International Food Research Journal 26(1): 33 - 40 (February 2019)

Journal homepage: *http://www.ifrj.upm.edu.my*

Mini Review

Critical review on dietary sodium reduction policies in Malaysia

[1]Shahrir, S. N., [1]Abdul Manaf, M. R., [2]Mustapha, F. I. and [1*]Md. Isa, Z.

[1]Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras.
[2]Non-Communicable Disease Section, Disease Control Division
Ministry of Health, Malaysia, Level 2, Block E3, Complex E,
Federal Government Administrative Centre, 62590 Putrajaya, Malaysia

Article history

Received: 8 September2017
Received in revised form:
28 May 2018
Accepted: 21 June 2018

Keywords

Salt reduction,
Health,
Sodium,
Policy.

Abstract

SHAKE Technical Package outlines the policies and interventions in reducing population salt intake which includes five overarching elements needed to create a successful salt reduction programme followed by the five elements of the SHAKE Package for salt reduction that consist of (1) surveillance, (2) harness the industry, (3) adopt the standards for labelling and marketing, (4) knowledge, and (5) environment. The aim for the present work was to critically review the documents related to the dietary sodium reduction strategies in Malaysia as compared to the SHAKE Technical Package. This review involves online and physical document searches of documents related to dietary sodium reduction within the Ministry of Health Malaysia. Visits to each related department via a liaison officer were done for clarification about the documents. Data was sorted according to the SHAKE Framework and a SWOT analysis was done. A total of 32 documents related to salt reduction policies and 15 health education materials were identified. Malaysia's salt reduction policies comply to four out of five overarching elements of a successful salt reduction program with the presence of political commitment, dedicated programme leadership and governance, partnership with other ministries and stakeholders and integration with iodine deficiency elimination programme. For the SHAKE Package, Malaysia's policies comply with all the five SHAKE Package elements. However, further investigation revealed that the food products involved in the food reformulation programme were limited. The SWOT analysis revealed that Malaysia has developed a specific plan for a national salt reduction strategy by producing its own Salt Reduction Strategy to Prevent and Control Non-Communicable Diseases for Malaysia Guidelines 2015-2020. Currently, there is no comprehensive database on the salt content of processed foods in Malaysia mainly due to the absence of mandatory labelling for sodium content in processed foods, which is a significant threat to the implementation of salt reduction initiative in the country. Pro-active non-governmental organisations (NGOs) and civil society groups advocating salt reduction in the community is needed to place salt high on the political and developmental agenda Salt reduction strategy as a policy in Malaysia includes almost all recommendations in the SHAKE Framework Malaysia. However, it is still in its early stage.

Introduction

Sodium (also known as natrium, Na, with an atomic number of 11) is a soft silver white, highly reactive metal. Sodium is found in most foods as sodium chloride (NaCl), generally known as 'table salt' Globally, excess of sodium dietary intake attributed to an estimated of 1.7 million annual deaths from cardiovascular causes (WHO, 2014a). Sodium intakes around the world are high at around 4 g/day (Brown *et al*., 2009; WHO, 2014) higher than the 2 g/day recommended by the World Health Organisation (WHO, 2012). An estimated 2.5 million deaths could be prevented each year if global salt consumption were reduced to the recommended level (WHO, 2016).

Many studies have shown that salt intake could cause hypertension, coronary heart diseases, stroke (Brown *et al*., 2009), increased risk of gastric cancer (Correa, 1992; Tsugane, 2005), and indirectly causes obesity (Ludwig *et al*., 2001; James *et al*., 2004). In Malaysia, the prevalence of hypertension among adults is 30.3%, and 35.0% premature mortality were attributed to cardiovascular diseases with hypertension being the largest death attributable risk (Yusoff *et al*., 2013; Institute of Public Health Malaysia, 2015). Hypertension contributed to 18.0% of the newly renal dialysis patients in 2014, and this trend has been increasing since 2010 (National Renal Registry Malaysia, 2014).

*Corresponding author.
Email: zms@ppukm.ukm.edu.my

The body's sodium physiological need is only 0.23-0.46 g/day (Brown *et al*., 2009; WHO, 2014). The Malaysian national average baseline of salt intake using a gold standard method of 24-hour sodium urine is still unknown. However, a nationwide study among Malaysian normotensive Ministry of Health (MOH) staff (MySalt2015) using 24-hour sodium urine showed that their mean estimated sodium excretions was 2.86 g/day (Institute for Public Health 2016). The Prospective Urban Rural Epidemiology (PURE) Malaysia, a large cohort study that measured the sodium level from spot urine samples showed a mean estimated sodium excretions of 3.78 g/day (Mente *et al*., 2014). Malaysian Adult Nutrition Survey (MANS), a nationwide-survey using 24-hour diet recall, showed a lower median sodium intake among Malaysian adults at about 1.94 g/day (Aris *et al*., 2014) However, all the mentioned findings were seen as underestimates by experts as MOH staff did not represent the entire population of Malaysia, and the PURE and MANS studies did not use the gold standard measurement method to assess the dietary salt intake. Moreover, these levels are lower than other Southeast Asian countries (Batcagan-Abueg *et al*., 2013) many with lower hypertension prevalence (WHO, 2014b), and being neighbours, these countries tend to have similar types of salty foods in their communities.

In 2016, the WHO has developed the SHAKE Technical Package that outlines the policies and interventions which have been proven to be effective in reducing population salt intake (WHO, 2016). The SHAKE Framework includes five overarching elements needed to create a successful salt reduction programme namely: (1) political commitment, (2) programme leadership and governance, (3) advocacy, (4) partnerships, and (5) integration with iodine deficiency elimination programmes followed by the five elements of the SHAKE Package for salt reduction that consist of (1) surveillance, (2) harness the industry, (3) adopt the standards for labelling and marketing, (4) knowledge, and (5) environment These elements have been chosen because there is evidence that they work as a complete package (WHO, 2016).

A systematic review conducted on population-level salt reduction initiatives in government jurisdictions worldwide showed that population-level interventions in government jurisdictions for dietary sodium reduction have the potential to result in population-wide reductions in salt intake (McLaren *et al*., 2016). Population salt reduction strategies have also been shown to be cost-effective in reducing cardiovascular diseases because of its high impact on health and low implementation cost (He and MacGregor, 2009).

Dietary salt reduction initiatives in Malaysia started in 2010 when the Ministry of Health announced their commitment to reduce the salt content in 11 food items followed by the establishment of the Technical Working Group (TWG) for the Salt Reduction Strategy under the Disease Control Division of the Ministry (MOH, 2015). Policies related to dietary sodium cut across various departments and divisions within the Ministry which includes Non-communicable Disease Section in Disease Control Division, Health Education Division, Nutrition Division, Family Health Development Division, Food Safety and Quality Division and Health Promotion Board (MySihat). A representative from these departments and divisions are members of TWG for the Salt Reduction Strategy. Currently, the TWG for the Salt Reduction Strategy works closely with the Federation of Malaysian Manufacturers and several universities.

Therefore, the aim of the present work was to critically review the policies related to the dietary sodium reduction strategy in Malaysia as compared to the recommendations by SHAKE Technical Package, and generate a SWOT analysis on the dietary sodium reduction strategy in Malaysia. This review is needed to identify the gaps in the salt reduction initiatives following eight years of its initiation, and to come up with moving-forward recommendations and steps to achieve successful salt reduction in Malaysia.

Materials and methods

This review involved the searching of documents related to dietary sodium reduction from the Non-communicable Disease Section in Disease Control Division, Health Education Division, Nutrition Division, Family Health Development Division, Food Safety and Quality Division and Health Promotion Board (MySihat) within the Ministry of Health (MOH), Malaysia. Written permission to conduct this review in all the mentioned departments and divisions was thus obtained. Visit to each department via a liaison officer was done. Clarification was obtained from the liaison officers regarding the documents and salt reduction activities. Documents were inspected and were included in this review after it was established that it was related to salt reduction policies. This study was registered in National Medical Research Register with a registration number NMRR-16-2111-33105.

Online document search

Online search was also performed on MOH's, Institute of Public Health Malaysia's, Family Health Development Division's, Malaysian Nutrition

Division', *InfoSihat's*, Food Safety Quality Division's and MySihat's websites. The keywords used were salt reduction, sodium reduction, policy, guidelines, standard operating procedures and *garam* (Malay word for salt).

Physical document search

The physical document search at all departments and divisions, and headquarters' library within MOH was conducted and assisted by the officers involved.

Table 1. List of documents included in this critical review.

No.	Title	Source	Publisher
1.	Eleventh Malaysian Plan, Economic Planning Unit, Prime Minister's Department, 2015	Economic Planning Unit, Prime Minister's Department website	Percetakan National Malaysia Berhad
2.	Eleventh Malaysian Plan, Strategy Paper 5: Achieving Universal Access to Quality Healthcare, Economic Planning Unit, Prime Minister's Department, 2015	Economic Planning Unit, Prime Minister's Department website	Percetakan National Malaysia Berhad
3.	Pelan Strategik Kementerian Kesihatan Malaysia 2016-2020	MOH website	MOH
4.	Pelan Tindakan Kementerian Kesihatan Malaysia 2016-2020	MOH website	MOH
5.	Dasar Pemakanan Kebangsaan	Nutrition Division website	Nutrition Division, MOH
6.	National Strategic Plan for Non Communicable Diseases 2016-2020	MOH website	NCD Section, Disease Control Division, MOH
7.	Salt Reduction Strategy to Prevent and Control NCD for Malaysia Guidelines, Disease Control Division, MOH Malaysia	MOH website	NCD Section, Disease Control Division, MOH
8.	Kertas Dasar 10 Strategi Utama Primary Care as Focus of NCD Agenda bagi tahun 2016-2018	MOH website	MOH
9.	Annual Report MOH 2014	MOH website	MOH
10.	Annual Report, 2011, NCD Prevention and Control, MOH Malaysia	MOH website	NCD Section, Disease Control Division, MOH
11.	National Plan of Action for Nutrition of Malaysia III 2016-2025	Nutrition Division website	Nutrition Division, MOH
12.	Nutrition Research Priorities in Malaysia for 11th Malaysia Plan 2016-2020	Nutrition Division website	Nutrition Division, MOH
13.	Malaysian Dietary Guideline 2010	Nutrition Division website	Nutrition Division, MOH
14.	Malaysian Dietary Guidelines for Children and Adolescents, 2013	Nutrition Division website	Nutrition Division, MOH
15.	Recommended Nutrient Intake for Malaysian (RNI) 2017	Nutrition Division website	Nutrition Division, MOH
16.	Food Act 1983 (Act 281) and Regulations (as at 5th October 2015),	Food Safety Quality Division website	Legal Research Board
17.	Guidelines to Nutrition Labeling and Claims as at December 2010	Food Safety Quality Division website	Food Safety Quality Division
18.	Guideline on Marketing of Food and Beverages to Children in Malaysia	MOH website	NCD Section, Disease Control Division, MOH
19.	Clinical Practice Guidelines on Management Hypertension, 4th edition	MOH website	NCD Section, Disease Control Division, MOH
20.	Guidelines on the Implementation of Healthy Eating in Schools	Nutrition Division website	Nutrition Division, MOH
21.	Guidelines on the implementation of vending machine on Healthy Food and Beverages in the MOH Malaysia	MOH website	NCD Section, Disease Control Division, MOH
22.	Garis Panduan Perlaksanaan Mesin Layan Diri (Vending Machine) Minuman dan Makanan Sihat dalam Perkhidmatan Awam	MOH website	NCD Section, Disease Control Division, MOH
23.	Preparation of healthy meals during meeting	Nutrition Division website	Nutrition Division, MOH
24.	Guidelines on Prohibition Enforcement for Food and Beverages sold outside the school gates by Local Authorities	MOH website	NCD Section, Disease Control Division, MOH
25.	Code of Ethics for the Marketing of Infant Foods and Related Products, 2008	Nutrition Division	Nutrition Division
26.	Prioritizing Food Policy Options to Reduce Obesity in Malaysia, 2013	Academy of Sciences Malaysia	Academy of Sciences Malaysia
27.	Strategic Plan Malaysian Health Promotion Board 2013-2017	MySihat website	MySihat
28.	Prosedur Operasi Standard: Perkhidmatan Konsultasi Diet Bagi Pesakit Hipertensi, 2014	NCD Section, Disease Control Division, MOH	Allied Health Sciences Division, MOH
29.	Prosedur Operasi Standard Pengurusan Pemakanan Pra-hipertensi dan Hipertensi, 2016	Nutrition Division website	Nutrition Division, MOH
30.	Garis Panduan Perancangan Menu di TASKA, 2014	Nutrition Division website	Nutrition Division, MOH
31.	Garis Panduan Perancangan Menu di Pusat Jagaan, 2014	Nutrition Division website	Nutrition Division, MOH
32.	Guidelines for Evaluation of Recognition of Healthy Cafeteria	Nutrition Division website	Nutrition Division, MOH

MOH: Ministry of Health Malaysia

Results

A total of 32 documents related to salt reduction policies were identified and listed in Table 1. The documents included were the National Plan, Plan of Actions, policy documents, National Strategic Plans, guidelines, annual reports, legislative acts, standard operating procedures and info sheets. On further questioning, liaison officers did not know of any other policies related to salt outside MOH. Information related to salt reduction policies was tabled according to the SHAKE Framework in Table 2. The review of the *InfoSihat* website revealed 15 health education materials, as listed in Table 3. A SWOT analysis was done and tabulated in Table 4.

Table 2 shows that Malaysia's salt reduction policies comply to four out of five overarching elements of a successful salt reduction program with the presence of political commitment, dedicated programme leadership and governance, partnership with other ministries and stakeholders, and integration with iodine deficiency elimination programme. Pro-active non-governmental organisations (NGO's) and civil society groups advocating salt reduction in the community are needed to place salt high on the political and developmental agenda, to foster political will, to increase financial and other resources for programme development, and to ensure that the implementation is sustainable. However, no such NGO or civil society was mentioned in the reviewed documents. For the SHAKE Package, Malaysia's policies comply with all the five SHAKE Package elements. However, further investigation revealed that the food products involved in the food reformulation programme are limited. The SHAKE Package recommended reducing salt content across the food supply, in as much foods as possible. Documents showed that only 46 food products were successfully reformulated between 2010 and 2016. The absence of mandatory labelling for sodium content in processed foods in Food Act 1983 (Act 281) and Regulations (as at 5th October 2015) is a significant gap in the policy of salt reduction efforts in Malaysia.

The SWOT analysis in Table 4 has identified the many "*strength*"s of Malaysia's salt reduction policies and programmes. It reveals that Malaysia has developed a specific plan for a national salt reduction strategy by producing its own Salt Reduction Strategy to Prevent and Control Non-communicable Diseases for Malaysia Guidelines in 2015. In the National Strategic Plan for Non-communicable Disease 2016-2025 (NSP-NCD 2016-2025), Malaysia aims for a 30% relative reduction of mean population intake of sodium from 8.7 g baseline to 6.0 g by 2025. A specific subtopic for Salt Reduction Strategy was presented in the present review that further refers to the Salt Reduction Strategy to Prevent and Control NCD for Malaysia Guidelines in 2015 (MOH, 2016). The NSP-NCD 2016-2025 was heavily referred to the Global Action Plan for the Prevention and Control of Non-communicable Diseases 2013-2020, and adopted the following overarching principles; (1) life-course approach, (2) empowerment of people and communities, (3) evidence-based strategies and (4) multi-sectoral action. These two main documents can guide relevant stakeholders to implement salt reduction strategies for a concerted effort towards population salt reduction in Malaysia (MOH, 2016).

Malaysia's National Plan, the MOH Strategic Plan and MOH Plan of Action support a wider scope of disease prevention activities and nutrition intervention among Malaysians. National Plan of Action for Nutrition of Malaysia III (2016-2025), Nutrition Research Priorities in Malaysia for 11th Malaysia Plan (2016-2020) and Strategic Plan Malaysian Health Promotion Board (2013-2017) specifically support salt reduction and plan for salt reduction activities.

One of the strategies in the NSP-NCD 2016-2025 is 'empowering Malaysians through KOSPEN'. *KOmuniti Sihat PEmbina Negara* (KOSPEN) is a nation-wide NCD risk factor community-based intervention program. KOSPEN has five main scopes namely; (1) healthy diet, (2) active living, (3) smoke free, (4) weight management, and (5) routine community NCD risk factor screening. Salt reduction awareness is done through 'healthy diet' in KOSPEN (MOH, 2016).

From the 15 health education materials gathered, 13 of them were found to have updated information on salt reduction recommendations. The other two used the old design with only two colours and looked rather unprofessional to be used today. From the 13 education materials, one of them was specific for KOSPEN. There were health education materials available in all the four main languages in Malaysia which are Malay, English, Chinese and Tamil. All the nutrition guidelines listed in Table 1 have components of salt reduction including Guideline on Marketing of Food and Beverages to Children in Malaysia, and Guidelines on Prohibition Enforcement for Food and Beverages Sold outside the School Gates by Local Authorities. This shows that Malaysia has sufficient up-to-date education materials and guidelines to implement the salt reduction services and awareness programmes.

Table 2: List of policies and guidelines related to dietary salt intake and salt reduction strategy based on the SHAKE Technical Package for Salt Reduction, WHO 2016 recommended framework.

OVERARCHING ELEMENTS OF A SUCCESSFUL SALT REDUCTION PROGRAMME	
Element	**Comments**
Political commitment	
To support the implementation of activities under the NSP-NCD, a cabinet-level committee was established, "Cabinet Committee for A Health Promoting Environment" (Jawatankuasa Kabinet bagi Persekitaran Hidup yang Sihat or JKPHS). This committee is chaired by the Deputy Prime Minister of Malaysia and comprised of 11 ministers that includes salt reduction initiatives	Comply with the recommendation as this platform is able to provide clear mandate and ensure availability of adequate resources
Programme leadership and governance	
A dedicated unit in the NCD Section, Disease Control Division, MOH led by a senior dietician is the secretariat of the National Salt Reduction Strategy Initiative	Comply with the recommendations
Advocacy	
No NGOs or civil society mentioned	Prominent non-governmental organizations (NGO) or civil society groups advocating salt reduction in the community are needed to place salt high on the political and developmental agenda, to foster political will, to increase financial and other resources for programme development to ensure that implementation is sustainable
Partnership	
Possible roles by ministries and other stakeholders are listed in Salt Reduction Strategy to Prevent and Control NCD for Malaysia 2015-2020	Comply with the recommendations
Integration with iodine deficiency elimination programmes	
The Nutrition Division is also a member of the National Salt Reduction TWG and on board with the National Salt Reduction Strategy Initiative	Comply with recommendations
SHAKE PACKAGE FOR SALT REDUCTION PROGRAMME	
S: Surveillance to measure and monitor salt use	

• Intervention S1: Measure and monitor population salt
  • Salt Reduction Strategy to Prevent and Control NCD for Malaysia 2015-2020 (SRSPC-NCD) has planned to strive for a population-based survey using spot urine with a sub-sample of 24-hour urine analysis to validate the adjustment formulae, together with a food consumption survey
  • MySALT2015 includes KAP and sources of salt in the diet
	These comply with the recommendations to monitor salt consumption most accurately using 24-hour urinary measurement. Where this is not the case, spot urine measurement may be used. Knowledge, attitudes and behaviour related to salt and sources of salt diet are also recommended to be done

• Intervention S2 and S3: Measure and monitor the sodium content of food and evaluation of the salt reduction programme • SRSPC-NCD has planned to continue working with the food industry on food reformulation, to monitor and report the progress done by them	Plan to monitor progress of food reformulation indicates planning to measure and monitor sodium content in food. However plans to perform shop and restaurant surveys were not mentioned.
H: Harness industry to promote reformulation of foods and meals to contain less salt	
• One of the focused fields in MOH Strategic Plan is to have better public-private and inter-agency co-operation. • Multi-sectoral action principle in NSP-NCD 2016-2025. • Existing co-operation with the food industry for reformulation to reduce salt content that successfully reformulated 46 food products between years 2010-2016.	This comply with recommendations to promote reformulation in foods, however, the food products involved are limited. It is recommended to reduce salt content across the food supply, as much foods as possible.
A: Adopt standard for labelling and marketing to implement standards for effective and accurate labelling and marketing of food	
• Establishment and operationalization Healthier Choice Logo (HCL) secretariat with a yearly indicator of percentage of food product receiving HCL in each food category. • Front-of-pack for HCL is being developed by the MOH, other related government bodies, industries, academicians and professional bodies. • Guideline on Marketing of Food and Beverages to Children in Malaysia a self-regulatory mechanism on responsible advertising to children on 12 December 2012.	Absence of mandatory labelling for sodium content in processed foods in Food Act 1983 (Act 281) & Regulations (as at 5th October 2015)

Table 2. (Cont.)

K: Knowledge to educate and communicate to empower individuals to eat less salt	
• Plan for health education using mass media and social marketing for the general population and different target groups in the SRSPC-NCD • National Plan of Action For Nutrition of Malaysia III 2016-2025 incorporates salt reduction in all nutrition awareness activities. • Nine (9) Voluntary Global Targets including 30% of sodium intake is in National Plan of Action for Nutrition of Malaysia • Empowerment of people and communities principle in NSP-NCD 2016-2025. • Salt reduction is part of Strategic Plan Malaysian Health Promotion Board 2013-2017. • Knowledge on salt level recommendation of <2.4 g/day for hypertensive patients in dietary consultations by dietician. • Knowledge on individual strategies for dietary salt reduction for hypertensive patients in dietary consultations by dietician and nutritionist. • Awareness programmes for school children at schools. • Awareness on sodium in Komuniti Sihat Pembina Negara (KOSPEN) community prevention programme nationwide. • Available up-to-date and appropriate health education materials in hard and soft copy from Health Division's InfoSihat website.	This comply with the recommendation with the attempt to use mix strategies on the basis of five broad components of public advocacy, community mobilization, advertising, interpersonal communication and point-of-service promotion. However, surveys were not mentioned.
E: Environment support settings to promote healthy eating	
• Healthy canteen in institutions and workplace programmes with accompanied guidelines. • One of the focused fields in MOH Strategic Plan is to create a healthy ecosystem as a contributor to disease prevention and healthy lifestyle. • One of the objectives of NSP-NCD 2016-2025 is to reduce modifiable risk factors for NCDs and underlying social determinants through creation of health-promoting environment	Comply with the recommendations

MOH: Ministry of Health Malaysia
NCD: Non-communicable Disease

Table 3. List of education materials included in this critical review

No.	Title	Type
1.	Identify salt and natrium content in foods	Poster
2.	Read labels before purchasing your products	Poster
3.	What is salt and natrium?	Poster
4.	7 steps to control hypertension	Book
5.	Less salt	Flipchart
6.	Reduce Salt in Food (Chinese and Tamil Language)	Pamphlet
7.	Eat Healthy 5M (Chinese Language)	Pamphlet
8.	Eat Healthy 5M (English Language)	Pamphlet
9.	Eat Healthy 5M (Malay Language)	Pamphlet
10.	Eat Healthy 5M (Tamil Language)	Pamphlet
11.	Healthy for life	Booklet
12.	Guide for healthy food preparation: Less sugar and salt	Poster
13.	High blood pressure	Booklet
14.	Diet	Booklet
15.	Salt and Fat, Komuniti Sihat Pembina Negara (KOSPEN)	Pamphlet

Table 4. Strength, weakness, opportunity and threat (SWOT) analysis on salt reduction strategy in Malaysia.

S: Strength
• Salt reduction is part of the National Strategic Plan for Non Communicable Diseases 2016-2025
• Availability of a specific plan for salt reduction which is the Salt Reduction Strategy to Prevent and Control NCD for Malaysia Guidelines, Disease Control Division, MOH Malaysia, 2015 to facilitate concerted efforts for salt reduction in Malaysia.
• TWG for the Salt Reduction Strategy under the Disease Control Division, MOH, a dedicated unit in MOH that provides technical guidance to operationalize the Salt Reduction Strategy
• Monitoring of 24-hour urine sodium among healthcare workers nationwide in 2012 and repeated in 2015.
• Salt reduction is part of a nationwide NCD community prevention programme KOSPEN.
• The Nutrition Division has established many nutrition awareness and intervention programmes at many levels and among special groups
• Available up-to-date guidelines related to salt reduction for pre-hypertension and hypertension patients in the health clinics, specialist clinics and hospitals.
• Available nutrition guidelines for the general public, infants and adolescents that includes recommendations for salt reduction.
• Available up-to-date health education materials on dietary salt reduction recommendations.

Table 4. (Cont.)

• Existing co-operation with the food industry for reformulation to reduce salt content.
• Healthy canteen in institutions and workplace programmes with accompanied guidelines.
W: Weaknesses
• Reformulations of processed foods to reduce sodium content are still limited.
• Food industry's reformulation to reduce salt content does not include a wide range of products
O: Opportunity
• One of the focused areas in the Eleventh Malaysian Plan is achieving universal access to quality healthcare that includes preventive care programmes to mitigate communicable diseases and non-communicable diseases.
• Existing platform with the food industry can be intensified
• To identify effective strategies to reduce salt intake among Malaysians is a suggested topic in Nutrition Research Priorities in Malaysia for 11th Malaysia Plan 2016-2020
T: Threats
• No comprehensive database on salt content of processed food in Malaysia
• No mandatory labelling for sodium content in foods in Malaysia in place for now.

The SWOT analysis also identified several "*weakness*"es in the limited product range of the food reformulation programme. The "opportunity" was also identified as prevention programme was one of the focused areas in Malaysia's National Plan, and identifying strategies to reduce salt among Malaysians was a suggested topic in the Nutrition Research Priorities in Malaysia. The absence of a comprehensive database on salt content of processed foods in Malaysia and the absence of mandatory labelling for sodium content in foods in Malaysia were identified as "*threat*"s to the salt reduction initiatives in Malaysia.

Discussion

The present review reveals that policies to support the salt reduction in Malaysia exist at many levels of implementation within MOH. Prevention programmes are in the National Plan, and specific salt reduction plans are in place to be implemented with available guidelines and education materials Even though Malaysia has the components of 'harness the industry', 'adopt standard for labelling and marketing' and 'knowledge to educate and communicate', all these are still in the early stage. For example, in 2005, the UK Food Standards Agency (FSA) began the process of setting targets for levels of salt in foods (Wyness *et al*., 2012). A Mintel poll showed that in the 18 month period since January 2008, there have been more than 700 reformulated food and drink products containing lower salt levels were launched in the UK (FSA, 2010), as compared to only 17 reformulated food products lower in salt contents between 2010 and 2013 in Malaysia (Disease Control Division Ministry of Health Malaysia, 2014) There are 46 products with reduced salt content as end of 2016.

Currently, a Malaysian food composition database is made available online via My Food Composition Database (MyFCD) which is coordinated by the Nutrition Division, MOH. It is available online at http://myfcd.moh.gov.my/. Information for this database is gathered from the Recommended Nutrient Intakes for Malaysia (2017) and inputs from the industries. However, the information is still limited and not comprehensive on the sodium content of processed foods in Malaysia. The absence of a comprehensive food composition database especially pertaining to sodium content is mainly due to the absence of mandatory labelling for sodium content in processed foods, which is a significant threat to the implementation of salt reduction initiative in the Country. This must be addressed immediately by making amendments to the Food Act 1983 (Act 281) and Regulations (Food Act). In the current Food Act, sodium is an optional nutrient to be displayed on the nutrition label. Only food products with a maximum level requirement of sodium and with nutrient claims must include sodium in its nutrition label, for example cereal-based foods for infants and children (Malaysian Food Act (Act 281)) and Regulations (as of 1st March, 2014).

Conclusion

The salt reduction strategy policies in Malaysia are still in its early stage and include almost all recommendations in the SHAKE Framework. Malaysia has developed a specific plan for a national salt reduction strategy by producing its own Salt Reduction Strategy to Prevent and Control NCD for Malaysia Guidelines 2015 supported by the NSP-NCD 2016-2025 that can guide stakeholders for a concerted effort towards salt reduction in the country. Several key components in achieving successful salt reduction in the population must be addressed immediately like mandatory labelling for sodium content in foods. Reformulation of food products to contain less salt must be more aggressive in Malaysia. This might be achieved through the demand from the community. For the community to demand salt reduction in food products, the community must be made aware of the dangers of high salt diet through awareness programmes that should be intensified and

cover a wider population.

Acknowledgement

Special thanks to Datuk Dr. Lokman Hakim Sulaiman, the Deputy Director General of Health (Public Health) for providing permission to conduct this review in the Ministry of Health, Malaysia.

References

Aris, T., Zainuddin, A. A., Ahmad, N. A. and Kaur, J. 2014. National Health and Morbidity Survey 2014: Malaysian Adult Nutrition Survey (MANS). Malaysia: Institute for Public Health, Ministry of Health.

Batcagan-Abueg, A. P., Lee, J. J., Chan, P., Rebello S. A. and Amarra, M. S. 2013. Salt intakes and salt reduction initiatives in Southeast Asia: a review. Asia Pacific Journal of Clinical Nutrition 22(4): 490-454

Brown, I., Tzoulaki, I., Candeias, V. and Elliott, P. 2009. Salt intakes around the world: implications for public health. International Journal of Epidemiology 38(3): 791-813.

Correa, P. 1992. Human gastric carcinogenesis: a multistep and multifactorial process—first American Cancer Society award lecture on cancer epidemiology and prevention. Cancer Research 52(24): 6735–6740.

Disease Control Division Ministry of Health Malaysia. 2014. Minggu Kesedaran Garam Sedunia: "*Berhenti, lihat dan pilih yang rendah garam*". Malaysia: Disease Control Division.

FSA. 2010. Food standards agency salt commitments table (2009-2010). Retrieved from website: https://www.food.gov.uk/sites/default/files/multimedia/pdfs/saltcommitmentsmay2010.pdf

He, F. and MacGregor, G. 2009. A comprehensive review on salt and health and current experience of worldwide salt reduction programmes. Journal of Human Hypertension 23(6): 363-384.

Institute for Public Health. 2016. Determination of dietary sodium intake among the Ministry of Health staff (MySalt 2015). Malaysia: Ministry of Health.

Institute of Public Health Malaysia. 2015. National Health and Morbidity Survey. Institute of Public Health, hlm. Vol. II. Kuala Lumpur: Institute of Public Health, Ministry of Health Malaysia. Retrieved from http://www.iku.gov.my/images/IKU/Document/REPORT/nhmsreport2015vol2.pdf

James, J., Thomas, P., Cavan, D. and Kerr, D. 2004. Preventing childhood obesity by reducing consumption of carbonated drinks: cluster randomised controlled trial. British Medical Journal: 1-6.

Ludwig, D., Peterson, K. and Gortmaker, S. 2001. Relation between consumption of sugar-sweetened drinks and childhood obesity: a prospective, observational analysis. The Lancet, 357(9255): 505-508.

McLaren, L., Sumar, N., Barberio, A. M., Trieu, K., Lorenzetti, D, Tarasuk, V., Webster, J. and Campbell, N. R. 2016. Population level interventions in government jurisdictions for dietary sodium reduction. Cochrane Database of Systematic Reviews 9: CD010166.

Mente, A., O'Donnell, M. J., Rangarajan, S., McQueen, M. J., Poirier, P., Wielgosz, A., Morrison, H., . . . Salim Yusuf, D. 2014. Association of urinary sodium and potassium excretion with blood pressure. New England Journal of Medicine 371(7): 601-611.

Ministry of Health Malaysia. 2016. National Strategic Plan For Noncommunicable Disease 2016-2025. (Mustapha, F. I. Ed.). Putrajaya: Ministry of Health.

Ministry of Health Malaysia. 2015. Salt Reduction Strategy to prevent and control NCD for Malaysia (1st edition). Putrajaya: Ministry of Health.

National Renal Registry Malaysia. 2014. 22nd Report of the Malaysian Dialysis and Transplant Registry 2014. Malaysian Society of Nephrology. Kuala Lumpur: National Renal Registry. Retrieved from website: http://www.msn.org.my/fwbPagePublic.jsp?fwbPageId=pMdtr2014

Tsugane, S. 2005. Salt, salted food intake, and risk of gastric cancer: epidemiologic evidence. Cancer Science 96(1): 1-6.

WHO. 2012. WHO | Sodium intake for adults and children, p. 1-56. Geneva: World Health Organization. Retrieved from website: https://www.ncbi.nlm.nih.gov/books/NBK133309/

WHO. 2014a. Global status report on noncommunicable diseases 2014. Retrieved from website: https://www.who.int/nmh/publications/ncd-status-report-2014/en/

WHO. 2014b. Noncommunicable diseases country profiles. Retrieved from website: WHO website: http://www.who.int/nmh/countries/en/

WHO. 2016. SHAKE Technical Package for Salt Reduction. Geneva: WHO Document Production Services. Retrieved from website: https://www.google.com.my/#q=SHAKE+Technical+Package+for+Salt+Reduction+

WHO. 2016. Salt reduction Fact Sheet. Geneva: World Health Organization. Retrieved from website: http://www.who.int/mediacentre/factsheets/fs393/en/

Wyness, L., Butriss, J. and Stanner, S. 2012. Reducing the population's sodium intake: the UK Food Standards Agency's salt reduction programme. Public health nutrition 15(2): 254-261.

Yusoff, U. N., Mahat, D., Omar, A., Huey, T. C., Yoep, N. and Saari, R. 2013. Burden of premature mortality in Malaysia. International Journal of Public Health Research 3(1): 249-256.