



# SICOM & AOCO 2024

SOMS International Conference on Obesity & Metabolism  
in conjunction with Asia-Oceania Conference on Obesity

Hosted by

**SOMS** Society for Korean  
Obesity and Metabolism Studies

Co-Hosted by



Empowering Health, Inspiring Change: Practical Solutions for Obesity

**Date** October 24 (Thu)~26 (Sat), 2024

**Venue** aT Center, Seoul, Republic of Korea (3F Segyero Room & 4F Changjo Room)

## Community-based management of Obesity in SEA: Engaging Local Solutions for a Global Challenge

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Hosted by **SOMS** Society for Korean  
Obesity and Metabolism Studie.

# Outline

Obesity in Southeast Asia

Drivers of Obesity

Core components of Community-based health programs in Asia

Interventions showing greatest promise

Current Good Practices

# Obesity Conditions

Prevalence and projected annual increase of obesity in SEA countries.<sup>2,4-8</sup>

Country	Prevalence of adult obesity	Projected annual increase in adult obesity 2020–2035 (%)	Prevalence of children aged 5–19 years old who are overweight and obese (%)	Projected annual increase in child obesity 2020–2035 (%)
Brunei Darussalam	62.8 <sup>†</sup>	4.2	27.0	4.4
Cambodia	20.3 <sup>†</sup>	5.8	11.0	8.1
Indonesia	23.4	5.8	15.0	7.9
Laos	22.6 <sup>†</sup>	6.1	14.0	8.9
Malaysia	21.8	4.7	29.8	5.3
Myanmar	24.6 <sup>†</sup>	5.5	12.0	8.4
Philippines	38.6	4.6	13.0	6.9
Singapore	11.6	2.1	22.0	0.8
Thailand	34.7 <sup>†</sup>	5.3	22.0	6.2
Vietnam	18.3 <sup>†</sup>	6.3	19.0	9.8

<sup>†</sup>Prevalence of adult overweight and obesity.

# The spectrum of health conditions in community-based cross-sectional surveys in Southeast Asia 2010-21: a scoping review

Overall across age groups	Lifespan	Childhood	Adulthood	Missing
<b>Non-communicable conditions</b>				
Undernutrition ( <i>n</i> = 77)	Injury- animal cause ( <i>n</i> = 3)	Undernutrition ( <i>n</i> = 45)	Hypertension ( <i>n</i> = 56)	Obesity ( <i>n</i> = 3)
Obesity ( <i>n</i> = 75)	Injury- electrocution cause ( <i>n</i> = 2)	Obesity ( <i>n</i> = 16)	Obesity ( <i>n</i> = 56)	Undernutrition ( <i>n</i> = 3)
Hypertension ( <i>n</i> = 60)	Epilepsy/seizure ( <i>n</i> = 2)	Anemia ( <i>n</i> = 11)	Diabetes ( <i>n</i> = 54)	Hypertension ( <i>n</i> = 3)
Diabetes ( <i>n</i> = 56)	Injury-non-specific cause ( <i>n</i> = 2)	Micronutrition deficiency ( <i>n</i> = 4)	Undernutrition ( <i>n</i> = 39)	Hypertension ( <i>n</i> = 3)
Anemia( <i>n</i> = 30)	Anemia ( <i>n</i> = 1)	Hemoglobinopathy ( <i>n</i> = 3)	Hyperlipidemia ( <i>n</i> = 22)	Depression ( <i>n</i> = 3)
	Injury- eye ( <i>n</i> = 1)	Aggressive behavior ( <i>n</i> = 3)		Anxiety ( <i>n</i> = 3)
	Depression ( <i>n</i> = 1)			
	Micronutrition deficiency ( <i>n</i> = 1)			
	Obesity ( <i>n</i> = 1)			
	Periodontal conditions ( <i>n</i> = 1)			
	Psoriasis ( <i>n</i> = 1)			
	Suicidality ( <i>n</i> = 1)			
	Teeth related oral health condition ( <i>n</i> = 1)			

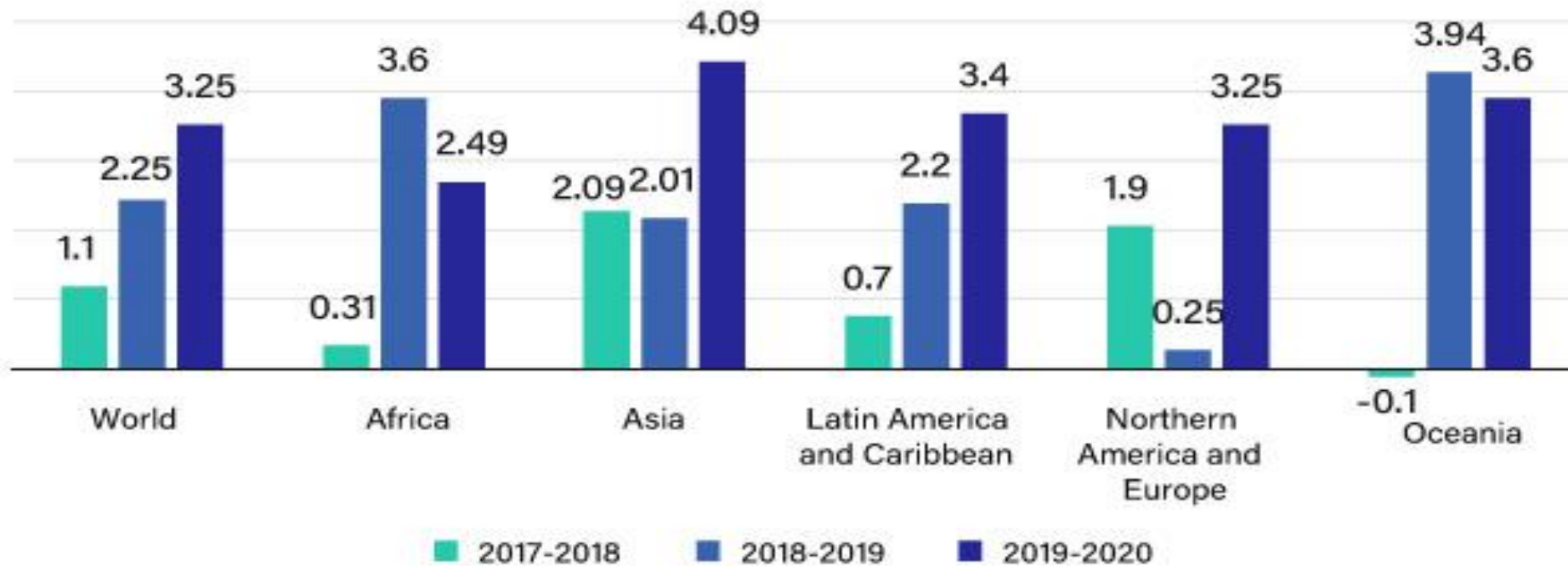
# Drivers of Obesity in the SEA Region

- Energy surplus
  - Unhealthy eating habits
  - Physical inactivity
  - Genetic predisposition
- Inequities
  - Poor availability
  - Unaffordability
- Retail food formats
  - 24h
  - Informal food sectors
    - Street food vendors
    - Food centers
  - Food deliveries/digital food marketing
- Packaged ultraprocessed foods
  - Energy dense, high fat, high salt

# Drivers of Obesity in the SEA Region



The Cost of a Healthy Diet Increased, and The Diet was more Unaffordable in Every Region of the World in 2020, (In Percentage)



Source: [www.towardshealthcare.com](http://www.towardshealthcare.com)

# Policies and Local Stakeholders

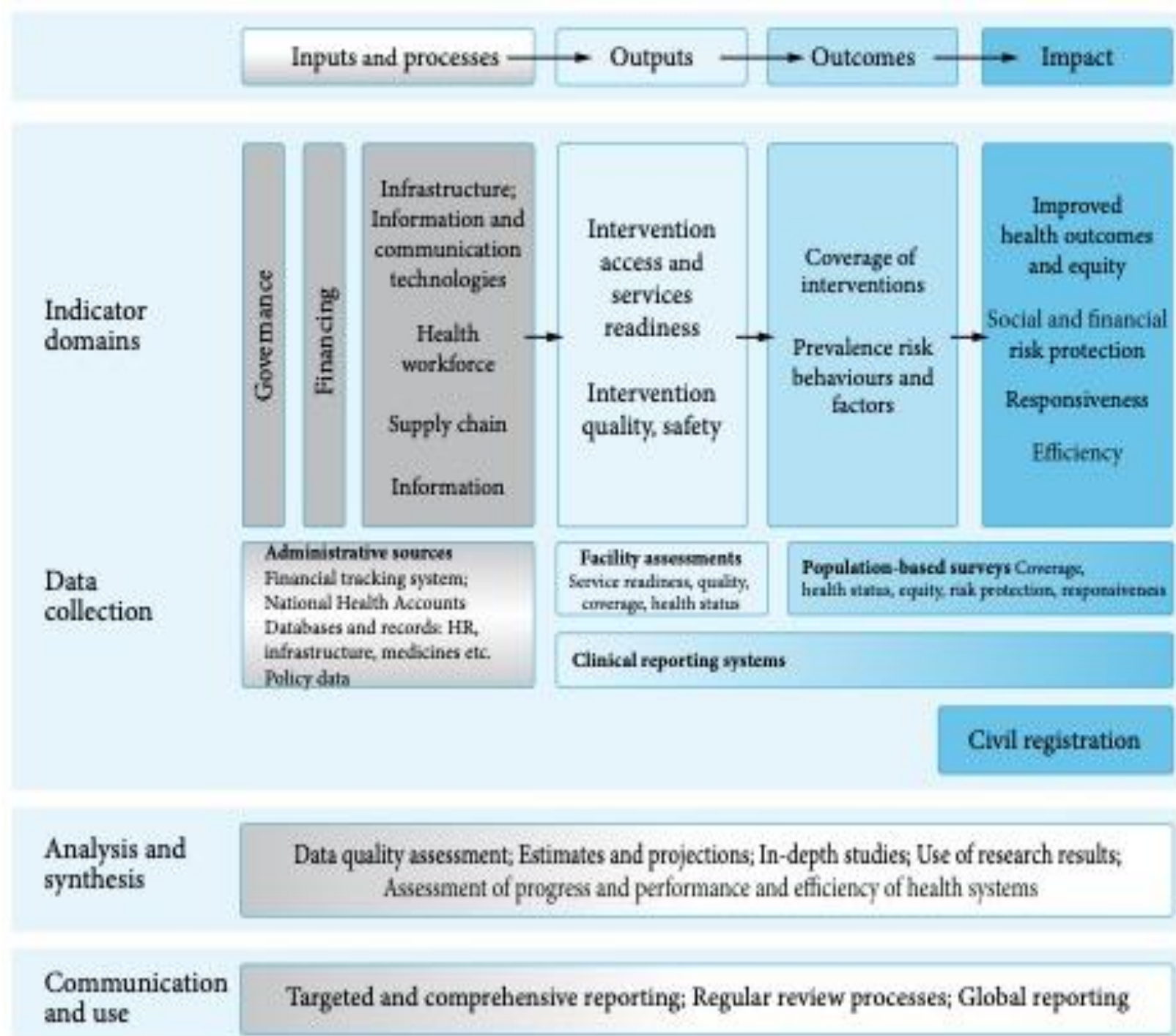
## Policy dystopia model

- Corporate political activity of the ultra-processed food industry

Theme	Sub-theme	Practices and descriptions
Discursive strategies	Expand policy costs	Unanticipated costs to the economy and society Unintended benefits to undeserving groups Unintended costs to public health
	Deny policy benefits	Deny intended public health benefits Argue costs to targeted industry
Instrumental strategies	Coalition management	Establish relationships with key opinion leaders and health organizations Seek involvement in the community Establish relationships with the media Constituency fabrication Opposition fragmentation and destabilisation
	Information and messaging	Production of information Amplification of supportive evidence Suppression of opposing evidence Presenting information in a credible manner
	Direct involvement and influence in policy	Indirect access to policymakers Offering of incentives Making of threats Actor in government decision making
	Legal actions	Use legal action (or threat of) in opposition to pro-health actors Influence the development of trade and investment agreements
Corporate motivations	Illicit trade	Facilitating or conducting of smuggling
	Weakening of the policy	Corporate lobbying aiming to weaken a proposed policy.
	Delay of the policy	Corporate lobbying aiming to delay a proposed policy.
	Defeat of the policy	Corporate lobbying aiming to prevent the implementation of a proposed policy.
	Avoiding or circumventing the policy	Changes to corporate policy or products to circumvent introduced policies.
	Overturning the policy (rear-facing strategy)	Corporate lobbying aiming to remove an implemented policy.
	Foreclosing (pre-empting) the policy (future-facing strategy)	Corporate lobbying aiming to prevent the proposition of a policy in the future.

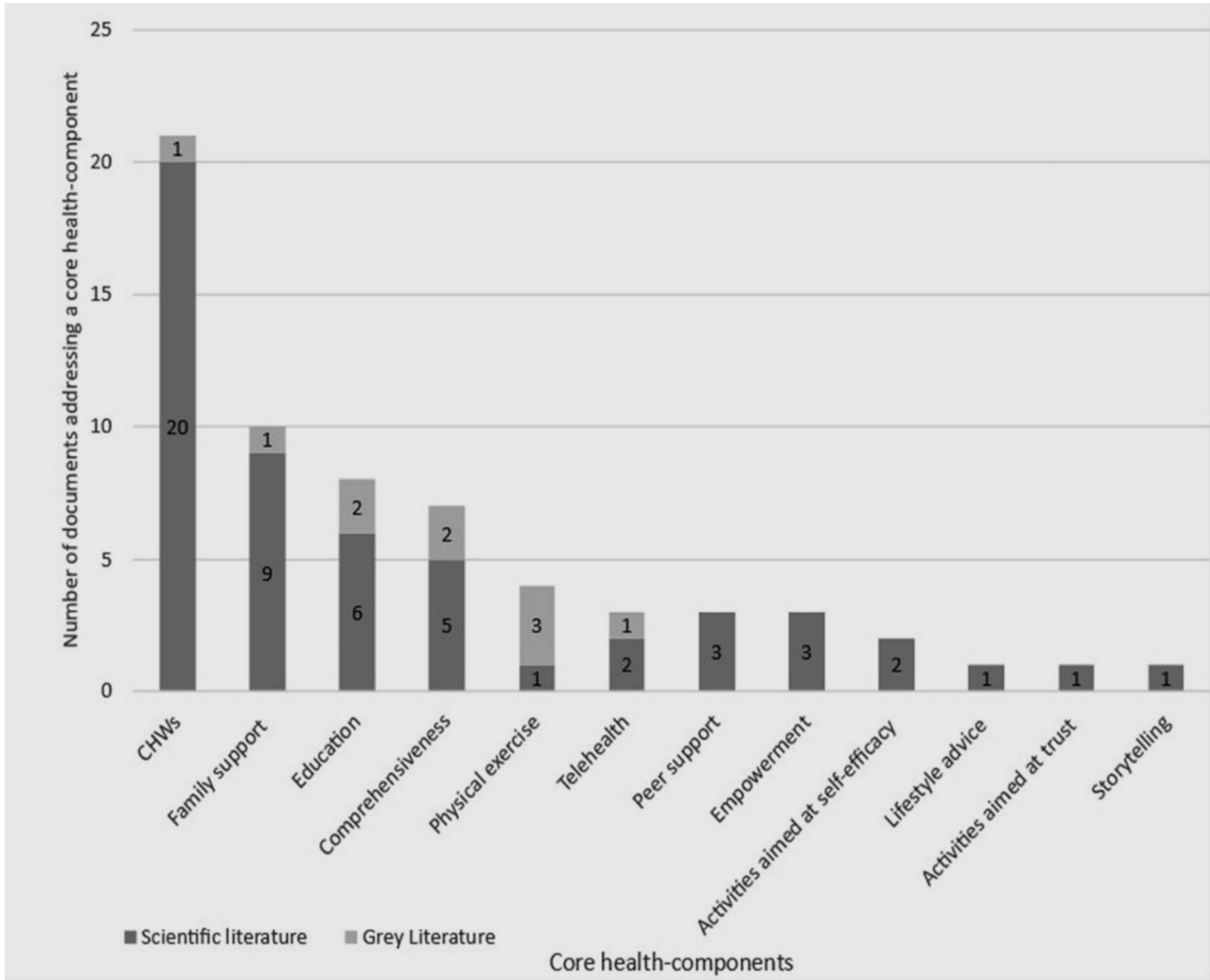


# Framework of a Casual Chain of Community-based programs

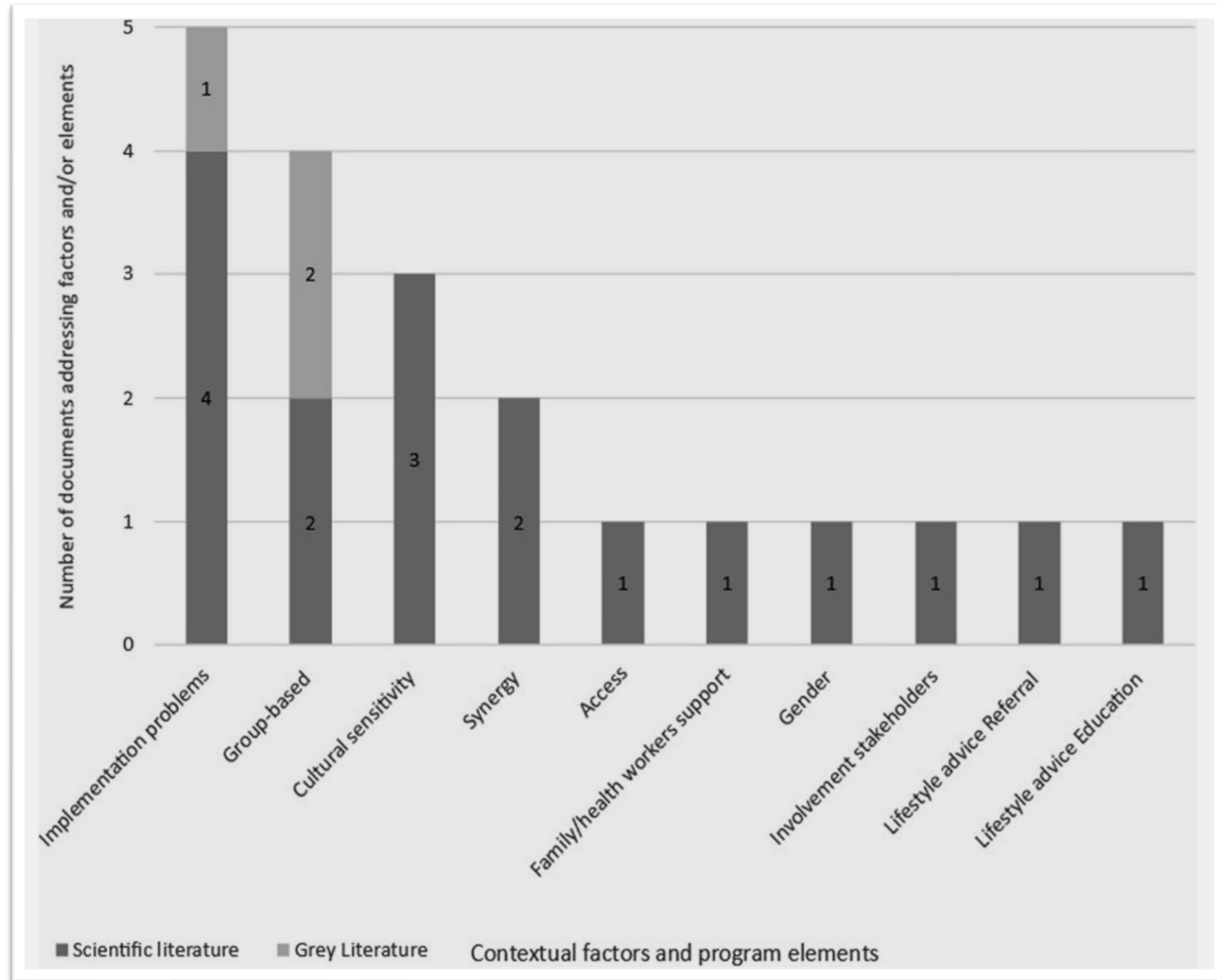




# Core components of community-based health interventions in SEA based on literature



# Contextual factors and program elements affect the impact of community-based interventions on health



# Research and Policy: Nutrition Plans for Action in Nutrition (NPAN)

<i>Nutrition situation/issues to be addressed</i>	<i>Indonesia</i>	<i>Malaysia</i>	<i>Myanmar</i>	<i>Philippines</i>	<i>Thailand</i>	<i>Vietnam</i>
High prevalence of stunting among children <5 years old	+	+	+	+	+	+
High prevalence of wasting among children <5 years old	+	+	+	+		
High prevalence of underweight among children <5 years old	+	+	+			+
Increased prevalence of childhood overweight/obesity		+			+	+
Poor nutritional status of pregnant and lactating women			+	+		
Low rate of exclusive breastfeeding in the first 6 months of life	+	+		+	+	+
Low birth weight	+	+	+	+	+	+
Anaemia	+ (in women of childbearing age & pregnant mother )	+	+ (in child bearing age women & children <5 years old)	+ (among infants 6-11 months)	+ (in pregnant women, children aged 6 months to 3 years old & women of reproductive age)	+ (in pregnant women & children <5 years old)
Vitamin A deficiency			+	+ (among infants 6-11 months)		+
Iodine deficiency disorder (IDD)			+	+ (among pregnant & lactating women)	+ (in pregnant women, children)	+
Hunger			+	+		
Poor infant and young child feeding			+	+		
Low consumption of fruits and vegetables	+	+	+		+	+
Energy consumption not meeting requirement	+			+		+
Protein consumption not meeting requirement	+					
High consumption of salt and high fat foods	+				+	+ (high salt intake)
Increased prevalence of overweight/obesity among adults	+	+	+	+	+	+
High/Increased prevalence of non-communicable diseases		+	+		+	+
Improper nutrition knowledge and practices among mother and family members						+
Physical inactivity	+ (especially in urban area)	+ (among adolescents and adults)			+	+
Physical status & stature (height)					+	+

# Interventions showing greatest promise

Category	Subcategory	Example interventions/focus of interventions	Promise of intervention	Direction of evidence base	Quality of body of evidence	Magnitude of population impact	Stakeholder driving change			
							Healthcare	Education	Food	Policy
Physiology	Individual	Anti-obesity drugs	★★	↗	Strong	Medium	●			●
Activity	Individual	Physical activity	★★★	↗	Moderate to strong	High	●	●		●
Food	Individual	Calorie-controlled diet	★★	↑	Moderate	Medium	●	●	●	
		Low-fat diet	★★	↑	Moderate	Medium	●			
		Low-carbohydrate diet	★★	↑	Moderate	Medium	●			
		Low-glycaemic index diet	★★★	↑	Moderate to strong	Medium	●			
	Population	School and workplace policies	★★	↗	Moderate	High	●	●	●	●
		Controlling portion size in processed and prepackaged foods	★★	↗	Moderate	High			●	●
		Taxation	★★	↗	Moderate	High				●

# Physiological Interventions

Category	Subcategory	Example interventions/ focus of interventions	Promise of intervention	Direction of evidence base	Quality of body of evidence	Magnitude of population impact	Stakeholder driving change				Asia-specific details	Reference
							Healthcare	Education	Food	Policy		
Physiology	Individual	Adjustable gastric banding (laparoscopic)	★	↗	Moderate to very weak	Low	●			●	Successfully reported in case series from Singapore and Philippines	Colquitt 2014, Ells 2014, Goel 2013, Dineros 2007
		Roux-en-Y gastric bypass (RYGB)	★★	↑	Moderate	Low	●			●	Successfully reported in case series from Singapore and Philippines	Colquitt 2014, Goel 2013, Dineros 2007
		Laparoscopic isolated sleeve gastrectomy	★★	↑	Moderate	Low	●			●	Effective in Malaysia but nutrients need monitoring	Colquitt 2014, Goel 2013, Vanoh 2015
		Intragastric balloon	—	→	Weak	Low	●				Ineffective in Singapore Asian case series	Femandes 2007, Ganesh 2007
		Biliopancreatic diversion with duodenal switch	★★	↑	Moderate	Low	●			●	Performed in Singapore	Colquitt 2014, Goel 2013
		Anti-obesity drugs (e.g., Orlistat)	★★	↗	Strong	Medium	●			●	Misleading anti-obesity drugs and supplements available on the internet in South-East Asia, including withdrawn drugs	Yanovski 2014, Dombrowski 2014, Oude 2009, Boland 2015, Yoshida 2015

# Physical Activities

Tackling obesity in ASEAN. The Economist Intelligence Unit Limited 2017

Category	Subcategory	Example interventions/ focus of interventions	Promise of intervention	Direction of evidence base	Quality of body of evidence	Magnitude of population impact	Stakeholder driving change				Asia specific details	Reference	
							Healthcare	Education	Food	Policy			
Activity	Individual	Physical activity	★★★	↗	Moderate to strong	High	●	●		●	Ineffective intervention in a Malaysian university	Stoner 2016, Shaw 2006, Amorim 2013, Muktabhant 2015, Soon 2013	
		Active play	—	→	Weak	Low		●		●	40% of Malaysian 4 to 6 year olds have more than 2 hours active play per day	WHO 2016, Tremblay 2015, Lee 2016	
		Active transport	★★	↗	Weak	High				●	Shorter weekly walking and cycling linked to less obesity in China	WHO 2013, Flint 2016, Lu 2013	
		Land-use mix	★★	↗	Weak	High				●	Increased urbanisation across South-East Asia is associated with obesity	Mackenbach 2014, Angkurawaranon 2014	
	Population	Mass-media campaigns promoting physical activity	★★	→	Moderate	High		●		●	None found	WHO 2013, Baker 2015, Brown 2012, Wardie 2001, Ankan 2014, Bauman 2001	
		Work-based physical activity schemes	—	→	Weak	Low		●	●		●	Singapore national workplace weight loss competition initially successfully	Freak-Poli 2013, Vasquez 2015
		Trade agreements	★★	↗	Weak	High					●	Sugar-sweetened fizzy drinks sales increased from 3.3% to 12.1% per capita per year after import restrictions were removed	Schram 2015



# Psychology and Behaviour

Tackling obesity in ASEAN. The Economist Intelligence Unit Limited 2017

Category	Subcategory	Example interventions/ focus of interventions	Promise of intervention	Direction of evidence base	Quality of body of evidence	Magnitude of population impact	Stakeholder driving change				Asia specific details	Reference
							Healthcare	Education	Food	Policy		
Psychology	Individual	Multicomponent lifestyle intervention	★★	↗	Moderate	Medium	●	●		●	Physical activity plus diet and support successful for case series of children in the Philippines, intervention successful for children but not adults in Malaysia	Colquitt 2016, Loveman 2015, Oude 2009, Walers 2011, Dombrowski 2014, Tan-Ting 2011, Wafa 2011, Soon 2013
		Computer-based or smartphone interventions	★	→	Weak	Medium	●	●			None found	Weiland 2012, Chaplais 2015, Khokhar 2014, Stephens 2013, Cairns 2014
	Regulation of marketing to children and adolescents	★	→	Weak	High				●	Singapore and Malaysia found high rates of advertising of unhealthy food to children. South Korea implemented TV advertising restrictions in 2010	WHO 2016, Kim 2012, Stead 2006, Huang 2012, Ng 2014, Baker 2014	
	Promotion and support of breastfeeding	★	→	Weak	Medium	●	●			Evidence from China and Japan supports the WHO breastfeeding recommendation but data from Singapore and Thailand shows no association	Fergusson 2014, Zheng 2014, Jwa 2014, Sabanayagam 2009, Tantracheewathorn 2005	
	Population	Mass-media campaigns promoting multiple interventions (lifestyle, diet and physical activity)	★★	↗	Weak	High	●	●		●	Dissemination of the nutritional flag and the Sweet Enough Network in Thailand and Malaysian Dietary Guidelines in a variety of media outlets	WHO 2009, Traill 2013, Mozaffarian 2012, Sirichakwal 2011, Tee 2011
		Community level interventions in schools and workplaces	★	→	Weak	Medium			●	●	Singapore's multifaceted Trim and Fit Programme for schools	WHO 2016, Mozaffarian 2012, Cairns 2014, Flodgren 2010, Toh

# Food Intervention

Tackling obesity in ASEAN. The Economist Intelligence Unit Limited 2017

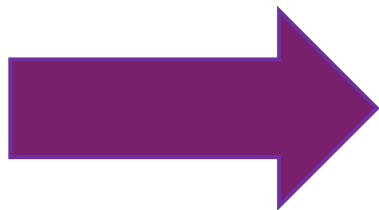
Category	Subcategory	Example interventions/ focus of interventions	Promise of intervention	Direction of evidence base	Quality of body of evidence	Magnitude of population impact	Stakeholder driving change				Asia-specific details	Reference	
							Healthcare	Education	Food	Policy			
Food	Individual	Calorie-controlled diet	★★	↑	Moderate	Medium	●	●	●		Physical activity plus calorie-restricted diet and support successful for case series of children in the Philippines. Calorie-restricted diet successful for Malaysian men.	Langeveld 2015, Amorim 2013, Teng 2013, Tan-Ting 2011, Colquitt 2016	
		Low-fat diet	★★	↑	Moderate	Medium	●				None found	Johnston 2014, Hooper 2015	
		Low-carbohydrate diet	★★	↑	Moderate	Medium	●				None found	Johnston 2014	
		Low glycaemic index diet	★★★	↑	Moderate to strong	Medium	●				Low glycaemic diet successful for obese adolescents in Hong Kong	Thomas 2007, Muktabhant 2015, Oude 2009, Kong 2014	
		Macronutrient diet	★★	↗	Moderate	Medium	●	●			None found	Johnston 2014	
		Dietary supplements		→	Weak	Low	●		●		None found	Tian 2013, Jull 2008	
		Reducing consumption of energy-rich drinks	★★	↗	Moderate	Medium			●	●	●	Rapidly increasing consumption in Thailand, high levels in the Philippines and Singapore (although levels have reduced a little), stable in Malaysia and increasing in Vietnam and Indonesia	Zheng 2015, Avery 2015, Baker 2014
		Meal scheduling patterns	★	→	Weak	Medium	●	●				Eating breakfast associated with lower BMI for Malaysian adolescents	Nurul-Fadhilah 2013

# Food Intervention

Tackling obesity in ASEAN. The Economist Intelligence Unit Limited 2017

Category	Subcategory	Example interventions/ focus of interventions	Promise of intervention	Direction of evidence base	Quality of body of evidence	Magnitude of population impact	Stakeholder driving change				Asia specific details	Reference
							Healthcare	Education	Food	Policy		
Food	Population	Disclosure—food labelling.	★	→	Moderate	Medium			●	●	Inaccurate labelling in 80% of Thailand laboratories, low nutritional labelling understanding	Cecchini 2016, Kerr 2015, U.S.FDA 2015, Kasapila 2016, Judprasong 2013
		Reformulation—food prohibitions	★	→	Weak	High	●	●	●	●	None found	Collins 2014, Ziauddeen 2015, Hendry 2015
		School and workplace policies	★★	↗	Moderate	High	●	●	●	●	None found	Linde 2012, Scoggins 2011
		Controlling portion size in processed and pre-packaged foods	★★	↗	Moderate	High			●	●	None found	Hollands 2015, Novak 2012
		Taxation	★★	↗	Moderate	High				●	None found	Colchero 2016, Thow 2014, Powell 2013, Alagiyawanna 2015
		Healthy food subsidies	★	→	Weak	Medium	●			●	None found	Cornelsen 2015, Thow 2014, Powell 2013, Alagiyawanna 2015
		Trade arrangements	★★	↗	Weak	High				●	Sugar-sweetened fizzy drinks sales increased from 3.3% to 12.1% per capita per year after import restrictions were removed	Schram 2015
		The built environment—zoning laws to limit the prevalence of fast food outlets	★★	↗	Weak	High				●	None found	Boone-Heinonen 2011, Fox 2009, Currie 2010

# Evidence in Detail



## Diet

A small randomised controlled trial by Teng et al. (2013)<sup>171</sup> of overweight 50–70 year old men in Malaysia found that a calorie-restricted diet of 300–500 calories and two days a week of daytime fasting led to a small but significant reduction in BMI, from an average of 26.8 to 25.9 after three months, compared to no change in the control group. In contrast, a small randomised controlled trial by Soon et al. (2013)<sup>172</sup> of adults with central obesity (excessive abdominal fat) working in a university in Malaysia found that the recommendation to eat a reduced calorie diet did not lead to any change in weight by three months.

Tan-Ting and Llido (2011)<sup>173</sup> found that a hospital-based multidisciplinary intervention in the Philippines, including calorie-controlled diet plans of 1,200–1,500 calories/day, reduced the weight of 44 obese children and adolescents over a three-month period. Longer term follow-up was not reported. A randomised controlled trial by Kong et al. (2014)<sup>174</sup> found that obese adolescents in Hong Kong lost significantly more weight on a low glycaemic index diet than the control group by six months.

A cross-sectional study by Nurul-Fadhilah et al. (2013)<sup>175</sup> found that Malaysian adolescents who ate breakfast at least five times per week had significantly lower body weight and BMI than those who ate it infrequently. The study did take into account some possible confounding factors but cannot prove cause and effect.






## Food labelling

Mandatory nutrition labelling is required in Indonesia and Malaysia, but it is voluntary in Singapore, the Philippines and Vietnam.<sup>176</sup> In Thailand, GDA labelling on snack products is mandatory, as is the text “eat less, physical activity more” on some children’s snack products. No studies were identified that explored the impact of nutritional labelling on obesity in ASEAN countries.

With regard to food labelling, it is important to consider the accuracy of the information and the way in which it is displayed. A survey by Judprasong et al. (2013)<sup>177</sup> of 17 laboratories in Thailand found that less than 20% demonstrated a good performance. According to a 2012 survey by the Nielsen Company, 8% of consumers in the Asia Pacific region did not understand the nutrition labelling information at all and 31% understood only part of it.<sup>178</sup>

# Current ASEAN Good Practices

Battling Obesity in  
ASEAN  
EU-ASEAN Business  
Council  
2023

Country	Measures	
Brunei	Health Ministry launched a food advertising guideline in 2021 to tackle rising childhood obesity <sup>77</sup> <ol style="list-style-type: none"><li>1. Banning of food and beverage commercials during certain hours</li><li>2. Marketing on food high in sugar should not claim to be “low fat” or “fat free”</li><li>3. Child actors prohibited from promoting food that undermines a healthy diet</li></ol>	
Malaysia	Sugar tax imposed on sugar beverages to make unhealthy options less accessible for the population. <sup>78,79</sup>	
Singapore	New nutrition labelling scheme for sweet drinks to be implemented by 2022 to reduce sugar intake of population <sup>80</sup> . In 2016, the National Steps Challenge was introduced to encourage individuals to adopt physically active behaviours for their health.	
Thailand	Introduction of health campaigns such as “Sweet Enough Network” and “Thai People with no Big Belly” <sup>81</sup> .	
Viet Nam	National Nutrition Strategy (NNS) was introduced in 2022 that sets out the goals and objectives of the country to reduce the prevalence of overweight and obesity through: <ol style="list-style-type: none"><li>1. Monitoring</li><li>2. Adopting best practices to control consumption such as introducing sugar-sweetened beverage tax and front-of-package labelling<sup>82</sup></li></ol>	

# Conclusion



A lot of interventions, but these must be tweaked according to culture and evidence.



Sustainable solutions emerge from empowered communities working together to reclaim their health and well-being.



Through collaborative efforts, we can create a healthier future that benefits all members of the community.



# Call for Action (Targets/Inputs/Processes)

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**S - Schools**

**H - Health Education**

**A - Advocacies**

**R - Research**

**P - Physical Activities**

**P - Policies**

**A - Access to Healthcare**

**S - Stakeholders Involvement**

**S - Support Group/ Behaviour**

