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Article

Assessing the Effectiveness and Sustainability of Sugar-Sweetened Beverage Tax in the African Context: A Systematic Review of Evidence

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Abstract

Introduction: The World Health Organisation (WHO) and health advocates have called on governments across the globe to introduce a sugar tax to reduce the intake of sugar-sweetened beverages (SSB), prevent obesity, and type 2 diabetes. Despite efforts to introduce the sugar tax, there is limited data on the effectiveness and sustainability of the sugar tax, especially in the African continent. A review of literature indicates that sustainable consumption may be attained through positive behavioural change techniques. **Methods:** We conducted a systematic review to identify studies from Africa and select countries across the world from 2014-2024, to determine the effectiveness and sustainability of the sugar tax on beverage intake on the African context. The selection of studies was based on their report of sustainability of sugar tax, decline in beverage products high in sugar content, the effectiveness of sugar tax in reducing the intake of SSBs, reformulation of sugary beverages, and public acceptability of the tax. **Conclusion:** There is evidence that the introduction of sugar tax has resulted in the decrease in intake of the SSBs in some African countries, for example South Africa and Mauritius. Majority countries in Africa have not introduced the tax. The failure or non-introduction of the tax in Africa is synonymous to some countries across the globe. In some developed economies, the introduction of the tax resulted in mixed reactions which resulted in its withdrawal within one year of its implementation. In addition, limited studies have reported on the sustainability and the effectiveness of the sugar tax in the African continent.

Keywords: sugar tax; sugar-sweetened beverages; sustainable consumption; effective sugar tax

1. Introduction

Sugary products are a significant component of the global food market [1–4], and its exports account for over one-quarter of global production [5]. The consumption of sugar-sweetened beverages (SSBs) is widely believed to be a major contributing factor to overweight, type 2 diabetes, and obesity [6,7]. Obesity and diabetes are major global health concerns with significant mortality rates [8]. A SSB is any beverage that contains added sugar or other caloric sweeteners, for example high-fructose corn syrup and fruit juice concentrates [9]. On the contrary, much controversy exists in the high protection given to sugar market by the US, Japan, and the European Union (EU) [10].

Sugar taxes have arisen as a regulatory strategy to reduce the consumption of these beverages [11,12], and to shape consumers' behaviour towards sustainable consumption [13]. The Income Tax Act- (the Act) in South Africa defines taxation as: "the means whereby the State collects funds from persons to pay for its administration and the benefits it provides to its citizens and residents" [14,15]. By implication, revenue generated from tax can be used to provide benefits to the public, and at the same, the imposition of sugar tax on SSBs can be a strategy to reduce their intake to achieve health benefits.

The World Health Organization (WHO) in 2014, recommended the use of a sugar tax to regulate individuals and households intake of SSBs [16]. From that period onward, more than 40 countries and jurisdictions introduced sugar taxes [17]. The introduction of the tax has witnessed extensive research on its impact on SSB intake, as well as its economic and health benefits [18], but little studies exist on the effectiveness and sustainability of the tax, especially in the African continent. A shift of food and beverages consumption preferences to healthy alternatives is critical to meeting the UN Sustainable Development agenda [19,20]. The empirical literature examining the sustainable SSBs consumption behavioural change techniques relative to the use of regulatory instruments (sin taxes, health promotion levy, and or sugar taxes) is limited in Africa [21].

In some countries, however, the enactment of the tax has witnessed challenges. In Denmark and some jurisdictions in the USA, the tax was abolished one year after its introduction [22–24]. In South Africa, the sugar industry aggressively lobbied against the proposed sugar tax [25,26]. In Fiji, the resistance by the sweetened beverages industry saw a reduction in the sugar tax rate [27]. Based on the resistance and abolishment witnessed by these countries and jurisdictions, there is a need to consider a range of variables influencing the consumption of these SSB and the failure by majority countries to introduce the tax.

Originality/value - The WHO recommended the use of a sugar tax to reduce the intake of SSB. Research has mainly focused on the implementation of the tax, its social and economic impacts, the revenue generated from the tax, and the impact on consumers' behaviour; however, there is limited studies on the effectiveness and the sustainability of the tax, especially in the African continent. This study attempts to assess the effectiveness and sustainability of the sugar tax within the African and other low-income economies.

2. Literature Review

As of January 2009, 33 states in the United States of America (USA) had proposed a sales tax on SSB at an average rate of 5.2% [28]. Experts suggest that price increases in this range may not significantly influence consumer purchasing behaviour [29]. In January 2012, a sugar tax was finally adopted as part of the US healthcare reform of 2009 [30]. The sugar tax strategy was to reduce the intake of SSB, obesity, and diabetes [31,32]. As in other economies, the American Beverage Association (ABA) opposed the sugar tax base on job losses in the SSB sector [33,34]. Some researchers believe that the abandonment of the 'fat tax' in Denmark [35], could have contributed to the resistance of the sugar tax by many nations. Similar legislation prohibiting levying taxes on foods and SSBs was passed in the States of Michigan [36], Arizona [37], and California [38]. Although California's legislation allowed sugar taxes in Berkeley, San Francisco, Oakland, and Albany [39], it prohibited any further increase in the tax rate [40].

In Brazil, sugar is produced not only for human consumption, but also as a renewable source of energy [41]. Studies found that the share of soft drinks in household diets in metropolitan areas increased by 525.0% between 1974 and 2003 [42]. The intake of SSB in Brazil and low-income countries is linked to under-nutrition [43,44]. Brazil passed an excise tax on alcoholic, energy, sports drinks, and fruit juices, but excluded regular and diet soft drinks [45]. Studies revealed that a 1% increase in the price of SSB led to a decrease in intake of 1.03% and 0.63% for low- and high-income households respectively [46,47].

In the United Kingdom (UK), Adam et al. (2013) [48], indicated that an increase in price of SSB by 10% resulted in a 9% decline in consumption. However, Cawley et al. (2020) [49] found that the extent of a reduction in intake is determined by the extent to which manufacturers and retailers shift the burden of the sugar tax to consumers. An evaluation of the view of individuals and households on the consumption of SSBs found more than 75% of respondents described their intake as 'out of habit' [50]. According to Kottasova (2017) [51], some sweetened beverage producers have reduced the sugar content in their beverages by more than 30% to avoid the sugar tax. Despite fears that a sugar tax will negatively impact the sugar industry, the reduction of sugar content in beverages had little or no effect on job losses [52]. However, the over-consumption of SSB by school-age children and low-

income households was associated with availability at school canteens and informal grocery shops respectively [53].

In Denmark, studies addressing sugar Fat Tax only focused on the impact of the consumption of SSB and neglected the impact on the intake of fatty foods. Research found that taxing fatty foods is very complicated and cumbersome for policymakers. The failure of the Fat Tax in Denmark offers a unique insight into the complexity of effectively taxing fatty food including SSB. The repeal of the fat tax was due to negative economic effects and the lack of scientific evidence in the reduction of intake of fatty foods and SSBs, and the decrease in obesity and type 2 diabetes pandemic in Denmark [54]. The public opinion in Denmark considered the tax as a source of revenue generation rather than for public health benefits.

In Africa, an estimated 41% of deaths in people under the age of 60 relate to overweight- and obesity-associated illnesses, as compared to 18% in high-income countries [55]. The International Diabetes Federation (IDF) projected 2.28 million people living with diabetes in South Africa alone in the year 2015 [56]. Ghana, Egypt, and many African countries have witnessed a significant rise in the importation of sugar products since 2001 [57,58].

While sugar taxes have proven to be effective in some jurisdictions and countries across the globe, an attempt at policy formulation was resisted by the beverage industry across Africa [59]. The Beverage Association of South Africa (BEVSA) opposed this initiative base on three grounds: 1) the strategy will result in between 62 000 and 72 000 job losses within the sugar industry, 2) lead to reduction in Gross Domestic Product (GDP) of R14 billion, and 3) the tax is regressive to the low-income households [60,61]. A sugar tax was widely viewed as regressive in nature, as it affects mostly the majority low-income group in South Africa. Instead, the traders in Ghana and BEVSA in South Africa, recommended a policy shift to force beverage manufacturers to reduce sugar content in all their beverages and or self-regulation rather than a sugar tax [62]. The government of Egypt opted for the advisory path rather than a sugar tax [63,64].

Besides the resistance, some African countries have implemented one form of sugar tax or the other. The flat levy option. This option warrants all sugary beverages to be levied at the same rate on a per litre basis, regardless of the sugar content [65]. From an administrative perspective, it is simpler and less costly to administer the flat rate option compared to other approaches [66]. The disadvantage of this option is that it does not provide any advantage for manufacturers to reformulate their products, and for consumers to decrease their tax liability by shifting to beverages with a lower sugar content. Another option is to tax every gram of sugar in sweetened beverages. This approach takes the view that SSB have a high sugar content but little to no nutritional value, therefore every gram of sugar should be taxed. Using the price of soft drinks an estimated tax rate of R2.29 per litre of SSB, or R0.0229 per gram of sugar contained in one litre of the beverage, would be reasonable. This approach is presumed to encourage manufacturers to reformulate beverages with less sugar content.

The threshold approach of a sugar tax. The threshold approach allows for a minimum sugar content to be tax-free, and only the added sugar content above this threshold to be taxed [67]. The UK and South African policymakers implemented this approach as a preferred option [68,69]. In this option, there is a tax-free allowance of 5 grams of sugar per 100ml. In South Africa, the tax has increased from 2.1 cents in 2018 to 2.21 cents per gram of sugar content more than 4 grams per 100ml in 2019 [70].

Eventhough the introduction of sugar taxes is aimed at achieving sustainable intake of SSBs, Lechner et al. (2016) [71], argue that this public policy measure does infringe on consumers' choices. In addition, Osman et al. (2021) [72], investigation on what works well for sustainable consumption indicates that the use of a sugar tax alone was generally less effective in encouraging a shift in intake behaviour toward sustainable choices. According to Hansen and Jespersen (2013) [73], humans often fail to act in consumption behaviour that benefit the broader society, and regulatory policies often don't lead to sufficient behavioural change. On the other hand, White and Lockyer (2020) [74] and Xanthos and Walker (2017) [75], affirm that the taxation of certain products can positively influence

consumer behaviour; for example the £0.05 Plastic Bag Tax, led to the reduction of plastic bag use by about 83% since its introduction in 2015.

3. Study Methods

3.1. Study Design

In this study, we conducted a systematic literature review to identify studies from Africa and selected countries across the world from 2014-2024, that reported on one or more of the following outcomes: sustainable consumption, decline in beverage products high in sugar content, reformulation of sugary beverages, decrease in household consumption, public acceptability of a sugar tax, and sugar tax as a political strategy to reduce the intake of SSB. We did not take into consideration the socio-economic status of a country or jurisdiction, especially across the rest of the world in selecting a study. In addition, we took interest in assessing some articles published before the WHO recommendation for a sugar tax. We included studies that reported on the types of sugar tax implemented and its impact on the intake across households.

A protocol was developed for the selection, analysis, and reporting of articles as indicated by Welch et al. (2012) [76] and Burford et al. (2013) [77], on the Preferred Reporting Items for Systematic Review and Meta-Analysis Equity (PRISMA-Equity) guidelines. We recognized the fundamental importance of the report of the World Conference on Social Determinants of Health (October 2011) and the Global Symposium on Health Systems Research in 2010, and the need for increased availability of data on inequities in resources and health, particularly in low-income countries [78,79]. Thus, we selected study titles that included consumption, health effects, sugar tax, and sustainable intake of SSB. We further identified and included studies that reported on the assumptions of the intake of the SSBs, the impact of the tax on health, and the effectiveness of the tax in reducing consumption. Lastly, the quality of the study was evaluated, and the strength of conclusions assessed.

Table 1. Eligibility criteris for inclusion in the study.

Inclusion terms	Quan studies	Qual studies	Mixed studies	World studies of sugar tax	African studies on sugar tax	Both world and Africa
Title, sugar tax, intake of SSB	6	33	1	25	14	1

Source: (Enowkenwa, 2025; unpublished PhD).

3.2. Data Extraction

A total of 40 articles that met the eligibility criterion were analyzed. From this total, 33 are qualitative studies, 6 are quantitative studies, and 1 is a mixed methods study. In addition, 25 of the studies were carried out across the rest of the world, meanwhile 14 were involving the intake of SSB and the impact of the tax in Africa, and lastly, one study investigated the impact of the tax on an African country and other countries across the world.

Table 2. Overview of tax implication in the reviewed studies.

Author/s	Country of study	Year tax introduced	Type of study	Type of tax	Products taxed	Data source	Tax base	Study results
Carter et al. (2019) [80]	Australia	N/A	Qualitative analysis	N/A	N/A	A stimulation model	Sugar content	Sugar tax should be adopted based on social perspective rather than on health grounds.
Duckett and Swerissen (2016) [81]	Australia	N/A	Qualitative meta-analysis	N/A	N/A	Stimulated model	Sugar content	Sugar tax can reduce obesity level in Australia population. However, tax by itself will not solve the problem
Liu et al. (2014) [82]	China	N/A	Qualitative evaluation study	N/A	N/A	Simulation model	Tax calories	Banning television advertising, limiting container size, calories, and a tax on calories.
Bandy et al. (2020) [83]	UK	2016	Qualitative cross-sectional study	Excise (specific)	SSB	Online sales data	Volume	The reformulation of sugar content in SSB led to significant reduction in sugar intake in UK.
Stacey et al. (2019) [84]	South Africa	2018	Qualitative simple pre-post analysis study	Excise (specific)	SSB	Price observation	Sugar content	Besides the reformulation initiative, similar increases in prices for low- and high-sugar content SSBs exist.
Roache and Gostin (2017) [85]	USA	1933/2016	Qualitative study	Excise (Specific)	SSB	Observational study	Volume	Reformulation of SSB should be considered at global stage especially in low-income countries.
Coetzee et al. (2019) [86]	South Africa	2018	Quantitative retrospective study	Excise (specific)	SSB	Data obtained from health sectors	Sugar content	An effective sugar tax policy and education on lifestyle behaviours are important in reducing the intake of SSB.
Thow et al. (2021) [87]	South Africa, Zambia, Uganda, Kenya, Tanzania	2018, 2014, 2015	Qualitative study	Excise (specific)	SSB	Structured interview	Sugar content	Sugar tax is legally feasible but the implementation is faced with political and economic challenges in Sub-Saharan Africa.
Eykelenboom et al. (2019) [88]	USA, Australia, the UK, and France	2016, 2016, 2012	Mixed-method study	N/A	SSB	Data extracted from selected studies	Sugar content/volume	The Australian public are in support of the sugar tax strategy
Yamoah et al. (2021) [89]	South Africa	2018	Qualitative study	Excise (specific)	SSB	Online survey	Sugar content	The persuasive strategies of unhealthy SSB is in breach of the South African Marketing to Children and imply a failure of the industry self-regulation.
Vandevijvere et al. (2017) [90]	New Zealand	N/A	Qualitative review	N/A	N/A	Online survey	N/A	The study revealed that advertisement is negatively influencing the overall intake of SSB, especially the younger age group.

Gissing et al. (2017) [91]	Morocco	2019	qualitative systematic	Excise (Specific)	Food and SSB	Systematic literature review	Volume	Strong cultural and religious beliefs were identified as possible determinants of over-consumption of SSB.
Mmbaya et al. (2020) [92]	Kenya	2015	Quantitative study	Excise (Specific)	SSB	Structured questionnaire	volume	Restriction of access to SSBs within and around the school environment in order to reduce intake in Kenya.
Fungai (2017) [93]	Zimbabwe	2022	Qualitative case study	Excise (specific)	SSB	Structured interview	Volume	Price, quality, and brand were found to be factors influencing intake.
Bipasha et al. (2017) [94]	Bangladesh	2012	Qualitative cross-sectional study	VAT/GST (Ad valorem)	SSB	Observation of SSB intake	Sugar content	A combined initiative from families, universities, public health experts, and the government is needed to tackle the over intake of SSB,
Kao et al. (2020) [95]	Canada	2021	Qualitative modelling study	Sales (Ad valorem)	SSB	Modeled study of different income groups	Sugar content	The study predicted significant health benefits especially to the low-income group in Canada.
Zhuang et al. (2021) [96]	China	N/A	Quantitative cross-sectional study	N/A	SSB	Questionnaire administered to participants	Volume	Pocket money and availability of SSB and access to supper markets are associated to high consumption of SSB.
Cawley et al. (2021) [97]	Mauritius	2022	Qualitative analysis of secondary data	Excise (specific)	SSB	Questionnaire administered to participants	Sugar content	Sugar tax in Mauritius had influence on youth consumption of the SSB.
Ukegbu et al. (2017) [98]	South-Eastern Nigeria	2021	Quantitative cross-sectional study	Excise (specific)	SSB	Questionnaire	Volume	Obesity and overweight were 6.5% [4.2% males and 8.4% females ($p < 0.05$)] and 13.4% [8.4% males and 17.7% females ($p < 0.05$)] respectively
Singh et al. (2015) [99]	Latin America, Europe, and Asia	N/A	Qualitative systematic review	N/A	SSB, milk, and fruit juice intake	Diet surveys worldwide	N/A	Globally and within regions, SSB intake was highest in younger adults.
Csákvári, et al. (2023) [100]	Hungary	2018	Qualitative systematic review	Excise (Specific)	SSB	Living Conditions Survey	Volume	No significant decrease in purchases of SSB but the tax generated increased revenue.
Amoutzopoulos et al. (2020) [101]	UK	2016	Qualitative study	Excise (specific)	SSB and fruit juice	National Diet and Nutrition Survey	Volume	In the UK, consumers (4 to 64 years) who meet the WHO free sugar recommendation ranged between 25%-54%.
Hangoma et al. (2020) [102]	Zambia	2018	Qualitative study	Excise (specific)	SSB	Living Condition Monitoring Survey (LCMS)	Volume	Sugar tax was found to significantly avert 1133 deaths in women (95% CI 353 to 1970) in Zambia.

Royo-Bordonada et al. (2019) [103]	Spain	2021	Qualitative study	VAT/GST (Ad valorem)	SSB	Data from a validated questionnaire	Sugar content	Reduction of regular consumers of taxed beverages was found in Spain.
Subaiea et al. (2019) [104]	Kingdom of Saudi Arabia	2019	Qualitative study	Excise (Ad valorem)		Observational cross-sectional study from Saudi Arabia		Increasing public knowledge and awareness on the risks of over consumption of SSB could decrease their intake.
Fernandes et al. (2020) [105]	South Africa	2018	Quantitative study	Excise (specific)	SSB	Questionnaire	Sugar content	The study indicates that students consume SSB to stay awake, to be more alert, and for concentration purposes.
Essman et al. (2021) [106]	South Africa	2018	Qualitative cross-sectional survey	Excise (specific)	SSB	Interview with individuals/households	Sugar content	Sugar tax led to a positive change in consumer and manufacturer behaviour. It led to reduced sugar content in SSBs.
Kamin-Friedman et al. (2023) [107]	Isreal	2022 but repealed 2023	Qualitative study	Excise (specific)	N/A	Systematic literature review	Sugar content	Policymakers must demonstrate that the implementation of a sugar tax is not an economic sanction on the manufacturers or an attack on specific consumers but a means to promote health.
Acton et al. (2017) [108]	Canada	SSB tax repealed July 2025	Qualitative study	SSB tax repealed July 2025	SSB tax repealed July 2025	SSB tax repealed July 2025	SSB tax repealed July 2025	A 20 cent-per-litre-tax was estimated to reduce SSB intake by about 15%.
Van Wyk and Dlamini (2018) [109]	South Africa	2018	Qualitative study	Excise (specific)	SSB	Annual time series data	Sugar content	The results indicate that a 1% increase in food prices reduces household welfare by 21.3%, exerting a negative impact on consumer welfare.
Lloyd and Maclaren (2019) [110]	Australia	N/A	Qualitative review	N/A	N/A	Review of literature on SSB in Australia	Sugar content	A sugar tax is only one component of a public strategy to reduce sugar intake. A recommendation to tax sugar content was viewed as a preferred option.
Colchero et al. (2016) [111]	Mexico	2014	Quantitative study	Excise (mixed)	SSB	Sales data of SSB	Volume	Sale decreased by 7.3% of SSB and an increase of 5.2% sales of plain water between 2014 to 2015.
Silver et al. (2017) [112]	Berkeley California USA	2016	Qualitative survey	Excise (Specific)	SSB	Sales data of SSB	Volume	Decrease in sales suggest that the observed changes may be attributable to the sugar tax.
Allcott et al. (2019) [113]	California and Berkeley (USA)	2016	Qualitative review	Excise (Specific)	SSB	Stimulated economic model	Volume	SSB taxes are not a complete cure to obesity epidemic but evidence

									suggests that the benefits of the tax do exceed the costs.
Sigaud (2019) [114]	USA	2016	Qualitative study	Excise (specific)	SSB	Synthetic difference-in-differences methods	Volume		The tax led to a 4.8% decline in all-cause mortality and prevents about 845 deaths per year in Philadelphia and San Francisco
Hattersley et al. (2020) [115]	Illinois and California (USA)		Qualitative evaluation study	Excise (Specific)	SSB	Literature review	Volume		This study contradicts SSB industry arguments against SSB tax. It identified increased government spending, economic growth, increase employment, and productivity gains.
Khan and Ahmad (2014) [116]	Pakistan	2023	Qualitative study	Excise (Ad valorem)	SSB	Primary and secondary data analysis	Sugar content		Increase in consumer income is positively associated to increase intake of SSB.
Sassi et al. (2018) [117]	Guatemala, Nicaragua, Panama, and Niger	2002, 2021, 2019, 2015	Qualitative study		SSB	Household expenditure surveys	Sugar content		Sugar tax imposes an unfair financial burden on the low-income households
Allen and Allen (2020) [118]	Australia	N/A	Qualitative review	N/A	SSB	Prices and tax paid on SSB	Sugar content		Manufacturers have responded positively by reducing sugar content in their beverages
Roach et al. (2019) [119]	USA	1933 (2012)	Qualitative study	Excise (Specific)	SSB	Households expenditure survey	Volume		Sugar tax reduces obesity rates and health-care costs in the USA

Source: (Enowkenwa, 2025; unpublished PhD).

4. Discussion

The governments of Germany, China, Australia, New Zealand and many other countries especially in Africa have not implemented a sugar tax. Instead, some countries have focused on beverage reformulation, product labeling, and restrict marketing of the beverages as a strategy to combat the consumption of excess sugar and rising obesity rates. In addition, our review of the literature found that sugar tax alone may not be effective in reducing the intake of SSB, but limiting container size, calories, and a ban of the marketing of SSB may sustainably reduce the intake of sugar especially in the African continent. Furthermore, some studies recommend the introduction of health education programs, dietary guidelines, and public awareness campaigns to reduce the intake of excess sugar. Studies in Australia and some jurisdictions reported that, 42% (95% CI = 0.38– 0.47) of the public supported the sugar tax as an effective strategy to reduce the intake of SSB, and 66% would approve the sugar tax strategy if the revenue generated was used to promote health initiatives.

Meanwhile, in New Zealand and some African countries, the evidence on the effectiveness of a sugar tax has mixed reactions. Beverage associations contend that sugar tax alone is ineffective in reducing the intake of the SSB, it will instead lead to unemployment in the SSB sector, especially in Africa. Instead, they opted for nutrition education, increased physical activity, and government subsidy on healthy beverages as alternative approaches instead of sugar tax. In addition, our review found that the argument by Saxena et al. (2019) [120] that eventhough sugar tax policy can regulate the prices and the intake of the SSB, policies aimed at reducing consumption by increasing prices, might impose an unfair financial burden on the low-income households, is gaining increasing interest in African studies on the effective and sustainable implementation of a sugar tax.

A review of the majority studies found that sugar tax does reduces purchases and intake of the beverages and is of potential benefit, especially to the lower-income groups. The intake of SSB decreased by 21% in Berkeley especially in the low-income neighbourhoods and increased by 4% in cities in the USA that did not implement a sugar tax. Meanwhile the intake of water increased more in Berkeley (+63%) when compared to other cities that did not implement a sugar tax (+19%; $P < .01$). Eventhough sugar tax has been criticised for its regressivity, in majority of the African studies, its health benefits to the low-income households is gaining momentum. In South African studies, our review indicated that the introduction of the tax led to a positive change in consumers' and manufacturers' behaviour. Manufacturers reformulated beverages with reduced sugar content and the increased prices led to decreased intake of consumers, especially from the lower-income households.

Our review of some simulation model studies indicates that, the productivity gains associated with a sugar tax are significant to the health care system. The results found that, the adoption of a sugar tax for social perspective provides a more comprehensive estimate of the cost-effectiveness of the tax. In Zambia, sugar tax was predicted to generate US\$5.46 million in tax revenue annually. The tax is likely to significantly decrease the intake of SSB and type 2 diabetes especially in women. The revenue from the tax could potentially contribute to healthcare financing in Zambia.

In Canada, as indicated by CTV News (18 June 2025) [121], the provinces of Newfoundland and Labrador implemented a 20% sugar tax in 2021, but was repealed on 1 July 2025. The analysis of Canadian studies predicted that the low-income group would benefit healthwise, even though a larger proportion of their income will be spent on sugar tax. Our analysis revealed that an absolute difference of \$5.30 per person per year between the middle- and highest-income households is justified by the magnitude of the health benefits associated with the sugar tax. Israel introduced a purchase tax on SSB in January 2022, on sugar content based, but repealed the tax in March 2023 after just over one year of its implementation. Our analysis found that a 10% decrease in purchases of high-sugar content beverages was observed in Isreal. According to Crosbie and Davis (2022) [122] and Lauber et al. (2022) [123], the repealed of the tax was motivated partly by the SSB manufacturers who seek to protect their profits by resisting efforts to shift consumers' intake behaviour toward healthier beverages alternatives. Our review indicated that, eventhough obesity was recognized as a public

health concern, the majority of public opinion did not view sugar tax as an effective strategy to reduce the intake of SSBs in some low-income economies including Africa.

Furthermore, we found that less empirical evidence exists in majority African studies to explore the sustainable impact and sustainability of the sugar tax. In Africa and some low-income countries, studies suggest that the taxation of sugar content in SSB is a preferred option as it protects the low-income households [124,125]. Studies for example by Fan et al. (2021) [126], suggested that subsidizing healthy beverages and investing sugar tax revenue into the production of healthier beverages alternatives could reduce the intake of SSB, obesity, and type 2 diabetes in Africa.

5. Findings from African Studies

From the analysis of sugar tax studies in Africa (Table 3), we found that the notion of public acceptance of the tax was neglected in majority of the studies. Limited studies have investigated the public awareness and opinion regarding the introduction of a sugar tax in Africa. In addition, the implementation of the tax was resisted by SSB associations for its potential regressivity and disproportionately affecting the low-income households. The opposite is true for developed economies and jurisdictions that have introduced sugar tax. There is evidence of public acceptance, especially when the tax revenue is earmarked for health promotion initiatives. There is evidence in the UK indicating that a total of 51.9% of the survey participants in a study accepted a 20% price increase on the SSB as appropriate to cause a decrease in intake. Numerous studies, especially in South Africa have called on the government to increase the current sugar tax rate and regulate the marketing of the SSBs. The restriction or ban of the marketing of the beverages in schools was encouraged by the WHO in order to reduce the excessive intake especially by school children.

The evaluation of the impact of the actual tax indicated a reduction in purchases and consumption, especially in South Africa. In addition, the low-income households reported significant decrease in intake of the SSB even though there are concerns of the unfairness of the tax as they spend more of their income on sugar tax. Unlike in majority of the other African countries, limited studies have reported on the impact of the sugar tax on consumption, consumer awareness, and the shift to the intake of alternative beverages.

Our review of price increase to encourage positive consumer behaviour towards SSB intake found decreases in consumption, especially from the low-income communities in South Africa. This finding is in accordance with many other studies which acknowledge that, even though price increases can be of a larger financial burden to the low-income households, these groups often realize greater reduction in the intake of SSB, leading to significant health benefits.

In response to the sugar tax, some beverage manufacturers have undertaken to produce alternative beverages with reduced sugar content. On the other hand, the review indicates that, these beverage manufacturers still manufacture (original brand) beverages high in sugar content which allows consumers to have a range of beverage choices at their disposal. Our review indicates that in South Africa, a growing number of consumers are beginning to consume the reformulated beverages, leading to a decrease in overall sugar intake. Besides South Africa, limited studies have reported on consumers' shift to the intake of alternative beverages for example reformulated beverages, pure water, and or fruit juice in Africa.

A number of studies have reported on the impact of the ban and or limited marketing of the SSB, but fewer simulation studies are conducted on the effectiveness of the tax, especially in African countries that have not yet introduced a sugar tax. Our review indicates that numerous simulation studies were conducted in majority countries of the rest of the world that have not introduced a sugar tax to determine its effectiveness and sustainability. These simulation studies examined the impact of disposable income, advertisement, increased prices, and public awareness on the intake of the SSBs.

Table 3. Evaluation of some studies conducted in Africa extracted from Table 2.

Author	Public acceptability of Sugar tax	Resistance from SSB association	Evaluation of actual sugar tax	Simulated study	Reduce marketing of SSB	Decreased intake of SSB	Significant price increase	Reformulation of SSB	Shift intake to alternative beverages
Van Wyk and Dlamini (2018)	x	x	x	x	x	x	✓	x	x
Yamoah et al. (2021)	x	✓	✓	x	✓	✓	✓	✓	✓
Mmbaya et al. (2020)	x	x	✓	x	✓	✓	✓	x	x
Stacey et al. (2019)	x	✓	✓	x	✓	✓	✓	✓	✓
Thow et al. (2021)	x	✓	✓	x	✓	✓	✓	✓	✓
Sassi et al. (2018)	x	✓	✓	x	x	✓	✓	x	x
Cawley et al. (2021)	Mixed reactions	✓	x	x	✓	Partially	✓	x	x
Hangoma et al. (2020)	x	x	x	x	x	✓	x	x	x
Essman et al. (2021)	Mixed reactions	✓	✓	x	x	✓	✓	✓	✓

Source: (Enowkenwa, 2025; unpublished PhD).

6. Conclusion

A significant decline in SSB sales and consumption was accompanied by revenue used for promotion of healthy life style found in developed nations that have implemented the sugar tax. In Africa, the persuasive marketing strategies of unhealthy SSB is in breach of the South African Marketing to Children and therefore indicates a failure of the industry self-regulation system. In some sub-Saharan African countries for example Kenya, Zambia, Rwanda, Tanzania, and Uganda taxes on SSB varied in rate and tax base. The implementation of sugar tax in some African countries was motivated largely by revenue generation rather than health improvement. The over-consumption of SSB in some African countries was associated to strong cultural and religious beliefs. In majority African countries, there is general concern that the introduction of a sugar tax will face challenges of sustainability, effective policy enactment, and economic growth. For sugar tax to be effective, it requires positive public opinion, acceptability, and the promotion of public health in Africa.

7. Recommendations

Much is still desired to attain a sustainable decline in intake of SSB in majority African countries, other low-income countries, and other world countries that have repealed and or have not introduced a sugar tax. We suggest that African countries and jurisdictions that have not implemented a sugar tax to consider the option of reducing the container size, amount of calories, and a ban on the marketing of the SSB. The suggested options together with the introduction of a sugar tax could effectively lead to sustainable decline in sugar intake and obesity rates, especially in low-income countries.

Policymakers and sugar tax advocates should demonstrate that the introduction of a sugar tax is not an economic sanction on the manufacturers of the SSB or an attack on the low-income consumers, but a means to promote the health of individuals. For health equity purposes, the reformulation of SSB by manufacturers should occur globally. The low- and middle- income countries have been targeted as emerging markets for SSBs. Governments and proponents of sugar tax should tackle the economic, social, and informational drivers of SSB consumption, to improve food environments and the public's health sector.

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