



REVIEW

Impact of tobacco industry pricing and marketing strategy on brand choice, loyalty and cessation in global south countries: a systematic review

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Abstract

Objectives We undertook this review to assess the impact of pricing strategies on brand choice, loyalty and quitting behaviour in Global South countries.

Methods We systematically retrieved articles from Medline, CENTRAL, ScienceDirect, Google Scholar from inception up to January 2020. Studies which reported tobacco industry's pricing strategies were eligible. We summarized the data as themes and codes using the principles of inductive qualitative thematic analysis within structured rational constructivist framework.

Results In total, 13 studies met inclusion criteria were included. Major strategies adopted by tobacco industries to tackle the pricing and taxation changes were increased tax absorption, differential taxation based on price, cigarette length/size which ensures modest increase in the net price of cigarettes. This in turn influences the tobacco users in terms of brand loyalty and switching as they prefer to stay with factory-made cigarettes or shift to a cheaper alternative or illegal product rather than decreasing/quitting tobacco use.

Conclusions Absorption of excise tax and differential taxation are the common pricing strategies adopted by tobacco industries in Global South. These strategies together with external determinants impact the price-related tobacco control interventions.

Keywords Brand loyalty · Pricing strategy · Systematic review · Taxes · Tobacco control · Tobacco industry

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Introduction

Tobacco use is one of the leading causes of death worldwide, killing more than 7 million people each year (World Health Organization 2017). World Health Organization (WHO) reported that 22% of the world's population aged more than 15 years are smokers (World Health Organization 2016). African, American and South East Asian region (SEAR) under the Global South contribute to majority of this tobacco burden (World Health Organization 2016). To counter the globalization of this tobacco epidemic, WHO Framework Convention for Tobacco control (FCTC) was developed (World Health Organization 2015). To make this a reality, WHO has proposed the MPOWER strategy, in which each of the strategy corresponds to one or more of articles in the FCTC (World Health Organization 2013). The six components in MPOWER (monitoring use, protecting people from tobacco smoke, offering help, warning, enforce bans and raise taxes) help in reducing the country-

Table 1 Characteristics of the studies included ($N = 13$)

| First author and year | Country | Study design | Sample size | WHO region | World bank income group countries | Participants' age | Outcome measured |
|-------------------------------|--------------|--|------------------|------------|-----------------------------------|---------------------------------------|--|
| Curti et al. (2015) | Uruguay | International Tobacco Control Uruguay Survey data (2006, 2008, 2010 and 2012) | 1400 | PAHO | High | 18 years and above | Association between relative prices between three cigarette forms (manufactured legal, manufactured illegal, and RYO cigarettes) and the choice of one form over another |
| Curti et al. (2019) | Uruguay | International Tobacco Control Uruguay Survey data (2008, 2010, 2012 and 2014) | 1428 | PAHO | High | 18 years and above | Comparison between different geographical location on outcome (switch from legal to illegal tobacco) |
| Huang et al. (2014) | China | International Tobacco Control China Survey | 13,000 | WPR | Upper middle-income | Adults 18 years and above | Purchase behaviours, cigarette prices, and cigarette consumption. |
| Miera Juárez et al. (2014) | Mexico | International Tobacco Control Survey (waves 3, 4 and 5) 2008, 2010, 2011 | 4721 | PAH | Upper middle-income | Adults 18 years and above | (1) Change in cigarette price specially to test for differential pricing of single vs pack and national versus international brands, (2) the extent of brand switching, and (3) predictors of preference for national brands |
| Li et al. (2015) | China | International Tobacco Control China Survey (2006–2009) 3 waves | 3477 | WPR | Upper middle-income | Adults 18 years and above | Smokers' brand-switching behaviour over time |
| Li et al. (2010) | China | International Tobacco Control China survey (Baseline 2006) | 4815 | WPR | Upper middle-income | Adults 18 years and above | Proportion reported buying less expensive cigarettes and factors associated with it |
| Saenz-de-Miera et al. (2010) | Mexico | International Tobacco Control Policy evaluation Survey (2006–2007) | 1079 | PAHO | Upper middle-income | Adults 18 years and above | Self-reported price of last cigarette purchase, place of last purchase, preferred brand, daily consumption and quit behaviour were assessed at baseline and follow-up |
| Nargis (2019) | Bangladesh | International Tobacco Control Bangladesh Wave 3 Survey 2011–2012 and Wave 4 Survey 2014–2015 | 350 retailers | SEAR | Lower middle-income | Retail store owners that sell tobacco | Market retail prices and recommended retail prices were obtained by ITC survey of retailers and national board of Revenue |
| Stoklosa et al. (2019) | Zambia | International Tobacco Control Zambia Survey (2012–2014) | 3740 individuals | AFR | Lower middle-income | Adult tobacco users (> 18 years) | Impact of cigarette prices on cigarette use |
| Salloum et al. (2015) | Zambia | International Tobacco Control Zambia Survey (2012) | 1219 users | AFR | Lower middle-income | Adult cigarette smokers | Predictors of brand loyalty and reasons for brand choice |
| Berthet Valdois et al. (2019) | Mauritius | Secondary data sources | NA | AFR | Upper middle-income | – | Comparison of retail price and tax by price category of cigarettes |
| Van Walbeek (2006) | South Africa | Secondary data sources | NA | AFR | Upper middle-income | – | Industry response to the tobacco excise tax increase |
| White et al. (2014) | China | International Tobacco Control China survey (2006–2009) | 3477 smokers | WPR | Upper middle-income | Adults 18 years and above | Relationship between price and brand choice |

AFR African region, PAHO Pan American Health Organization, SEAR South East Asian Region, WPR Western Pacific Region NA not applicable

level demand of tobacco products. Effective implementation of these strategies can help in curbing the tobacco burden among these high burden Global South countries.

Among these measures, raise in prices and taxes of tobacco products is seen as one of the most effective policy levers among the tobacco control measures (Chaloupka et al. 2011; Ross et al. 2011; US Department of Health and Human Services 2014). However, these measures are not found to be equally effective in all the global south countries. The effectiveness of increased tobacco taxation can be largely affected by the pricing strategy adopted (Szilágyi and Chapman 2003).

Tobacco industries constantly try to counter the raise in the prices through various tactics like lobbying (Van Walbeek 2000). In addition, several political barriers exist within these global south countries resulting in wide geographical variation in the price and tax structure proposed for tobacco products. Apart from these barriers, tobacco industries also try to absorb a significant part of this tax increase without passing it on to the consumers. This is to influence the choice and loyalty of the consumers to stick to their respective brands.

Though narrative or traditional reviews are available on the efforts made by tobacco industries in tackling several measures adopted to control tobacco use (Gilmore 2012; Szilágyi and Chapman 2003), a systematic evidence on the strategies adopted by tobacco industries in countering the price and taxation measures and its impact on brand choice and loyalty among the global south countries is lacking. Understanding these strategies will help in developing appropriate counter measures and take a big step in progressing towards ending the tobacco epidemic. Hence, the current review was conducted to assess various pricing strategies adopted by tobacco industries and its impact on brand choice, brand loyalty and quitting behaviour among tobacco users in Global South.

Methods

Inclusion criteria for studies considered for the review

Type of studies

We included empirical studies (qualitative and quantitative) focussing on the pricing strategies adopted by tobacco industries in Global South (all the Asian countries except Singapore, Hong Kong, South Korea, Macau, Taiwan and Japan, South American and Central American countries, African countries, Mexico, and the Middle Eastern countries except Israel). We included studies reported as full

text, while studies published with only abstract or unpublished data were excluded.

Type of participants

For assessing the brand choice and loyalty, we included studies conducted among tobacco users.

Type of intervention and outcome

We included the studies discussing any tobacco pricing strategies adopted by the industries or seeing the effect of any strategies on brand choice, loyalty and quitting behaviour among tobacco users in Global South.

Search strategy

We conducted extensive electronic search in databases such as Medline, Cochrane Central Register of Controlled Trials (CENTRAL) and search engines like ScienceDirect and Google Scholar and clinical trial registries like ClinicalTrials.gov and WHO International Clinical Trials Registry Platform. Combination of medical subject heading (MeSH) and free text terms were used for carrying out literature search. The following MeSH terms and free text terms were used in PubMed search engine in various combinations: “Tobacco”, “Tobacco Tax”, “Taxation”, “Excise Taxes”, “Prices”, “Pricing Strategy”, “Brand Choice” “Brand Loyalty”, “Tobacco Industry”, “Global South”, “Tobacco Use”, “Tobacco Products”, “Costs” and “Costs Analysis”. Similar terms were used in CENTRAL, ScienceDirect, Google scholar and Trial Registries for literature search of published studies. Search was conducted in all the databases from inception of database (January 1964) to January 2020 published in English language.

Searching other resources

We also hand searched for information from referring papers of primary trials obtained through electronic search and relevant articles were included in the review and analysis.

Selection of studies

Two independent authors (YK and MGM) independently performed literature search and screened the title, abstract and keywords of all the studies identified for possible inclusion in the review. Full text articles were obtained for those studies that are found to be relevant. Further screening of abstract and full text of the retrieved articles were done independently by primary and secondary author

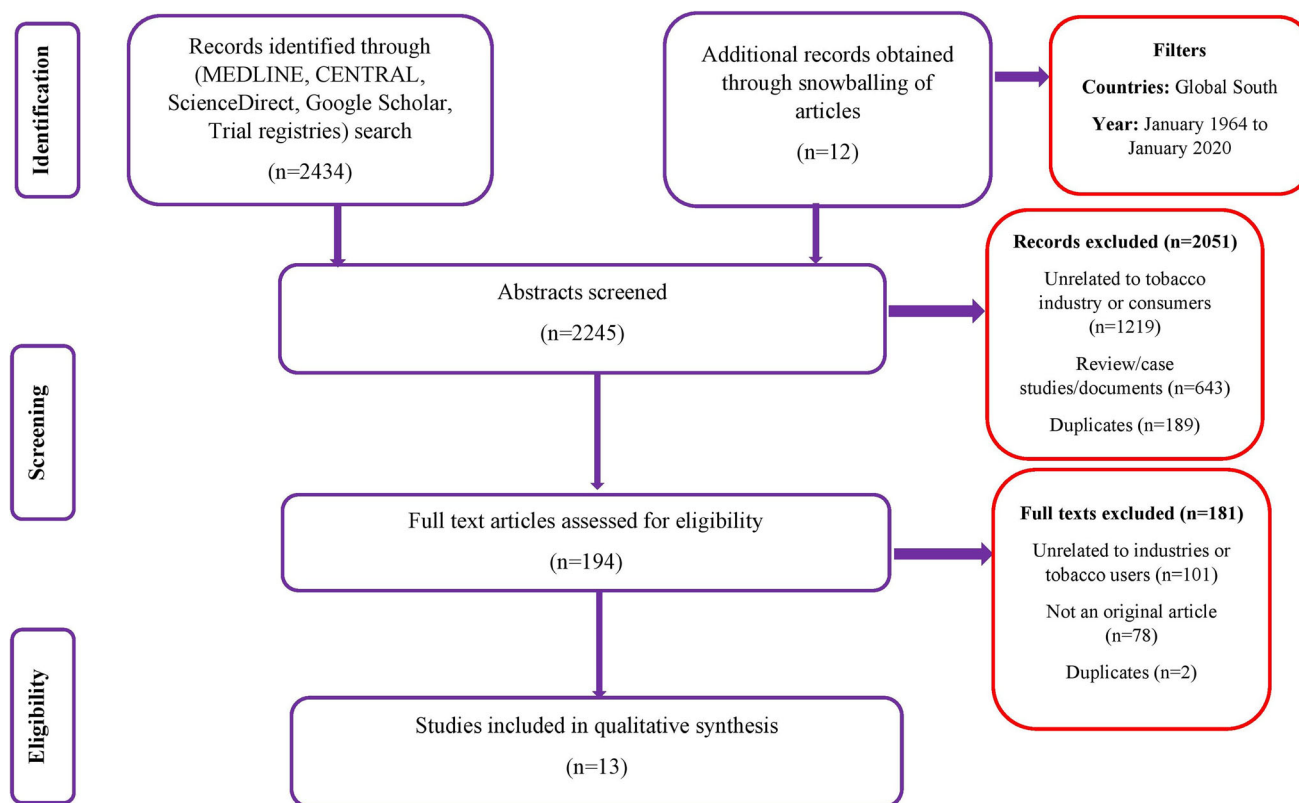


Fig. 1 Flowchart showing the search strategy and selection of studies

(YK, MGM) to select the studies which satisfy the eligibility criteria of the current review. Any disagreements during the entire selection process between two authors were resolved either through consensus or consultation with the third author (SM). Quality of the overall review process was monitored by the third author (SM).

Data extraction and management

Secondary author (MGM) extracted the relevant study characteristics for the review from the included studies using the Cochrane Public Health group Data extraction and Assessment Template. Following data were extracted:

1. General information: Date of extraction, study title and authors.
2. In Methods section: study design, participants and study setting.
3. In Participants section: Total number of participants in each arm, mean age of the participants, baseline and end line outcome measures, and inclusion, exclusion criteria.
4. In Outcome section: primary outcomes captured in the study and other details required for assessment of risk of bias among the included studies.

Risk of bias assessment in included studies

Two independent investigators (YK and TR) assessed the risk of bias for included studies using Newcastle–Ottawa scale as some of the included studies were observational studies (Peterson et al. 2011). Two criteria (selection and outcome) were used to assess the risk of bias. Following domains were used for assessing the risk of bias under selection criteria: representativeness of the sample, justification of sample size, rate of non-respondents and their characteristics and use of validated measurement tool. Under Outcome criteria, assessment of outcome through independent blind assessment or record linkage and statistical test employed was used to assess the risk of bias. Each of these outcomes will be rated as high (1 point) or low (0 points) based on the quality of evidence and availability of information. Studies scoring more than or equal to 3 points were considered to have high risk of bias.

Data synthesis

Given the wide heterogeneity in the outcomes assessed among the included studies, meta-analysis was not possible and qualitative summary of the study findings is presented in our review. Frequency measures were calculated for the pricing strategies, geographical locations in which

Table 2 Risk of bias assessment of the included studies ($N = 13$)

| Study | Representativeness | Sample size justification | Non-response | Validated measurement tool | Assessment of outcome | Statistical tests |
|-------------------------------|--------------------|---------------------------|----------------|----------------------------|-----------------------|-------------------|
| Curti et al. (2015) | Low | High | High | High | Low | Low |
| Curti et al. (2019) | Low | High | High | High | Low | Low |
| Huang et al. (2014) | Low | High | High | High | Low | Low |
| Miera Juárez et al. (2014) | Low | High | Low | Unclear | Low | Low |
| Li et al. (2015) | Low | High | High | High | Low | Unclear |
| Li et al. (2010) | Low | High | High | High | Low | Low |
| Saenz-de-Miera et al. (2010) | Low | High | High | Unclear | Low | Unclear |
| Nargis (2019) | Low | High | High | High | Low | Low |
| Stoklosa et al. (2019) | Low | High | High | High | Unclear | Unclear |
| Salloum et al. (2015) | Low | High | High | High | Low | Unclear |
| Berthet Valdois et al. (2019) | Low | Not applicable | Not applicable | High | Unclear | Low |
| Van Walbeek (2006) | Low | Not applicable | Not applicable | High | Unclear | Low |
| White et al. (2014) | Low | High | High | High | Low | Low |

strategies are adopted, brand choice and loyalty. We then summarized the key data as themes and codes using the principles of inductive qualitative thematic analysis (Patton 2002).

Though this analysis offers a structured framework to understand the data, it has few theoretical constraints and is prone to produce unreliable findings due to dearth of theoretical coherence (between and within the constructed themes) that needs to be addressed (Braun and Clarke 2006; Nowell et al. 2017). Hence, we conceptualized pricing strategies within a rational constructivist framework (Moshman 2003). Hence, this analysis qualitatively identifies and describes the key pricing strategies adopted by tobacco industries and identifies how these strategies influence the brand choice and loyalty among tobacco users in global south.

We adopted an analytical tool using the Attride–Stirling’s thematic networks approach for identification of relevant themes and patterns (Attride–Stirling 2001). Using this method, two independent authors (YK and MGM) constructed the coding frameworks by analysing articles and coding the text data using iterative constant comparison process. Following this process, themes were developed by reviewing the coded text and then arranging these texts into global themes. Finally, we developed a visual framework showing the interrelation between these themes for making analytical insights.

Results

Study selection

We conducted a systematic search to find studies that assessed the pricing strategies adopted by tobacco industries and impact of such strategies on brand choice and loyalty from the dates of database inception until September 2019. We identified a total of 2434 records, 1231 studies from Medline, 564 from ScienceDirect, 267 from CENTRAL, 344 from Google Scholar, 19 from ClinicalTrials.gov and 9 from WHO ICTRP (Fig. 1). After the first screening stage (title, abstract and keywords), we retrieved relevant studies. We reviewed their full texts for eligibility criteria. At the same, we reviewed the bibliographies of the retrieved articles and found six more relevant studies. Finally, we included 13 studies satisfying the inclusion criteria (Curti et al. 2015, 2019; Huang et al. 2014; de Miera Juárez et al. 2014; Li et al. 2010, 2015; Saenz-de-Miera et al. 2010; Nargis et al. 2020; Stoklosa et al. 2019; Salloum et al. 2015; Berthet Valdois et al. 2019; Van Walbeek 2006; White et al. 2014).

Characteristics of the included studies

Table 1 shows the relevant characteristics of the studies included. The majority of the included studies were conducted in Asian countries like China and African countries like Zambia and South Africa. Most of these studies used

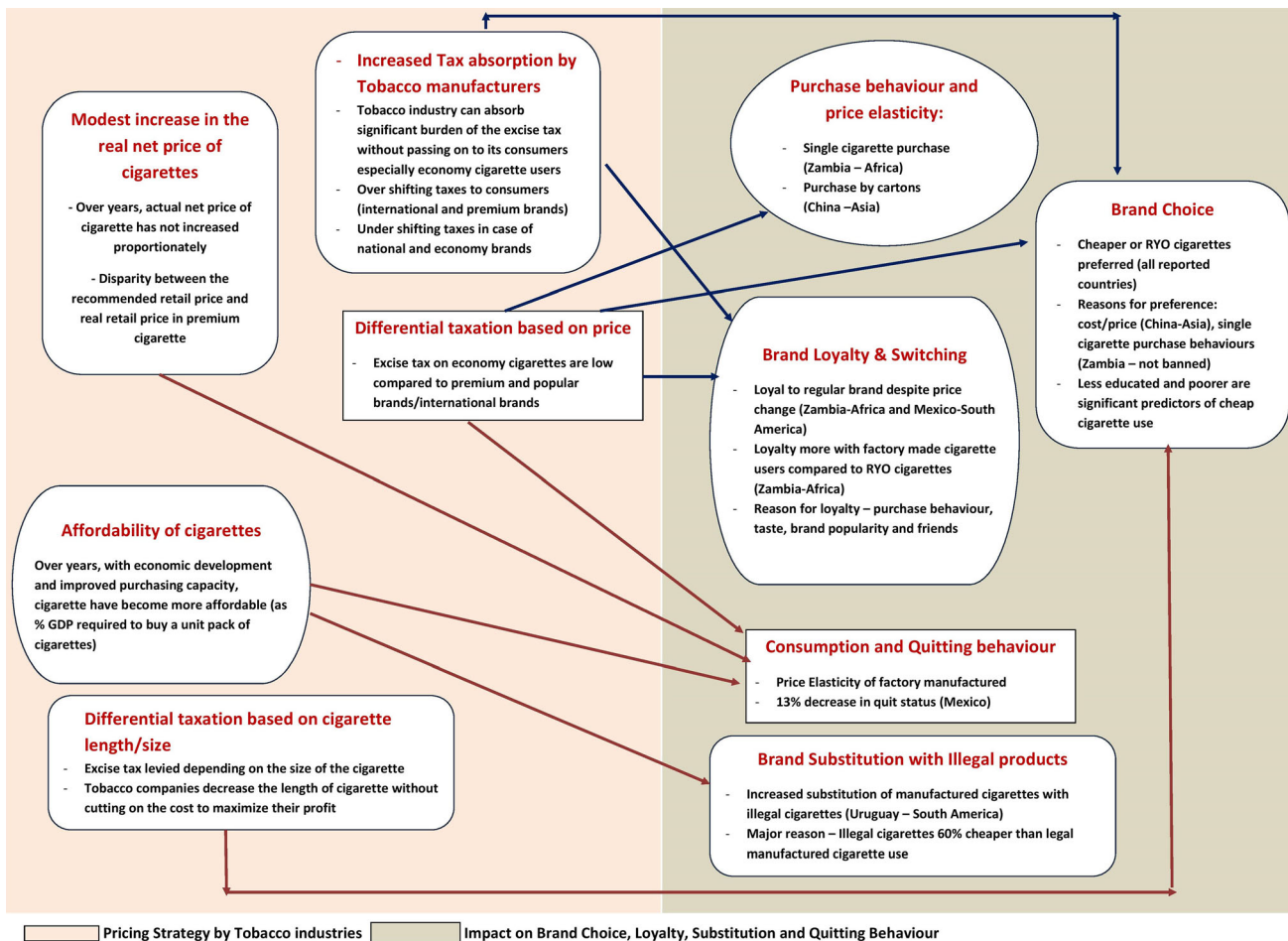


Fig. 2 Conceptual framework for various strategies adopted by tobacco industries and consumers in response to pricing and tax changes

data from International Tobacco Control (ITC) survey to conduct their study. All the studies were conducted among adult tobacco users. Among the 13 studies, 9 reported on impact of tobacco pricing on brand choice, loyalty and substitution among tobacco consumers, 3 studies reported on strategies adopted by industries in response to tax and price changes, and one study reported on both the aspects.

Risk of bias assessment

Risk of bias assessment of included studies is depicted in Table 2. All the studies had low risk of bias with respect to representativeness of the sample, while the majority of the studies had high risk of bias with respect to sample size justification, non-response and use of validated measurement tool. All the studies had either low risk or unclear risk of bias with respect to outcome assessment and statistical tests employed. Overall, 9 out of 13 (69%) studies had high risk of bias.

Pricing strategies adopted by tobacco industries and its impact on brand choice, loyalty and quitting in Global South

Figure 2 shows the conceptual framework made for reporting the various strategies adopted by tobacco industries and consumers. We also tried to interlink these strategies in order to determine the impact of the strategies adopted by industries on the individual tobacco smokers.

Strategies adopted by tobacco industries

A number of strategies have been employed by the tobacco industries in order to sustain their consumer base while maximizing their profits. Article 6 under the WHO Framework Convention on Tobacco Control emphasizes that Tobacco taxation is a means of not only an important source of revenue for the states but also reduce the tobacco consumption, especially among low-income groups. Observations from South Africa (Van Walbeek 2006) have shown that tobacco consumption decreased following

substantial increase in tobacco price during 1990s. However, there is only modest increase in retail price of cigarettes following 2000. Even despite sharp decrease in the prevalence of cigarette users in 1990, the tobacco companies had maximized their profit by adopting a higher net price of cigarettes.

Tobacco companies adopt a differential pricing strategy for different cost tiers of cigarette products. This finding was also observed in the evidence from ITC surveys in Mexico (Miera Juárez et al. 2014), wherein increased taxation on cigarettes is reflected only on international/premium brands rather than national/discounted branded. The effect of increased taxation is masked and delayed for the cigarettes in the economy tier thereby having little influence on the prevalence of cigarette smoking.

The tobacco industry can maximize profit both from increasing the profit per unit for higher-priced brands and expanding the market size of cheaper brands even at lower prices (Nargis et al. 2020). Differential pricing strategy adopted by tobacco industries has led to consumers switching to cheaper alternate brands rather than decreasing tobacco consumption. The tobacco industries are able to absorb considerable amount of tax increase without passing on the effect to its consumers. However, this is true only for cigarettes in lower cost tiers. A study done in Mauritius (Berthet Valdois et al. 2019) has revealed that the net price of cheaper cigarettes decreased by 14% despite increase in the taxation. However, this is compensated by over shifting the tax burden to the users of premium and popular cigarettes.

Elasticity in tobacco consumption

The price elasticity is determined by the extent of decrease in the use of a particular cigarette relative to the unit increase in the cost of that product. Cigarette price elasticity was more among factory-made cigarettes compared to locally made cigarettes (Stoklosa et al. 2019). Thus, increase in price of locally made cigarettes had little influence in the consumption patterns of such cigarettes. Relative price inelasticity coupled with low retail price of locally made cigarettes is key for tobacco industries to sustain their consumer base.

Strategies adopted by tobacco users

Ten studies have reported on tobacco consumer's response and behaviours in response to price changes. The outcomes were reported in terms of brand choice, loyalty, purchase behaviours and substitution with cheaper or illegal products.

Brand choice, loyalty, purchase behaviours and substitution with illegal products

All the ten studies reported on the influence of price changes on tobacco user's brand substitution to cheaper products. Brand choice, loyalty and purchase behaviours differed significantly across the different geographical regions.

Brand choice

First, related to brand choice, studies done in China (White et al. 2014; Li et al. 2010, 2015) reported that the greater number of smokers tends to prefer cheaper form of manufactured cigarettes or RYO cigarettes for their regular use. This change was seen as a result of increase in price and taxes with both national and international brands of tobacco products in all these countries. Smokers who are less educated and belonging to poorer socio-economic status were significant predictors for the use of cheaper or RYO cigarettes use. Reason for the brand choice varied across the countries as the major reason reported by smokers in China (Huang et al. 2014; Li et al. 2010) for using their regular brand was cost/price of products while in countries like Zambia (Salloum et al. 2015), major reasons was the purchase behaviours.

Brand loyalty and switching to cheaper or roll-your-own cigarettes

Salloum et al. (2015) dealt with the brand choice and loyalty in Zambia and found that the factory-made (FM) tobacco users have more brand loyalty compared to the roll-your-own (RYO) cigarette or combination of FM and RYO cigarettes users. On further exploration of factors responsible for such brand choice and loyalty, the study found that single cigarette purchase type was more prevalent among FM users (not banned in Zambia) compared to combination users. Taste of products, brand popularity and the brand used by friends are the other important and influencing factors for brand loyalty. However, both types of users were less likely to be loyal to the brands for more than 1 year after price and tax changes. The study done in Mexico (Saenz-de-Miera et al. 2010) also reported that the Mexican smokers tend to remain more loyal to their regular brands. They tend to reduce their consumption or quit the behaviour in response to price or tax changes. However, studies done in China (Li et al. 2010, 2015; Stoklosa et al. 2019) showed that more tobacco users tend to switch their brand into cheaper or RYO cigarettes in response to price or tax changes.

Purchase behaviours

Purchase behaviours also showed significant geographical variation as the smokers in African countries like Zambia (Salloum et al. 2015) reported that their most recent purchase behaviour to be single cigarette while smokers in Asian countries like China (Miera Juárez et al. 2014) reported buying cartons in their recent purchase of tobacco products.

Quitting behaviour

Quitting behaviour also varied across the different countries. Li et al. (2010) reported that the increase in retail price of tobacco might influence the consumers to develop an intention to quit the habit in China. Education and socio-economic status also played a significant role in the same. However, Van Walbeek (2006) study in South Africa reported that almost one-third of tobacco consumers had quit the habit following the change in tobacco pricing and taxation.

Brand Substitution with illegal products

Curti et al. (2015) and (2019) dealt mainly with the illegal cigarette supply in response to tobacco control measures mainly increase in the tobacco excise taxes in Uruguay. It was found that the increase in price and taxes of manufactured legal cigarettes increases the use of manufactured illegal cigarettes. Major factor responsible for such change was that price of illegal cigarettes was 60% cheaper than that of manufactured legal products. Other determinants influencing the change were geographical location of cities (i.e. people living near the border tend to switch more to illegal products), female gender, effectiveness of tobacco control measures and the distribution networks.

Discussion

Taxation and pricing-related policies taken by the countries are undermined by the various strategies adopted by the tobacco industries. This in turn influences the tobacco consumer's behaviours and makes it even tougher to curb the burden of tobacco use (especially among the lower middle-income countries in Global South). Hence, the knowledge about the response of tobacco industries to price-related changes is important, as it helps the policy-makers to counter attack those strategies and pave way towards ending the tobacco epidemic in Global South region. This review is an evidence-based approach to obtain a comprehensive data on the strategies adopted and

its influence on consumer's tobacco smoking behaviour in Global South.

We included 13 studies in our review in which 3 studies reported on the strategies adopted by tobacco industries in response to pricing changes, 9 studies reported on the smoker's behaviour in relation to brand choice, loyalty, switching, purchasing and quitting behaviour and one study reported on both the aspects. The majority of the included studies were from the American and African region, and data were obtained from ITC survey for most of these studies.

First, on assessment of strategies adopted by tobacco industries for price changes, we found that the majority of the industries in Global South opt for absorbing significant burden of excise tax without passing on to its consumers or putting differential taxation based on brand, cigarette size especially for economy cigarette users (Miera Juárez et al. 2014; Berthet Valdois et al. (2019). This automatically shifts the cost burden to the high socio-economic class people who use international or premium brands (Nargis et al. 2020). This makes the tobacco consumers, especially those in the lower socio-economic group, to choose that particular brand or avoid switching to other cheaper forms. Hence, the very intent of price and tax changes, i.e. swaying the tobacco users to quit or at least develop an intention to quit, is overthrown.

In addition to the industry's effort to retain the tobacco users, certain external factors also play a major role. Major external factor is the affordability of the individuals over the years in Global South region. With the economic development and improved purchasing capacity, the price changes are not in line to influence the individuals to quit the tobacco use. Tobacco industries use this as an advantage during their lobbying for minimal tax increase in their products. Another important factor is the habit of providing single cigarettes in the local shops (Saenz-de-Miera et al. 2010). The people who cannot afford to pay for full pack can easily get a single cigarette in a local shop. Hence, frequency of consumption might decrease with this behaviour without influencing anything regard to quitting behaviour. External peer pressure, friend's behaviour and taste of tobacco products are certain other factors used by tobacco industries to their advantage to retain the tobacco consumers market (Salloum et al. 2015).

Apart from these measures, tobacco consumers, especially in Uruguay, have reported that they resort to illegal tobacco products in place of factory manufactured products as it is almost 60% cheaper (Curti et al. 2015, 2019). This kind of behaviour is seen especially among those in border cities, females and places with weak tobacco control measures. All these internal and external factors make the tobacco consumers to be loyal to their brand of choice or switch to cheaper or illegal tobacco products. This

significantly affects the quitting behaviour among tobacco users, which is the ultimate reason for raising tobacco taxation. Hence, addressing these strategies adopted by both tobacco industries and consumers are equally important to curb the tobacco use.

This study has certain strengths. Till now, this is the first comprehensive study to generate evidence-based findings on strategies adopted by industries and consumers in response to pricing and tax changes among the Global South countries. We also assessed the interrelation and impact of industry's effort on tobacco consumers in the form of conceptual framework. However, there are certain limitations in our review. First, we cannot perform meta-analysis and obtain a pooled estimate because of the nature of the outcomes assessed. There is lack of representation of countries in South East Asian region like India among the studies included in our review as they contribute to major chunk of tobacco consumers in the Global South.

In spite of these limitations, the current study has several implications. This will help the policymakers to stay one step ahead of the tobacco industries, as and when they try to nullify the efforts of government in reducing the tobacco prevalence through price-related interventions. The current study also tells the behavioural changes among tobacco consumers in response to these interventions, so that the government can take this also into account before implementing or updating the tobacco-related legislations or policies. However, further extensive research among countries in Global South with high burden of tobacco use and strategies adopted by industries and consumers should be studied in detail. This will enable us to stay in line with our ambitious mission of ending the global tobacco epidemic.

Conclusion

Absorption of significant burden of excise tax without passing on to customers and differential taxation are the common pricing strategies used by tobacco industries in Global South. These strategies, in addition to external factors such as single cigarette purchase, peer pressure and taste of tobacco products, make the tobacco consumers to stick with their brand choice or switch to cheaper options or illegal products. This ultimately affects the quitting behaviour, the main aim of tobacco pricing and taxation policies.

Author contributions YK was involved in conceptualization, data curation, formal analysis, investigation, methodology, project administration, resources, software, supervision, validation, visualization, writing—original draft and writing—review and editing. MGM was involved in data curation, formal analysis, investigation, methodology, project administration, software, supervision,

validation, visualization and writing—review and editing. SM was involved in data curation, formal analysis, methodology, resources, software, visualization and writing—review and editing.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflicts of interest.

Ethical approval Not required.

Informed consent Not applicable.

Human and animal rights Not applicable.

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