Case Study prepared by Technopolis Group

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1 Salt reduction interventions in Pacific Island countries – Informing policy in Fiji and Samoa

Summary

Non-communicable diseases (NCDs), including cardiovascular disease, cancer, diabetes and chronic respiratory disease account for most deaths in the world, killing more people each year than all other causes combined[2]. Approximately 40% of the 9.7 million Pacific Island citizens have been diagnosed with an NCD, mainly cardiovascular disease or diabetes, and/or have hypertension[7]. The World Health Organization (WHO) has been supporting the development of salt reduction strategies in the Pacific Islands countries (PICs) where an increased reliance on processed foods is likely contributing to the rise in the observed incidence and prevalence of NCDs. However, while the limited information available suggests high levels of salt intake in many PICs, more detailed country-specific information and support from government and industry is needed to design and implement cost-effective and practical salt reduction strategies.

The "Cost-effectiveness of salt reduction interventions in Pacific Islands" study was funded by the Australian National Health and Medical Research Council (NHMRC) through the GACD hypertension programme (2012 to 2015; AUS$1.05m). The project aimed to accurately determine the baseline level of salt intake and evaluate the effectiveness and cost-effectiveness of salt reduction interventions to reduce salt intake in the PICs. The study was implemented in Fiji and Samoa. It was led by Prof Jacqui Webster, The George Institute for Global Health in Australia. **The study team delivered the project in close collaboration with WHO and ministries of health in Fiji and Samoa**.

The project has resulted in significant policy changes. The research team worked with the Government in Samoa to amend the Food Act, introducing labelling of salt content and mandatory limits for salt content. In Fiji salt reduction efforts were mainstreamed into government policies, including through voluntary salt targets and salt education as part of national NCD or nutrition strategies. Longer term monitoring of impacts of the study is planned through future WHO STEPwise approach to NCD Risk Factor Surveillance (STEP) surveys, an internationally comparable, standardised, and integrated surveillance tool through which countries can collect, analyse, and disseminate core information on NCDs.[1]

1.1 Background

Non-communicable diseases (NCDs), including cardiovascular disease, cancer, diabetes and chronic respiratory disease account for most deaths in the world, killing more people each year than all other causes combined.[2] Global Burden of Disease data indicate that one in four deaths worldwide were due to ischaemic heart disease

[1] World Health Organization: STEPS Manual. Available at: http://www.who.int/chp/steps/manual/en/ (accessed June 2021)

[2] World Health Organization: 2008–2013 action plan for the global strategy for the prevention and control of noncommunicable diseases. 2008.

or stroke in 2010[3] and that blood pressure is the most important global risk factor for health.[4] One of the main causes of high blood pressure is excess dietary salt intake which greatly increases the risk of cardiovascular disease. The World Health Organization (WHO) has set targets for reducing NCDs that include a 30% relative reduction in population salt intake by 2025.[5]

National and international organisations (including the Australian National Health and Medical Research Council, Health Canada, the American Heart Association, and WHO) advocate for implementation of population-wide salt reduction programmes as a cost-effective way of improving population health. A review in 2012 highlighted that measuring salt intake can be challenging and costly, particularly in lower-middle– and upper-middle–income countries, in terms of identifying cost-effective and practical approaches without compromising accuracy.[6] Most salt reduction strategies are multifaceted interventions that include involvement of the food industry to reduce salt content in meals, campaigns to influence citizen behaviour and initiatives to change the food environment in schools, hospitals and restaurants.[6]

Approximately 40% of the 9.7 million Pacific Island citizens have been diagnosed with an NCD, mainly cardiovascular disease or diabetes, and/or have hypertension.[7] WHO has been supporting the development of salt reduction strategies in the Pacific Islands countries (PICs) where an increased reliance on processed foods is likely contributing to the observed rise in the incidence and prevalence of NCDs.[8] However, while the limited available information suggests high levels of salt intake in many PICs, more detailed country-specific information and support from government and industry is required to design and implement cost-effective and practical salt reduction strategies. For most PICs, a key step will be establishing accurate baseline data on population salt intake so that progress against the reduction target can be measured.[9]

1.2 The award

The "Cost-effectiveness of salt reduction interventions in Pacific Islands" study was funded by the Australian National Health and Medical Research Council (NHMRC) through the GACD hypertension programme (2012 to 2015; AUS$1.05m). The project aimed to accurately determine the baseline level of salt intake and evaluate the effectiveness and cost-effectiveness of salt reduction interventions to lower salt intake in two PICs: Fiji and Samoa. The study comprised three phases.[10] The first phase sought to obtain reliable baseline data on salt intake, salt levels in foods and sources of salt. In Samoa, the project also tested the feasibility of integrating collection of urinary sodium data into the WHO STEPS survey, an internationally comparable, standardised and integrated surveillance tool through which countries can collect, analyse and disseminate core information on NCDs.[1]

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[3] Lozano R, et al. Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012, 380 (9859): 2095-2128

[4] Lim SS, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012, 380 (9859).

[5] The World Health Organization: A comprehensive global monitoring framework including indicators and a set of voluntary global targets for the prevention and control of noncommunicable diseases. Second WHO discussion paper. 2012.

[6] Webster JL, Dunford EK, Hawkes C, Neal BC: Salt reduction initiatives around the world. J Hypertens. 2011, 29 (6): 1043-1050. 10.1097/HJH.0b013e328345ed83.

[7] Healthy Pacific Lifestyle Section Secretariat of the Pacific Community: NCD Statistics for the Pacific Islands Countries and Territories. 2010, Secretariat of the Pacific Community

[8] Pacific islanders pay heavy price for abandoning traditional diet. Bull World Health Organization. 2010, 88 (7): 484-485.

[9] Christoforou A, et al. Progress on salt reduction in the pacific islands: from strategies to action. *Heart Lung Circ*. 2015; 24:503–509.

[10] Webster J, et al. Cost-effectiveness of reducing salt intake in the Pacific Islands: protocol for a before and after intervention study. BMC Public Health. 2014;14:107.

Findings from the first phase were used to inform the second phase: the design and implementation of an intervention programme aimed at reducing population salt intake in Fiji and Samoa. In the final phase, post-intervention monitoring was undertaken to assess the intervention's impact and cost. Insights from the study were to inform the development of government salt reduction strategies and guide future implementation and surveillance of salt reduction interventions in other countries.

The study was led by Prof Jacqui Webster, Head of Advocacy and Policy Impact, at The George Institute for Global Health in Australia. In Fiji, the intervention was planned and implemented through collaboration between the Pacific Research Centre for the Prevention of Obesity and Noncommunicable Diseases (C-POND), the Fiji National Food and Nutrition Centre (NFNC) and the Wellness Unit in the Fiji Ministry of Health and Medical Services (MOHMS). It was overseen by a Food Taskforce Technical Advisory Group consisting of government, research and consumer organisations[11]. In Samoa, the intervention was developed and delivered by the Ministry of Health (MOH) to ensure it was culturally appropriate[12]. Two MOH implementation officers were recruited through the project to lead the salt reduction activities. They were supported by The George Institute for Global Health, WHO, Government Ministries (Ministry of Education, Sports and Culture; Ministry of Women, Community and Social Development; Ministry of Commerce, Industry and Labour; and Ministry of Foreign Affairs and Trade), religious groups, schools and the Samoa Parliamentary Advocacy Groups for Healthy Living as relevant. WHO provided ongoing technical support and a 2-day training workshop on the implementation of a salt reduction strategy. The study team engaged with the MOHs throughout the study to facilitate knowledge exchange and ensure that salt reduction strategies remain on the government agenda.

The study used both qualitative and quantitative research methods: baseline data on salt intake (through 24-hour urine collection), salt levels in foods, sources of salt and consumers' knowledge, attitude and behaviour relating to salt (through surveys) were combined with a participatory community research approach to develop a multi-faceted intervention for reducing population salt intake. The participatory community research approach involved a diverse range of stakeholders to gain important contextual information to improve the effectiveness of the intervention strategies. Stakeholders were from the food industry, government, non-government organisations, church groups and international organisations, as well as Pacific Island citizens.

The project encountered several challenges during its implementation.[11,12] In Fiji, a cyclone delayed monitoring and likely impacted the results. In Samoa, challenges included higher than expected costs of campaigns and limited opportunity to mobilise community leaders to disseminate salt reduction messages. The team also encountered difficulties engaging with the food industry as this relied on voluntary participation (due to the absence of legislation regulating food salt content).

1.3 Outputs, Outcomes, and Impacts

The study has provided new knowledge on salt intake levels in two PICs and demonstrated that it is possible to achieve some level of behaviour change in consumers regarding salt intake, within a relatively short timeframe and at low cost.[13] However, no change in salt intake was observed during the timescale of the study.[14] Whilst the level of salt intake has not yet decreased, the study has raised awareness of the issue and contributed to the development of longer-term salt reduction initiatives.

[11] Webster J, et al. Process Evaluation and Costing of a Multifaceted Population-Wide Intervention to Reduce Salt Consumption in Fiji. Nutrients. 2018;10(2).

[12] Trieu K, et al. Process evaluation of Samoa's national salt reduction strategy (MASIMA): what interventions can be successfully replicated in lower-income countries? Implementation Science. 2018:13:107.

[13] Webster J, et al. Salt intakes, knowledge and behaviours in Samoa: monitoring salt consumption patterns through the World Health Organization's surveillance of non-communicable disease risk factors (STEPS), Journal of Clinical Hypertension.2016: 18(9):884-91

[14] Land MA, et al. (2015) Salt Intake and Iodine Status of Women in Samoa. Asia Pacific Journal of Clinical Nutrition Asia Pac J Clin Nutr 2016;25(1):142-149.

The health promotion campaign had high penetration in both countries, leading to significant improvements in consumer knowledge and some changes in behaviours: [15,18]

- 9% increase in population understanding of adverse effects of salt in Samoa
- 16% reduction in population that always/often add salt to foods in Samoa
- 28% increase in population reporting using spices instead of salt during cooking in Samoa
- 70% of people in both countries aware of the salt reduction campaign and reported having seen promotional materials

The process evaluation of the study has highlighted the way in which contextual factors can affect the implementation of the intervention.[11,12] These included the impact of natural disasters (cyclones), political influence, and staff and governance changes on programme delivery. In addition, the study pointed to the need for an extended timeframe to fully implement the programme, and for food with lower salt content to be affordable, widely available, and perceived as flavoursome.

To date, the study team has published 14 academic papers: seven resulting directly from the research programme and seven linked to the study. Based on lessons learned during project delivery and an impact assessment of the study using the FAIT framework[16], the team also published a five-step approach to setting targets for salt levels in food for LMICs.[17,18] Furthermore, insights from the study were published in a joint article of the GACD Hypertension Research Programme on behaviour change strategies for reducing blood pressure-related disease burden.[19]

The projects in Fiji and Samoa have resulted in significant policy changes, including the incorporation of salt targets into national food regulations (but these have yet to be enforced). **The research team worked with the government in Samoa to amend the Food Act, introducing labelling of salt content and introducing maximum salt levels**. **In Fiji, salt reduction efforts have been mainstreamed into government policies, including through voluntary salt targets and salt education as part of national NCD or nutrition strategies**. Longer term monitoring of impacts of the study is planned through future WHO STEPS surveys.

During the implementation of the study, a series of training sessions were held for health staff, MOH managers, and health volunteers. In addition, educational materials including pamphlets, posters, DVDs, and presentations were produced for each country. As a result, 75 educators have been trained and will be sharing their knowledge on how to reduce salt intake with the community. Health workers who are a key source of information for the public on healthy eating, demonstrated increased knowledge of the health risks of salt.

In Fiji, two forums and ten meetings with food business operators were held each year to raise awareness and encourage local and multinational manufacturers to lower the salt levels in foods to meet the targets. These consultations were the first public–private discussions on salt and health in these countries. In addition, the Fiji team raised awareness through television advertisements, newspaper articles, educational DVDs, and informational leaflets distributed to relevant stakeholders such as heads of schools and canteen managers. In Samoa, the study team raised awareness by presenting and distributing information at charity events, religious

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[15] Dodd, R, et al. Strengthening and measuring research impact in global health: lessons from applying the FAIT framework. Health Res Policy Syst. 2019: 17(1): 48.

[16] Framework to Assess the Impact of Translational health research framework

[17] Downs SM, et al. Setting targets for salt levels in foods: A five-step approach for low- and middle-income countries. Food Policy 2015; 55: 101-108.

[18] Dodd, R, et al. Strengthening and measuring research impact in global health: lessons from applying the FAIT framework. Health Res Policy Syst. 2019: 17(1): 48.

[19] WG, Peiris D, et al. Behaviour change strategies for reducing blood pressure-related disease burden: findings from a global implementation research programme. Implement Sci. 2015;10(1):158.

group meetings, government meetings, and through advertisements in newspaper articles, radio, and television. In addition, the study team met with restaurants to raise awareness and encourage low-salt practices.

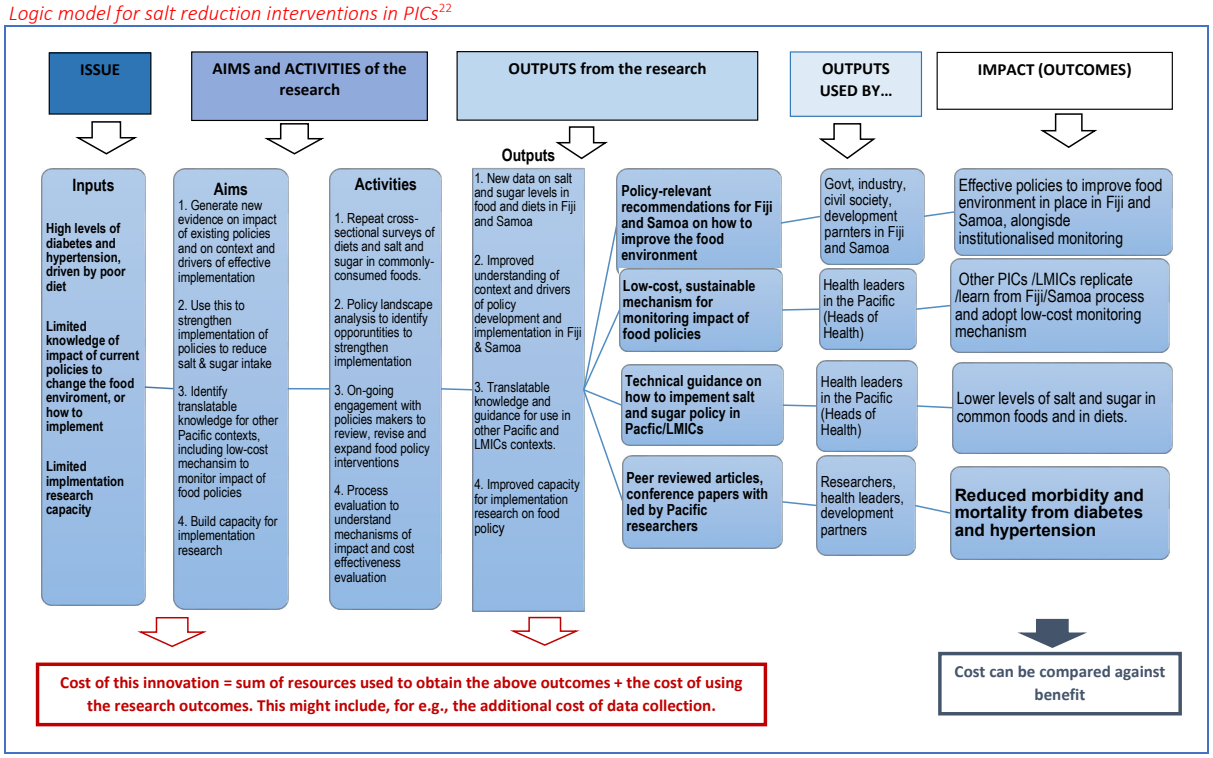
The project also supported the career development of one post-doctoral researcher and two masters' students, and four research assistants were trained in data collection. Furthermore, three project staff from Fiji and Samoa attended the GACD school on implementation science.

1.4 Potential for future impact

Lessons from the project are being integrated into tools and resources for other countries and disseminated through the WHO Collaborating Centre on Population Salt Intake (WHO CC Salt) at The George Institute, in line with its remit to support Member States in achieving the global target of reducing average population salt intake by 30% by 2025. The WHO CC Salt has recently updated its website with a range of new resources to support countries on salt reduction.[20] The Centre manages a network of around 1000 contacts working on salt reduction globally, which will allow lessons and learning to be disseminated widely.

The research team secured a scale-up grant through the GACD scale-up programme (2019-2024).[21] Building on the previous salt reduction programme, the grant supports a five-year collaborative research project with the aim of advancing knowledge of how to scale up food policy interventions to prevent diabetes and hypertension in PICs. The new study has already published a report highlighting the cost effectiveness of salt reduction programmes in Fiji. Increased knowledge of dietary choices and of factors influencing diets, as well as stronger engagement with policy makers, are expected to further increase the effectiveness of food policies to improve diets. The study team has mapped out a logic model for the project outlining the intended outputs and outcomes (see figure below).[22]

Logic model for salt reduction interventions in PICs[22]



[20] https://www.whoccsaltreduction.org/ (Accessed June 2021)

[21] https://www.gacd.org/research-projects/diabeteshypertensionscale-up/su18 (accessed June 2021)

[22] Webster J, et al., Scaling-Up Food Policies in the Pacific Islands: Protocol for Policy Engagement and Mixed Methods Evaluation of Intervention Implementation. Research Square