

COMMENTARY

Challenges and way forward for implementation of sugar taxation in the Middle East and North Africa (MENA)

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Abstract

Background: Over consumption of added sugar beyond the World Health Organization (WHO) recommended level of 10% of daily energy intake has well-established negative health consequences including oral diseases. However, the average consumption of added sugar in the Middle East and North Africa region (MENA—World Bank's regional classification) is 70% higher than the WHO recommended level. Imposing taxes on added sugar has been proposed by the WHO to decrease its consumption. Yet, only 21.6% of the total MENA population are covered by taxation policies targeting added sugar.

Challenges: Well-recognized challenges for the implementation of sugar taxation in MENA include the tactics used by the food and beverage industry to block these type of policies. However, there are also other unfamiliar hurdles specific to MENA. Historically, there have been incidents of protest and riots partially sparked by increased price of basic commodities, including sugar, in MENA countries. This may affect the readiness of policy makers in the region to impose added sugar taxes. In addition, there are also cultural, lifestyle and consumption behavioural barriers to implementing added sugar taxation. Ultra-processed foods and sugar-sweetened beverages (SSBs) rich in added sugar are perceived by many in MENA as essential treats regardless of their health risks. Furthermore, some countries even provide subsidies for added sugar. Also, (oral) healthcare providers generally do not engage in policy advocacy mainly due to limited training on health policy.

Ways forward: Here, we discuss these challenges and suggest some ways forward such as (1) support from a health-oriented political leadership, (2) raising public awareness about the health risks of over consumption of sugar, (3) transparency during the policy-cycle development process, (4) providing a free and safe environment for a community dialogue around the proposed policy, (5) training of (oral) healthcare professionals on science communication and policy advocacy in local lay language/dialect, ideally evidence informed from local/regional studies, (6) selecting the appropriate political window of opportunity to introduce a sugar tax policy, and (7) clear and strict conflict of interest regulations to limit the influence of commercial players on health policy.

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KEYWORDS

health policy, Middle East, North Africa, public health dentistry, sugar-sweetened beverage, taxation

1 | SUGAR TAXATION POLICIES IN THE MENA REGION

Refined sugar, commonly known as 'added sugar', is a commodity that has been described as addictive in the neuroscience literature.^{1,2} It is highly consumed in the Middle East and North Africa (MENA—World Bank's regional classification)³ region (Table 1),⁴⁻⁷ with an average intake of 85 g per day (g/day) while the World Health Organization (WHO) guidelines suggest limiting added sugar intake to less than 10% of the daily energy intake, at about 50g/day.⁶⁻⁹ Over consumption of sugar is strongly linked with noncommunicable diseases (NCDs), including oral diseases, and can be tackled with different public health interventions including fiscal measures such as targeted sugar taxes of ultra-processed foods and sugar-sweetened beverages (SSB—the most common source of added sugar intake).^{9,10} A practical manual to guide SSB taxation policies was issued by the WHO in 2022.¹¹ Yet, only seven (Morocco, Tunisia, Saudi Arabia, United Arab Emirates (UAE), Qatar, Bahrain and Oman) out of the 19 MENA countries (36.8%) have imposed SSB targeted taxation (Figure 1).¹²⁻¹⁴ This covers 21.6% ($n=102.9$ million) of the MENA population ($n=475.4$ million),³ leaving MENA as the third least covered region by SSB taxation policies after North America and East Asia.¹³ Moreover, taxes on ultra-processed food rich in fat, sugar and salt is greatly overlooked in MENA with only Tunisia implementing it.¹⁵

2 | CHALLENGES IN IMPLEMENTING SUGAR TAXATION POLICIES AND THE 3i FRAMEWORK

There are many challenges facing the implementation of sugar taxation policies in the MENA region (Figure 2). These may be fitted within the 3-i policy development framework (3iF): *Interest*, *Ideas* and *Institution* which was previously used in exploring the policies for human immunodeficiency virus (HIV) control and prevention.^{16,17} *Interests* are the agendas of stakeholders. If powerful stakeholders would gain from a policy, the policy is likely to be implemented. *Ideas* include perspectives on actual or hoped-for realities as understood by the stakeholders. Whether and how much the ideas are translated into policies is affected by cultural attributes, and for professional groups is affected by education and training. *Institutions* include the organizational factors through which policies are implemented including the type of government and the control different units within the government have on policy implementation. In this context, path dependence, which refers to processes where past events or decisions constrain later events or decisions, or simply put 'the resistance to change', is an important aspect that affects institutional

commitment to change. Institutions are more likely to continue a policy path if there is a high cost for changing this policy.¹⁶

Looking at the 'interest' domain, one of the standard challenges refers to the powerful food and beverage (F&B) industry influence on policy making through lobbying, research spending and generally using the 'SCARE tactics' (S: sowing doubt by discrediting science and diverting attention, C: court and legal threats, A: anti poor rhetoric, R: revenue instability, and E: employment impact for the F&B industry workers) to argue against added sugar taxation policies.¹¹ One additional MENA-specific hurdle to implementing added sugar taxation could be the policy makers' hesitancy and/or inherent fear of protests and civil unrests in reaction to increasing the prices of basic commodities. For example, in 1977 in Egypt, riots occurred when the government increased the prices of sugar, rice, cooking gas, tea, cooking oil and bread.¹⁸ The government quickly reversed these policies to contain the riots.¹⁹ In January 2011, protesters in Jordan took to the streets to express their frustration with the increasing prices of sugar, flour and rice.²⁰ Similar protests for the same reasons at the same period were observed in Tunisia, Algeria and Libya.^{20,21} Some of these demonstrations turned into a massive uprising and a revolutionary movement labelled 'The Arab spring' in 2011 in Tunisia, Egypt, Libya, Syria and Yemen.²² Other public outcries over increased price of sugar occurred in Egypt in 2016 and 2024^{23,24} and in Iraq and Tunisia in 2022.^{25,26} These incidents might lead policy makers to avoid risk by not imposing targeted added sugar taxation to maintain political stability in an already unstable region,²⁷ especially considering the high degree of government mistrust, limited official information sharing and low health literacy among the MENA population.^{27,28} Also, considering the income diversity within MENA, it seems that income-wealthy Gulf Cooperation Council (GCC) countries are ahead in implementing targeted sugar taxes compared to other lower-income countries in the region, except for Morocco and Tunisia (Figure 1). Theoretically, this could be partly attributed to the relative affluence and higher incomes in the GCC countries that may lead to more modest concerns and public reactions to the rising prices of refined sugar products through taxation in these societies compared to those in poorer countries.

Focusing on the 'ideas' domain, the cultural habits and lifestyle in many MENA countries may be seen as supportive of sugar consumption, thereby presenting a challenge for sugar taxation policies implementation. MENA is the third leading region, after the Americas and Europe, in obesity among adults²⁹ and the leading region in diabetes.^{30,31} Ultra-processed foods and SSBs are considered essential and affordable treats in a resources-limited region despite their health risks.^{8,32} These consumption behaviours can be further fuelled by attractive marketing strategies utilized by F&B industry (such as reduced price for super-size servings).³³ Moreover, the SCARE tactics can mobilize and amass a negative public sentiment

TABLE 1 Sugar-sweetened beverage intakes (8 oz servings/week) in 1990, 2005 and 2018 and absolute change (8 oz servings/week) from 1990 to 2005, 2005 to 2018 and 1990 to 2018 in adults (20+ years) globally and in the Middle East and North Africa (MENA).

	Mean intake (95% UI) (8 oz servings/week)			Absolute change (95% UI) (8 oz servings/week)		
	1990	2005	2018	1990–2005	2005–2018	1990–2018
World (185 countries)	2.3 (2.2–2.5)	2.6 (2.4–2.7)	2.7 (2.5–2.9)	0.22 (0.17, 0.28)	0.15 (0.11, 0.21)	0.37 (0.29, 0.47)
Middle East and North Africa	4.1 (3.6–4.8)	4.5 (3.8–5.2)	4.6 (3.9–5.4)	0.46 (0.29, 0.66)	-0.05 (-0.18, 0.07)	0.41 (0.25, 0.59)
Algeria	6.4 (4.4–9.6)	5.5 (3.7–8.1)	5.8 (3.9–8.6)	-0.73 (-1.09, -0.50)	0.58 (0.38, 0.87)	-0.16 (-0.23, -0.11)
Bahrain	5.0 (3.5–7.5)	6.4 (4.4–9.4)	5.9 (4.1–8.7)	1.49 (-0.07, 3.38)	-0.45 (-2.28, 1.27)	1.05 (-0.49, 2.79)
Djibouti	11.3 (7.5–16.2)	8.7 (5.8–12.8)	19.3 (13.6–25.4)	-3.14 (-6.08, -0.65)	11.16 (7.43, 15.09)	7.96 (4.42, 11.73)
Egypt, Arab Rep.	3.0 (2.4–3.7)	2.8 (2.3–3.4)	2.8 (2.3–3.4)	-0.18 (-0.26, -0.11)	-0.03 (-0.04, -0.02)	-0.21 (-0.29, -0.14)
Iran, Islamic Rep.	2.8 (2.5–3.2)	2.8 (2.5–3.2)	2.7 (2.4–3.0)	0.10 (0.07, 0.12)	-0.04 (-0.08, 0.00)	0.06 (0.00, 0.12)
Iraq	6.2 (4.3–9.5)	5.9 (4.0–9.0)	5.3 (3.6–8.0)	-0.41 (-0.66, -0.26)	-0.56 (-0.89, -0.35)	-0.97 (-1.55, -0.61)
Jordan	6.6 (5.1–8.4)	10.6 (8.2–13.6)	7.1 (5.5–9.1)	3.97 (3.03, 5.07)	-3.11 (-3.97, -2.39)	0.86 (0.65, 1.11)
Kuwait	4.0 (2.7–5.9)	15.4 (10.4–22.6)	9.9 (6.6–14.6)	10.36 (6.92, 15.19)	-4.03 (-5.87, -2.69)	6.33 (4.22, 9.34)
Lebanon	6.8 (5.9–7.9)	4.3 (3.7–5.0)	6.3 (5.4–7.4)	-2.34 (-2.72, -2.02)	2.18 (1.88, 2.54)	-0.16 (-0.19, -0.14)
Libya	5.3 (3.7–7.7)	6.7 (4.7–9.8)	5.7 (4.0–8.3)	1.39 (-0.02, 3.10)	-0.70 (-2.27, 0.74)	0.69 (-0.64, 2.14)
Morocco	4.3 (3.0–6.2)	5.0 (3.5–7.2)	4.8 (3.3–7.0)	0.89 (0.61, 1.31)	-0.06 (-0.09, -0.04)	0.83 (0.56, 1.23)
Oman	1.8 (1.2–2.7)	5.1 (3.4–7.6)	4.6 (3.1–6.9)	3.34 (2.21, 5.05)	-0.53 (-0.80, -0.36)	2.81 (1.85, 4.25)
Palestine	3.4 (2.4–4.9)	4.5 (3.1–6.5)	4.6 (3.1–6.6)	1.14 (0.78, 1.66)	0.07 (0.04, 0.09)	1.21 (0.82, 1.75)
Qatar	5.4 (3.6–8.1)	7.1 (4.7–10.5)	6.2 (4.1–9.2)	2.00 (1.32, 3.00)	-1.15 (-1.72, -0.75)	0.85 (0.56, 1.28)
Saudi Arabia	4.3 (3.0–6.3)	6.5 (4.5–9.4)	6.1 (4.3–8.9)	2.26 (0.98, 4.04)	-0.09 (-1.72, 1.48)	2.19 (0.91, 3.85)
Syrian Arab Republic	2.7 (2.0–3.6)	3.8 (2.8–5.0)	3.5 (2.6–4.7)	1.08 (0.80, 1.44)	-0.10 (-0.13, -0.07)	0.98 (0.72, 1.31)
Tunisia	4.2 (3.0–6.3)	6.5 (4.6–9.4)	7.0 (4.9–10.0)	2.39 (1.20, 4.05)	0.64 (-0.72, 2.19)	3.03 (1.72, 4.82)
United Arab Emirates	5.0 (3.3–7.6)	7.0 (4.7–10.7)	3.5 (2.4–5.4)	1.94 (1.29, 2.97)	-3.28 (-5.02, -2.19)	-1.34 (-2.05, -0.89)
Yemen, Rep.	11.4 (6.3–20.8)	15.3 (8.4–26.6)	15.2 (8.4–26.6)	4.04 (2.23, 6.32)	-0.23 (-0.35, -0.12)	3.81 (2.10, 6.01)

Note: Data source was the Global Dietary Database (GDD).⁷ Global and MENA figures were filtered from (Lara-Castor et al., 2023).⁶ Licence: Creative Commons Attribution 4.0 International Licence (CC BY 4.0). Data are mean intakes (95% UI) or mean absolute change in intakes (95% UI) in 8 oz servings per day. All intakes are reported adjusted to 2000kcal/d for ages 20–74 years, and 1700 kcal/d for ages 75+ years. Data are based on a Bayesian model that incorporated up to 451 individual-level dietary surveys, and additional survey-level and country-level covariates, to estimate dietary consumption levels. Total SSBs intake was defined as any beverage with added sugars having ≥50 kcal per 8 oz serving, including commercial or homemade beverages, soft drinks, energy drinks, fruit drinks, punch, lemonade and aguas frescas. This definition excludes 100% fruit and vegetable juices and noncaloric artificially sweetened drinks. Standardized serving size used for this analysis: 8 oz serving = 248 g. Abbreviations: oz, ounces; SSB, sugar-sweetened beverage; UI, uncertainty interval.

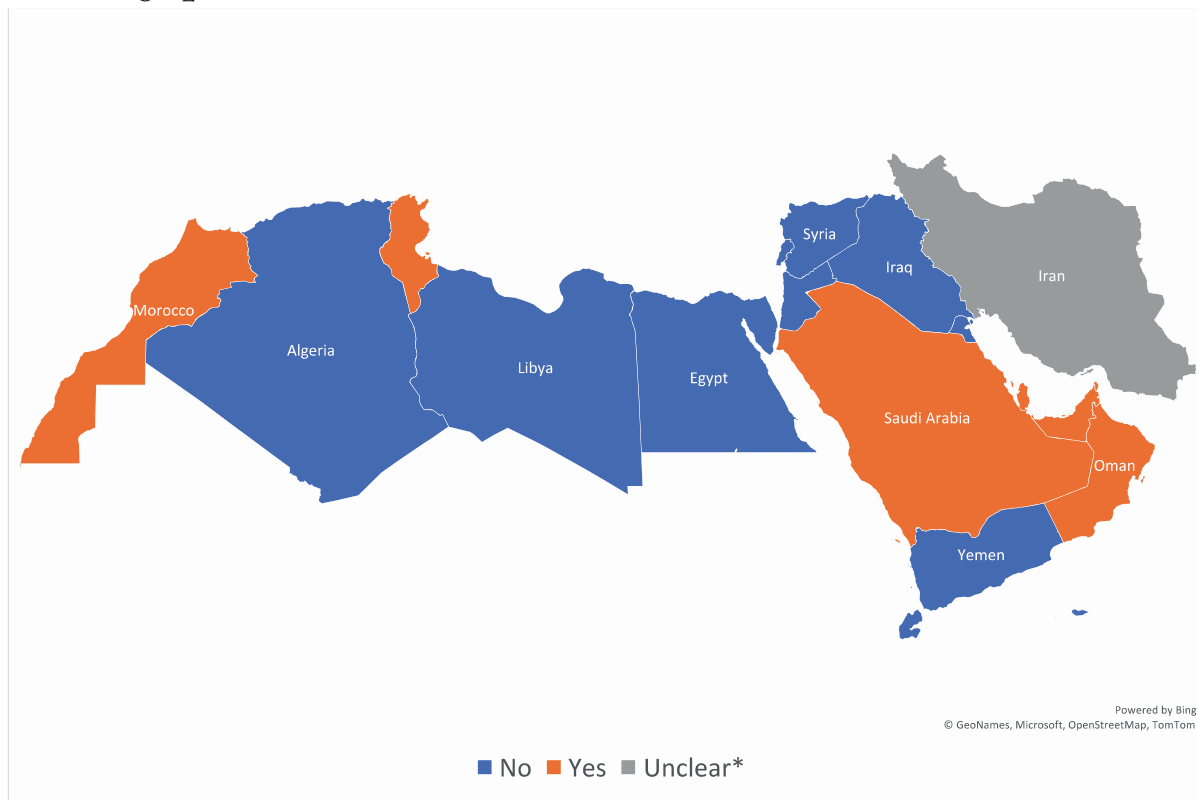


FIGURE 1 Existence of tax on sugar-sweetened beverage (SSB) in the Middle East and North Africa (MENA). Data source: World Health Organization's (WHO) Global Health Observatory (GHO) 2021 data, and the World Bank 2023 data. *There was conflicting evidence on whether Iran is covered by SSB targeted taxation. The World Health Organization's (WHO) Global Health Observatory (GHO) 2021 data showed that Iran was covered by at least one form of SSB-targeted taxation without mentioning the details about this form of tax.¹² On the contrary, the World Bank 2023 data showed that Iran was not covered by any form of SSB targeted taxation.^{13,14}

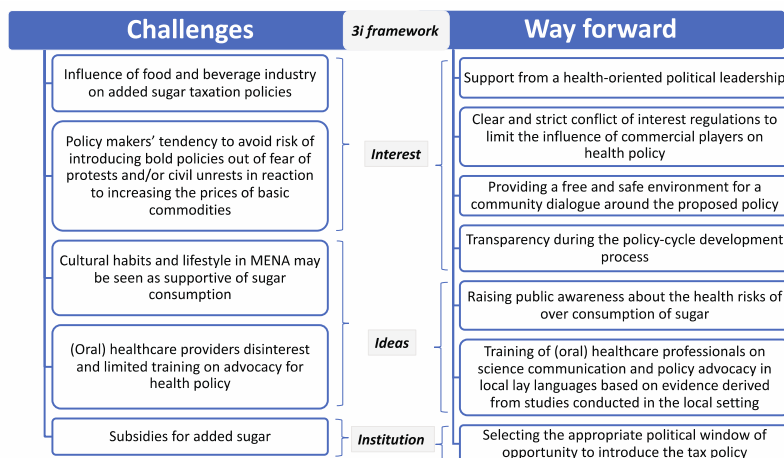


FIGURE 2 Summary of the challenges and ways forward for implementation of sugar taxation in the Middle East and North Africa (MENA) based on the 3i framework.

towards any proposed taxation.^{1,2,11} On the contrary, (oral) healthcare providers in the MENA region receive minimal training on health policies during their undergraduate studies.³⁴ This hinders them from advocating for sugar taxation policies as they do not consider it a professional responsibility.

The institutional domain of the 3iF may shed further light on the limited progress among MENA countries in implementing sugar taxation. In some countries, such as Egypt, governments have

traditionally used subsidies to ensure the availability and affordability of added sugar. This has continued even after the current economic crisis and currency devaluation, and added sugar is currently available at prices below the international average.^{24,35} Path dependence and population expectations would further hinder policies that increase added sugar price through taxation after decades of keeping its price low. This is especially relevant during the current global economic and geopolitical turbulence and food supply chain

instability that has already led to increased prices for basic commodities including sugar.^{23,24}

3 | WAY FORWARD FOR IMPLEMENTING SUGAR TAXATION IN THE MENA REGION

The above-mentioned challenges indicate that implementing sugar taxation will be a 'hard sell' in the MENA region, but the 3iF can also help with deciding the way forward to address these challenges (Figure 2). On the 'ideas' front, it is important to raise public awareness about the health and oral health risks of over consumption of added sugar in the local lay language/dialect to help counter the misinformation and distrust of scientific evidence. *This may be particularly relevant in rural populations that are generally characterized by lower educational level and higher consumption of SSB compared to urban populations in the MENA region.*^{6,36} At the same time, (oral) healthcare professionals need training on science communication and policy advocacy so that they are better equipped to engage with policymakers and the public. Ideally, science communication should also be informed by evidence about the expected health/oral health benefits of sugar taxation derived from studies conducted in the local setting.

To stimulate the 'interest' of stakeholders, transparency is needed during policy development by informing the public about the driving factors behind the proposed tax and future spending of the collected revenues.³⁷ Interest and ownership can also be promoted by fostering a free and safe environment for a community dialogue to further facilitate stakeholder interest and ownership and build a civil coalition to drive taxation policy implementation.¹¹ Last, 'institutional' support requires using an appropriate political window of opportunity to introduce the sugar tax while considering the economic situation. It is also essential to enact clear and strict conflict of interest regulations that promote transparency in the public debate and limit any undue influence of commercial players on health policy. All these require the strong commitment and support of a health-oriented political leadership.

The influence of F&B industry on added sugar taxation policies is undeniable. However, the MENA region has further specific challenges that hinder the implementation of targeted sugar taxation policies in the region. Although there are differences across MENA countries in both sugar consumption patterns and instigation of sugar taxation policies, some regional commonalities exist. A general political hesitancy to introduce bold public health policies and tendency to maintain the status quo, even to the extent that governments commit to subsidize added sugar are challenges specific to the MENA that need to be addressed. These are further compounded by cultural barriers and consumption behaviour towards added sugars, and the general lack of health policy advocacy among (oral) healthcare providers. There are feasible ways forward and political leadership is essential. After all, population health is a political issue affected by a wide range of policies, far extending the healthcare system.

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Hazem Abbas contributed to the conception of the commentary and drafted the manuscript. All authors critically revised the manuscript, gave final approval and agree to be accountable for all aspects of the work ensuring integrity and accuracy.

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The authors declare no conflict of interest.

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REFERENCES

1. Avena NM, Rada P, Hoebel BG. Evidence for sugar addiction: behavioral and neurochemical effects of intermittent, excessive sugar intake. *Neurosci Biobehav Rev*. 2008;32:20-39.
2. DiNicolantonio JJ, O'Keefe JH, Wilson WL. Sugar addiction: is it real? A narrative review. *Br J Sports Med*. 2018;52:910-913.
3. Middle East and North Africa. Development news, research, data|World Bank. Accessed October 11, 2023. <https://www.worldbank.org/en/region/mena>
4. Sugar | FAO | Food and Agriculture Organization of the United Nations. Accessed July 11, 2023. <https://www.fao.org/markets-and-trade/commodities/sugar/en/>.
5. World Health Organization. WHO EMRO | New WHO policy aims to lower sugar intake to fight obesity and overweight in the Region | News | Media centre. Accessed July 11, 2023. <https://www.emro.who.int/media/news/who-policy-to-lower-sugar-intake.html>
6. Lara-Castor L, Micha R, Cudhea F, et al. Sugar-sweetened beverage intakes among adults between 1990 and 2018 in 185 countries. *Nat Commun*. 2023;14:1-19.
7. Welcome to the Global Dietary Database | Global Dietary Database. Accessed February 1, 2024. <https://www.globaldietarydatabase.org/>.
8. Alwan A. WHO EMRO | Sedentary risks | Regional director | About WHO. Accessed October 6, 2023. <https://www.emro.who.int/about-who/regional-director/sedentary-risks.html>
9. World Health Organization. *Guideline: Sugars Intake for Adults and Children*. World Health Organization; 2015.
10. The Global Status Report on Oral Health 2022. Accessed July 10, 2023. <https://www.who.int/team/noncommunicable-diseases/global-status-report-on-oral-health-2022>.
11. WHO manual on sugar-sweetened beverage taxation policies to promote healthy diets. Accessed July 10, 2023. <https://www.who.int/publications/i/item/9789240056299>.

12. World Health Organization. GHO: Global Health Observatory. Existence of tax on sugar-sweetened beverages. Accessed October 12, 2023. <https://www.who.int/data/gho/data/indicators/indicator-details/GHO/existence-of-tax-on-sugar-sweetened-beverages>
13. Hattersley L, Mandeville KL. Global coverage and design of sugar-sweetened beverage taxes. *JAMA Netw Open*. 2023;6:e231412.
14. The world bank. Global SSB Tax Database | Data Catalog. Accessed February 2, 2024. <https://datacatalog.worldbank.org/search/dataset/0063310>
15. World Health Organization. Global Health Observatory: Existence of Tax on Foods High in Fat, Sugars or Salt. Accessed November 21, 2023. <https://www.who.int/data/gho/data/indicators/indicator-details/GHO/existence-of-tax-on-foods-high-in-fat--sugars-or-salt>
16. Gauvin F-P. Understanding policy developments and choices through the “3-i” framework: interests, ideas and institutions. National Collaborating Centre for Healthy Public Policy. 2014.
17. Buse K, Dickinson C, Sidibé M. HIV: know your epidemic, act on its politics. *J R Soc Med*. 2008;101:572-573.
18. Soliman NA. Remembering the 1977 bread riots in Suez: fragments and ghosts of resistance. *Int Rev Soc Hist*. 2021;66:23-40.
19. THOUSANDS IN EGYPT RIOT OVER PRICE RISE—The New York Times. Accessed July 10, 2023. <https://www.nytimes.com/1977/01/19/archives/thousands-in-egypt-riot-over-price-rise-students-and-workers.html>
20. Reuters | Hundreds protest against rising prices in southern Jordan. Accessed October 5, 2023. <https://jp.reuters.com/article/oegtp-jordan-protest-mn7-idARACAE70D0R320110114>
21. High prices inflame the Algerian street | News | Al Jazeera. Accessed October 12, 2023. <https://t.ly/bqJIT>
22. Coutts A, Stuckler D, Batniji R, Ismail S, Maziak W, McKee M. The Arab spring and health: two years on. *Int J Health Serv*. 2013;43:49-60.
23. Sugar shortage and soaring food prices fuel discontent in Egypt | Egypt | The Guardian. Accessed July 31, 2023. <https://www.theguardian.com/world/2016/oct/25/egypt-sugar-shortage-soaring-food-prices-discontent-abdel-fatah-al-sisi>
24. Egypt to increase sugar on ration cards by up to 2 KGs in January 2024. Egypt, State Information Service. Government Website. Accessed February 1, 2024. <https://www.sis.gov.eg/Story/190829/Egypt-to-increase-sugar-on-ration-cards-by-up-to-2-KGs-in-January-2024?lang=en-us>
25. Night demonstrations in Tunisia to protest high prices and poverty | Euronews. Accessed October 5, 2023. <https://arabic.euronews.com/2022/09/26/tunisians-protest-against-poverty-high-prices-and-food-shortages>.
26. Demonstrations against the high prices of food in Iraq and a transportation sector strike in Morocco due to high fuel prices | France 24. Accessed October 5, 2023. <https://t.ly/rRVwk>
27. Edelman Trust Barometer. What you need to know | World Economic Forum. 2022 Accessed July 20, 2023. <https://www.weforum.org/agenda/2022/01/edelman-trust-barometer-2022-report/>
28. Dash S, Parray AA, De Freitas L, et al. Combating the COVID-19 infodemic: a three-level approach for low and middle-income countries. *BMJ Glob Health*. 2021;6:4671.
29. World Health Organization. *World Health Statistics 2023: Monitoring Health for the SDGs, Sustainable Development Goals*. World Health Organization; 2023:14.
30. Ong KL, Stafford LK, McLaughlin SA, Boyko EJ, Vollset E. Global, regional, and national burden of diabetes from 1990 to 2021, with projections of prevalence to 2050: a systematic analysis for the global burden of disease study 2021. *Lancet*. 2023;402:203-234.
31. International Diabetes Federation (IDF). IDF Diabetes Atlas. <https://diabetesatlas.org/>
32. Malik VS, Willett WC, Hu FB. Global obesity: trends, risk factors and policy implications. *Nat Rev Endocrinol*. 2012;9:13-27.
33. Moodie R, Stuckler D, Monteiro C, et al. Profits and pandemics: prevention of harmful effects of tobacco, alcohol, and ultra-processed food and drink industries. *Lancet (London, England)*. 2013;381:670-679.
34. Gouda H, Virtanen JI, El Tantawi M. Dental public health education in Egypt: a cross-sectional survey. *BMC Med Educ*. 2023;23:1-8.
35. United States Department of Agriculture (USDA). Sugar Annual—Egypt. Cairo. 2022 1-8-9.
36. Abbas H, Takeuchi K, Osaka K, Guarnizo-Herreño CC, Tsakos G, Watt RG. The role of science communication and academic health advocacy in improving population oral health and tackling inequalities. *Community Dent Oral Epidemiol*. 2023;51:606-608. doi:10.1111/CDOE.12882
37. Purtle J, Langellier B, Lê-Scherban F. A case study of the Philadelphia sugar-sweetened beverage tax policymaking process: implications for policy development and advocacy. *J Public Health Manag Pract*. 2018;24:4-8.

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