participants were positive about legislation as a strategy to improve public health. These results support legislated salt-reduction as a low-barrier strategy to reduce overall salt consumption. Individual perceptions related to health and salt are stronger predictors of support for government-led salt reduction strategies than socio-demographic factors, lifestyle or knowledge (Regan et al., 2016). It can thus be anticipated that legislation will be acceptable to populations who acknowledge overconsumption of salt as a health risk.

Even though nearly half of the participants thought legislated salt reduction will affect the taste of food negatively, it was encouraging that more than three-quarters reportedly did not notice a change in taste since the implementation of R.214. Only a negligible number of participants indicated it would change their purchasing habits in future. This finding contradicts some food manufacturers arguing that the undesirable taste perception of decreased salt will negatively affect purchasing behaviour, thus harming the industry (Kim et al., 2012).

In the United Kingdom (UK), strong government leadership and extensive advocacy initiated in the early 2000s have helped drive the voluntary uptake of reduced salt targets by the food industry. The UK government was committed to simultaneously launch public awareness programmes to improve public acceptance of newly formulated products. At first, food companies did not want to alert consumers to the reduced salt content of their products, for fear of consumer rejection of the reformulated versions. Salt was therefore reduced gradually and without notifying consumers (Charlton, Webster and Kowal, 2014).

Participants in this study had to answer several questions related to their awareness of sources of salt. Almost three quarters of the participants added salt to their food when cooking on a daily basis. This supports earlier data which indicated that in South Africa, between 33 and 46% of individual salt intake comes from discretionary sources (table and home preparation salt) (Charlton et al., 2005).

It could then be deduced that the remaining salt comes from non-discretionary sources, which are focus areas of R.214. This study had several data points suggesting a high frequency of non-discretionary salt intake such as bread, pre-prepared meals and processed foods typically high in salt. The apparent low awareness of sources of salt and the high frequency of non-discretionary salt intake further emphasises the importance and role of R.214.

Individual dietary counselling

Health status may influence consumer perceptions towards salt reduction in their diets (Wong et al., 2013). Congruent with results from New Zealand, this research found that consumers with HT had a higher preference for low-salt options and were significantly more likely to choose such products compared to consumers without HT (McLean, Hoek and Hedderley, 2012). This could be because hypertensive patients were more likely to have received health education relating to salt intake from a health care professional. Educating consumers about the health risks of a high salt intake could therefore be an enabler for individual salt reduction. Despite these positive findings, research shows compliance of

hypertensive patients for reducing their salt intake is often poor. (Strazzullo et al., 2012)

It is not uncommon for consumers to have misconceptions about the sources of salt, (Newson et al., 2013) and to be unable to estimate their own salt intake. Consumers in other countries have also been found to be unaware of national salt recommendations (Newson et. al., 2013; Strazzullo et al., 2012; Wang et al., 2016) and their physiological salt requirements (Mendoza et al., 2014). Many participants in this study were unaware of foods commonly high in salt, such as stock cubes or soup powders. The South African Food Based Dietary Guidelines (SAFBDG) has been developed as a tool to assist the population to make daily healthier food choices. As part of these guidelines, there is an emphasis on using salt and foods high in salt sparingly (Vorster, Badham and Venter, 2013). Additionally, dietary sources of salt could be explained as discretionary and non-discretionary sources when providing nutrition education and health promotion (Strazzullo et al., 2012).

Knowledge translation to enhance salt reduction practices

Even though more than two thirds of participants in this study purposely tried to reduce salt intake for health reasons, a third still consumed processed foods and takeaways on a daily or weekly basis and almost half never replaced salt with alternatives or purchased low salt products. A Ugandan study investigating healthy consumers' perceptions, knowledge and understanding of salt in their diet, and its impact on their health, also found consumer salt intake remained high even though they thought a low salt intake correlated with more positive health outcomes (Kaddumukasa et al., 2016). This suggests that awareness does not translate into behavioural change.

More than half the participants in this study named the internet as their main source of health information compared to a quarter relying on health care professionals. As the internet is regarded to be an unreliable source of information (World Economic Forum, 2013), its influence is a potential barrier for consumers trying to reduce salt consumption. However, one should not dismiss the potentially positive role of mass media campaigns in disseminating accurate health information and changing consumers' attitudes and behaviour towards salt reduction and health (Avcı et al., 2015). Mass media campaigns as part of a multi-pronged approach, can be effective as found in a study measuring black South African womens' discretionary salt use following a public health campaign aimed at population salt reduction (Wentzel-Viljoen et al., 2017).

A Turkish study found it is not important where consumers get their information from (family, internet etc.) but rather whether they perceive the source as trustworthy, in which case it could lead to health-promoting behaviour (Avcı et al., 2015). Consumers in this Tygerberg Health Sub-district were however not probed about their perceptions and use of the information they received via the internet. This leaves the potential effect thereof open for interpretation and requires further investigation. However, a systematic review of various international studies found mass media campaigns used in isolation, to be less effective for reducing population salt intake compared to nutrition labelling or the reformulation of products (Hyseni et al., 2017).

Nutrition labelling and front of pack labelling logos

Only a third of all participants said they look at the salt content of a product when purchasing it. A study using South African food companies' nutrition strategies and consumer knowledge, attitudes and practices pertaining to nutrition information to develop guidelines for the promotion of the prevention of non-communicable diseases (NCDs), found only 2% of their study sample looked at the sodium content first. This is indicative of South African consumers being unaware of the damaging effects of a diet high in salt (Kriek, 2019), even though salt reduction is a national priority intervention for combatting NCDs (DoH, 2013b).
Nutrition labelling is regarded as a useful tool in creating awareness of the nutritional composition of food products. Accordingly, it may be effective in reducing salt consumption by

helping consumers make informed food choices (Hyseni et al., 2017).

Criticism of nutrition labelling as a standalone intervention however emphasizes consumers' inadequate interpretation of the labels, health illiteracy and inconsistent labelling methods (Hyseni et al., 2017). The efficacy of nutrition labelling for making informed choices is therefore still debatable (Hyseni et al., 2017; Strazzullo et al., 2012) and can be confusing with regard to the technical and numerical information provided (Cowburn and Stockley, 2005).

Based on a preference for salty-tasting foods, almost half of the participants in this study did not try to consume less salt. Literature shows when the salt content of the products was reduced and a claim was made on the label, consumers expect the taste to be inferior (Aaron, Mela and Evans, 1994; Grimes, Riddell and Nowson, 2009; Liem et al., 2012; Scrinis and Parker, 2016) and this can negatively impact purchasing behaviour (Scrinis and Parker, 2016). This preference of salty food might deter consumers from purchasing products claiming to be low in salt thus creating a barrier to the reduction of individual salt consumption. Furthermore, a study investigating the effect of front-of-pack labels on taste perception of sodium-reduced soups conclude that health logos which do not emphasize the reduction in salt are less likely to affect perceived salt intensity. Health logos therefore offer a viable solution to indicate the healthiness of sodium-reduced products (Liem et al., 2012).

For nutrition labelling to work, a clear need to educate consumers on how to interpret nutrition claims and its inferential health benefits exists (Wong et al., 2013). If consumers have better knowledge of labelling and understand how to use nutrition information, it can assist them in making healthier food choices (Koen, Blaauw and Wentzel-Viljoen, 2016). One could thus make an ethical case for the need to educate consumers on the effective use of food labelling.

To simplify complex concepts for consumers, a health endorsement logo, as used by the Heart and Stroke Foundation of South Africa (Heart and Stroke Foundation South Africa, 2021), is increasingly used as an on-pack symbol which indicates when an individual food product is regarded healthy or healthier. These endorsement logos incorporate information derived from nutrient profiling systems making use of two approaches to classify food products. Firstly, the categorical approach identifies foods as "healthy" or "low-sodium" or "good for you" on the basis of an identified standard for a specific food item. Secondly, the ranking approach with a continuous outcome, uses a nutrition standard where each food product receives a numerical score to identify the most and the least healthy foods (Townsend, 2010). An adapted version of the Food Standards Australia New-Zealand (FSANZ) nutrient profile model is recommended to be used in South Africa (Wicks, 2012) and was included in the draft Regulations relating to the labelling and advertising of foods: Amendment No R.429. (DoH, 2014)

Consumers require significantly less time to read and evaluate a symbol, score, or labelling format such as a front-of-pack labelling, than the nutrition information table. The front-of-pack labelling approach is thus appropriate in a supermarket environment where consumers make quick decisions and the time to process information is limited (Gerrior, 2010). Consumers tend to trust nutrition symbols endorsed by third parties such as health organisations more —and the simpler the symbol or icon, the better (Feunekes et al., 2008). Finally, when looking at the many complexities discussed with regards to creating consumer awareness, label-literacy and receptiveness, it is necessary to emphasise the need for interventions going beyond education and knowledge. Reliable guidance applicable to all food categories and eating occasions would provide consumers the opportunity to improve their diets, and potentially their health, one food choice at a time. This study supports the use of government-led regulations in conjunction with other campaigns, to reduce salt consumption among consumers. Though not a panacea, it is a low-barrier, wide-reaching intervention supported by consumers.

RESEARCH LIMITATIONS

For the purpose of this research, the Tygerberg Health sub-district was conveniently selected for data collection, due to logistical and financial reasons. Although, the proposed sample size was reached, the findings cannot be generalised to all South Africans. There could be a measure of selection bias as researchers had to randomly approach consumers in selected shopping malls to take part in the study, subsequently illiterate consumers and those from lower socio-economic status buying food at informal vendors or Spaza-shops were excluded. The 'Hawthorne Effect' might influence the participants' responses as researchers wore their name badges and a university billboard was placed at each point of data collection. Lastly, recall bias might also have skewed self-reported data as consumers were asked to recall dietary practices.

RECOMMENDATIONS

Health education
• Health education as it relates to the prevention of HT as a precursor to CVD, should be focused on foods with a high salt content and not on education about salt recommendations, as various studies indicate this does not translate into associative behaviour and practices.
• The use of the internet as a platform for health education, both on high salt products and the use of labels for self-regulation of salt intake, should be maximised as it is the most pervasive source in this sample. If this is true for other populations as well, it is a convincing motivator for the National Department of Health, and other health promoting organisations, to utilise this for social media strategies to ensure wider reach and educational impact.
• Health education campaigns should be synchronised with education on the relevance of the nutrition information table, as this can help consumers to purchase foods with a lower salt content.
Changes in food product labelling
• Manufacturers could redesign packaging to make the link between salt and sodium clear for those consumers who are interested in reading the label.
• Objective, science-based, and validated nutrient profiling systems are needed to characterize foods on the basis of their nutrient (sodium) composition. In addition, the nutrient profiling system should follow labelling practices of the country, be based on which nutrients to encourage and which nutrients to limit, such as sodium. It should also be validated against accepted measures of a healthful diet and be consumer driven to guide better food choices and more healthful diets.
• A national, rather than a multiple systems approach, may be best to avoid consumer confusion.
• Labelling products as low sodium, can be a purchasing deterrent, so manufacturers should avoid doing this.
• Health logos which do not specifically emphasize the reduction in salt are less likely to affect perceived salt intensity and therefore is a viable solution to indicate the healthiness of sodium-reduced products.
Creating awareness
• A collaborative effort from various stakeholders, including the national Department of Health, non-governmental organisations and health professionals, with the aim of enhancing consumer awareness of the implementation of the salt regulation could lead to more support for the regulation, and might lead to further awareness of the need for salt reduction behaviour.
Further research
• It is important to determine whether the positive attitudes qualitatively reported in this study, can be quantitatively measured and supported.
• More qualitative questions could be in included in future studies to investigate barriers such as taste perception and the ability to distinguish between reliable sources of health information on the internet.
• Further research can be undertaken in other districts of the Western Cape and in South Africa for a more robust understanding of the problem. This could have a positive effect for motivating industry to more easily comply with such regulations as well as perhaps voluntarily implementing salt restriction for population health.
• Future studies should include illiterate consumers and those who do most of their food shopping at informal traders or Spaza shops to get a more socio-economically representative sample.
• A follow up study should be done after the second phase of the implementation of the law in the same area to compare data.
• Future research could focus on the legislation's impact on individual potassium levels; the effect of potassium counselling on the sodium-potassium ratio; and the effect of potassium counselling as possible hypertension-lowering intervention.

CONCLUSION

This study concludes that very few consumers are aware of the SA salt legislation (R.214). Consumers do not have negative attitudes towards this new legislation, suggesting that regulating manufacturers of food products could facilitate a reduction in population salt intake. However, no single approach will be successful in reducing consumers' excessive salt consumption. Education is needed to enhance consumer awareness of the association between salt and NCDs, which food products have a high salt content, as well as nutrition label literacy. An integrative strategy and collaboration between industry, government and other stakeholders with regards to legislation, labelling and health education is thus needed in order to achieve national and global health targets for population salt reduction.

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