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Product-Related Determinants of Illegal Cigarette Purchase Decisions in Malaysia: The Mediating Role of Emotional Responses

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ABSTRACT

In Malaysia, the illegal use of cigarettes has been a continuing health, economic, and regulatory issue troubling the population since the continued initiative of enforcement and repetitive tobacco excise duty increments. Most of the studies that are in existence attribute this phenomenon to rational reasons like price differentials and accessibility, but these reasons are not enough to explain why consumers still consume it. Based on Emotional Theory and Stimulus-Organism-Response (SOR) model, this conceptual paper presents an integrative model where social influence, perceived price and perceived knowledge are used as external stimulus to shape consumers emotional response, which subsequently affect illegal purchase of cigarettes. The research broadens consumer behaviour theory by putting more focus on affective mechanisms instead of structural ones, leading to the importance of demand-reduction policies of emotional and social orientation.

1. Introduction

Smoking is a big social, financial, and official issue in Malaysia. Despite a general decrease in smoking prevalence, illegal cigarettes are still dominating the market, taking over over half of the total consumption over the last few years [10,29]. Even after the frequent increases in excise tax, increased enforcement, and even the campaigns on ill health, illicit trade still continues. This phenomenon, according to existing literature, is mostly due to the economic and structural forces like price differentials and availability of supply [31,43]. The attributes associated with products, however, can also be used to maintain demand. Based on the Emotional Theory and the Stimulus-Organism-Response (SOR) paradigm, this conceptual article hypothesizes that the emotional reactions to product quality, product availability and brand awareness determine illegal cigarette buying behaviour.

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The data in Figure 1 demonstrate how the illegal cigarettes are still dominant in the Malaysian states, with May 2025 as a benchmark against March 2025. On the national level, 54.5 percent of total consumption of cigarettes is composed of illegal cigarettes, which means that over half of cigarettes smoked are illegal. Even though this indicates a relatively small decrease of 0.1 percentage points between March 2025 and March 2026, the fact that the whole country is improving is hiding a significant change by state and product line. The fact that such a high incidence prevails is a testimony to the entrenched nature of the illicit market in spite of enforcement and fiscal policies.

Illegal Cigarettes Incidence By State :

9 States recording an increase vs. Mar 2025

	A May, 2025				B Mar, 2025				A minus B Variance (May'2025 vs. Mar'2025)				Volume Contribution %
	Total Illegal	Fake Tax Stamp	Smuggled Whites	Smuggled Kretek	Total Illegal	Fake Tax Stamp	Smuggled Whites	Smuggled Kretek	Total Illegal	Fake Tax Stamp	Smuggled Whites	Smuggled Kretek	
Johor	50.7	32.4	154	29	52.0	35.3	14.9	1.8	-1.3	-2.9	+0.5	+1.1	18%
Selangor	43.8	6.7	23.3	13.8	44.2	6.3	25.2	12.7	-0.4	+0.4	-1.9	+1.1	15%
Pahang	77.8	18.9	52.8	6.1	77.5	28.8	39.6	9.1	+0.3	-9.9	+13.2	-3.0	12%
Sabah	77.2	0.0	75.8	1.4	77.6	0.0	75.6	2.0	-0.4	0.0	+0.2	-0.6	11%
Sarawak	78.3	0.0	67.7	10.6	78.0	0.1	67.1	10.8	+0.3	-0.1	+0.6	-0.2	10%
WP KL	39.6	3.3	24.6	11.7	39.8	2.9	25.2	11.7	-0.2	+0.4	-0.6	0.0	7%
Melaka	61.9	41.3	17.7	2.9	61.2	38.1	21.9	1.2	+0.7	+3.2	-4.2	+1.7	5%
Penang	44.8	14.7	27.8	2.3	44.4	12.7	28.7	3.0	+0.4	+2.0	-0.9	-0.7	5%
Terengganu	71.7	35.4	33.1	3.2	69.9	26.2	39.8	3.9	+1.8	+9.2	-6.7	-0.7	4%
Kedah	54.9	15.9	33.5	5.5	52.6	19.2	27.5	5.9	+2.3	-3.3	+6.0	-0.4	4%
Kelantan	61.4	9.0	49.9	2.5	58.8	5.1	51.0	2.7	+2.6	+3.9	-1.1	-0.2	4%
N.Sembilan	38.7	21.4	14.2	3.1	40.0	20.1	18.1	1.8	-1.3	+1.3	-3.9	+1.3	3%
Perak	27.8	12.3	15.1	0.4	33.5	13.8	18.9	0.8	-5.7	-1.5	-3.8	-0.4	2%
Perlis	52.6	7.4	36.7	8.5	57.2	20.6	28.4	8.2	-4.6	-13.2	+8.3	+0.3	1%
WP Labuan	68.4	0.0	66.8	1.6	67.4	0.0	63.4	4.0	+1.0	0.0	+3.4	-2.4	0%**
WP Putrajaya	35.6	0.0	18.2	17.4	35.0	2.3	19.9	12.8	+0.6	-2.3	-1.7	+4.6	0%**
National Incidence	54.5	15.6	32.5	6.4	54.6	16.7	31.7	6.2	-0.1	-1.1	+0.8	+0.2	100%

NIQ

0.0%** Incidence is less than 0.1%; figure is too small to feature.

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Sources: (ICS) May 2024 Report

Fig. 1. Illegal Cigarettes Incidents by state (ICS) May 2024 report

Inequality in geography is still acute. The highest illicit penetration is registered in East Malaysian states and territories that are sensitive to the border. The highest incidence rates are always witnessed in Sabah (77.2%), Sarawak (78.3%), and in the Federal Territory of Labuan (68.4%). The patterns are indicators of structural weaknesses in the past such as long coastline, open borders, and logistical drawbacks, which limit the effectiveness of enforcement. Smuggles of white cigarettes still prevail in these areas, which implies powerful and durable supply-side networks.

In Malaysia (Peninsular), the trend is not so homogenous but no less alarming. Other States like Pahang (77.8%), Terengganu (71.7%), and Kelantan (61.4%) have a similar level of illicit incidence as East Malaysia. It implies that the illegal use of cigarettes is not limited to the border areas but is supported by the well-organized internal distribution networks. The data also indicate that nine states recorded increases in illicit incidence in the period between March and May 2025 even though the national incidence declined marginally. It is worth noting that significant increases were registered in Kedah, Kelantan, Terengganu and Pahang, but these increases were mainly due to change in product composition, and minimal due to increase in the volume of smuggling. The substitution effects are evident, in that the increased crackdown on smuggled whites was also accompanied by an increase in faked tax-stamp goods. This adaptive behaviour indicates how the market of illicit operators is flexible and the elastic consumer demand in the illegal cigarette market is lasting.

1.1 Significance, Novelty and Contribution of the Study

This paper adds to the existing literature on the subject of illegal cigarette smoking by taking the debate to a new level, beyond the traditional explanations of rational choice and enforcement. The current literatures have mostly focused on economic factors including price disparities, taxation, and weak regulations as the major causes of illicit trade. Nonetheless, there is also some emerging evidence that the affective and experiential processes influence consumer decision-making [41,45]. Conversely, this conceptual model synthesizes the Emotional Theory and the Stimulus-Organism-Response (SOR) model, where emotional response has been used as an intervening factor between product-related stimuli, which include product quality, product accessibility, and brand familiarity, and the decision to purchase illegal cigarettes. Exposing the presence of affective mediation in the Malaysian context, where the level of illegal cigarette consumption stays exceptionally high [11,29], the research contributes to theoretical insight into the illicit consumption behaviour.

Policy-wise, the results indicate that enforcement and fiscal policies might not be adequate to reduce the demand of illegal cigarettes. Treating emotional attachment, perceived performance, and brand familiarity can be as important in breaking the process of normalisation of illicit consumption. Taxation and border control methods may be used to supplement behaviourally informed interventions that would rebuild consumer perceptions and emotional associations, which is consistent with modern public health strategies to reduce demand [45]. To legitimate industry participants and regulators, the emotional and product-based motivations of illicit substitution will have strategic value to enhancing compliance programs, consumer education and anti-illicit market programs within a highly regulated environment.

1.2 Literature Review

1.2.1 Illegal cigarette consumption and consumer behaviour

Illegal cigarette use has been historically studied through regulatory, economic, and public health lenses, with differences in prices, ineffective enforcement and susceptible supply chains cited as the main force behind the illegal trade [16,18,35]. In Malaysia, the growth of the illegal cigarettes market has often been linked to recurrent boosts to tobacco excise taxes, which further supports the thesis that the consumer demand can be maintained by perceived price benefits [31,43]. Nevertheless, the illegal cigarettes still occupy a significant portion of the market even with the increased enforcement actions, implying that structural and purely economic factors are not enough [10,39].

In addition to the motivation based on the price, the recent scholarship emphasizes the significance of product-related characteristics on consumer behaviour. Perceived risk can be lowered by experienced product quality, convenient availability, and knowledge of individual brands to increase consumer trust in buying illegal products. Positive assessments of products performance and brand awareness could reinforce the illicit consumption habit in the market where unlawful products are close to the legal substitutes.

In addition, emotional and affective activities also solidify smoking behaviour through the creation of pleasure, comfort, and habitual bondage that can supersede the consciousness of laws and health implications [41]. Although this is the case, emotional processes are poorly studied in the situation of buying illegal cigarettes. To fill this gap, the current paper theorises the emotional response as a mediating variable between the quality of a product, product availability and brand recognition to the decision to buy illegal cigarettes in the Stimulus-Organism-Response (SOR) and hence provides a more detailed behavioural rationale of the illicit consumption. Table 2 shows the summary of literature review.

Table 1

Summary of literature review

Study (Author, Year)	Sample / Context	Period	Data Type	Dependent Variable	Key Variables Relevant to Framework
Oxford Economics (2017; 2019)	Malaysia	2015–2019	Secondary data	Illegal cigarette incidence	Product familiarity, product availability (BF, PA)
Vijayan & Chethiyar (2020)	Malaysia	2000–2019	Secondary data	Illegal cigarette market share	Product affordability, accessibility dynamics (PA)
Thinng & Norashidah (2021)	Malaysia	Cross-sectional	Secondary data	Illegal cigarette trade	Distribution structure, enforcement gaps (PA)
Chean <i>et al.</i> (2019)	Malaysian smokers	Cross-sectional	Survey	Smoking continuation	Product perception, harm misconceptions (PQ)
Hamzah <i>et al.</i> (2021)	Malaysian youth	Cross-sectional	Survey	Smoking behaviour	Product knowledge, familiarity perception (BF)
Tobaiqy <i>et al.</i> (2021)	Smokers (international context)	Cross-sectional	Survey	Smoking persistence	Emotional attachment, intrinsic reactions (Mediator: Emotional Response)
Larsen & Cohen (2008)	Adult smokers	Experimental	Survey	Smoking behaviour	Emotional pleasure, affective response (Mediator)
Rajadurai <i>et al.</i> (2020)	Malaysian smokers	Cross-sectional	Survey	Smoking patterns	Brand preference, product evaluation (BF, PQ)

2. Methodology

In line with the empirical design of the viva thesis, the proposed study was based on a quantitative research design with the positivist paradigm. The study used a cross-sectional survey research design to investigate the mediating position of emotional response in affecting illegal cigarette purchase decisions in Malaysia. The target population included Malaysian consumers who indicated having either bought or smoked illegal cigarettes. A structured self-administered questionnaire was used to collect data on 308 respondents selected in various regions. The cross-sectional method was deemed suitable to depict behavioural perceptions and affective assessments at one point in time due to the fact that the incidence of illegal cigarette use is still high in Malaysia [29,40].

All constructs (product quality, product accessibility, brand familiarity, emotional response (pleasure and arousal), purchase decision) were operationalised based on existing literature and through the use of a five-point Likert scale. The instrument was subjected to strict tests of reliability and validity to determine internal consistency and accuracy of measurements. The data were analysed with the help of the Partial Least Squares Structural Equation Modelling (PLS-SEM) which can be effectively used in the analysis of predictive relationships and mediation effects in multifaceted behavioural models. The analysis was performed in a two-step process day in: firstly, testing of the measurement model, both in terms of reliability, convergent, and discriminant validity; then, testing structural model to be able to test the direct and indirect relationship. Bootstrapping tests were used to calculate statistical significance of the path coefficients and mediation effects. Such a methodological approach is consistent with the recent behavioural and population health studies of tobacco use in Malaysia [29,42], thus providing strength and potential empirical rigour to test the framework.

2.1 Research Process

In line with the research process model, the research undertook systematic and sequential empirical process as made by the study which is characteristic of quantitative behavioural research (Figure 2). The process has commenced by identifying the research purpose by conducting a thorough review of pertinent concepts, theoretical underpinnings, and available empirical research. This step allowed narrowing down the research issue and research questions and developing a theoretical background of Emotional Theory and the Stimulus-Organism-Response (SOR) model. In this context, the research problem was aimed at investigating the potential effects of product-related stimuli, i.e., product quality, product accessibility, and brand familiarity, on the formation of emotional responses and, consequently, the ability to decide to buy illegal cigarettes.

The second step entailed conceptual development in which theoretical knowledge was converted into a systematic research design. This stage incorporated instrument development, sampling plan, and pretesting processes to have clarity and content validity. Pilot test was carried out prior to the administration of the final web-based survey in order to alter measurement items and enhance the reliability of the instrument. It is advised that behavioural research should undergo pretesting procedures to increase the accuracy of measurement and reduce the possibility of errors [42].

After data collection, the analysis phase included data preparation, screening, and cleaning followed by the evaluation of the measurement and structural models using Partial Least Squares Structural Equation Modelling (PLS-SEM). It is an analytical method that is very common in behavioural research studies to explore more intricate associations and mediation influences. Also, in line with the Malaysian studies carried out recently on tobacco-related consumption behavior that uses a rigorous quantitative method of validation, the use of PLS-SEM [29]. The last phases consisted in interpretation of the findings, theoretical and practical implication discussion, and thorough documentation of the thesis, which guaranteed rigor in methodology and overall empirical credibility of the study.

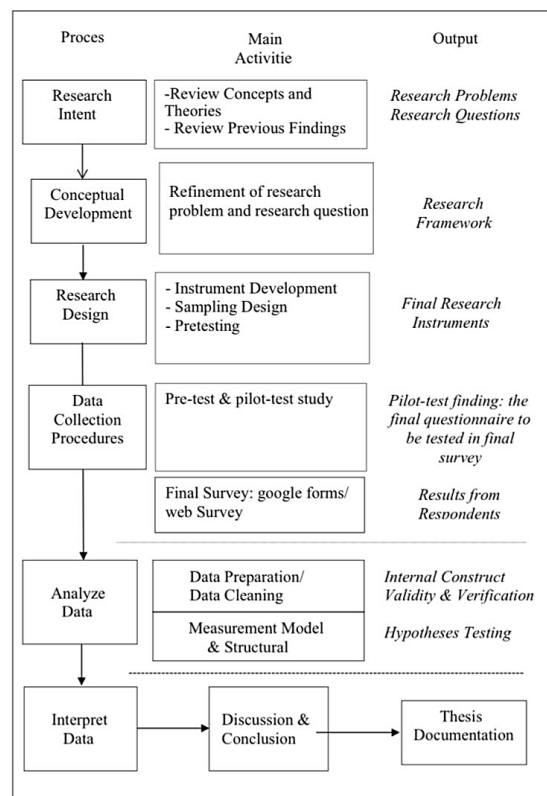


Fig. 2. Research process

2.2 Data Analysis Procedure Flowchart

The research adhered to the procedures of the Partial Least Squares Structural Equation Modelling (PLS-SEM) by performing a multistage quantitative analysis along with the Data Analysis Procedure Flowchart. Based on Figure 3, data screening was identified as the starting point of the analysis, as it required the identification of missing values, possible outliers, and measuring the data normality to guarantee the overall data quality and strength. This was then followed by descriptive analysis whereby frequencies and per centages were used to summarize the respondent's demographic features which would give a contextual insight into the sample profile.

Cronbach's Alpha was used to test reliability, where a value of 0.70 is recommended to ensure internal consistency reliability between the measurement items. Exploratory Factor Analysis (EFA) where it was required to test the dimensionality of constructs before structural modelling. SmartPLS was then utilized to test the measurement model via Confirmatory Factor Analysis (CFA) to evaluate convergent validity with the help of the Average Variance Extracted (AVE) criterion and discriminant validity with the help of the Fornell-Larcker and Heterotrait-Monotrait ratio (HTMT) [31].

Subsequently, the structural model was tested through the analysis of path coefficients, coefficient of determination (R^2), effect sizes (f^2) as well as predictive relevance (Q^2). The statistical significance of hypothesised relationships was determined by bootstrapping 5,000 resamples. Lastly, mediation analysis was conducted to determine the indirect effect of emotional response on the illegal cigarette purchase decisions. The methodological rigour of such an approach is ensured, and it aligns with the existing norms of behavioural research in Malaysia [29].

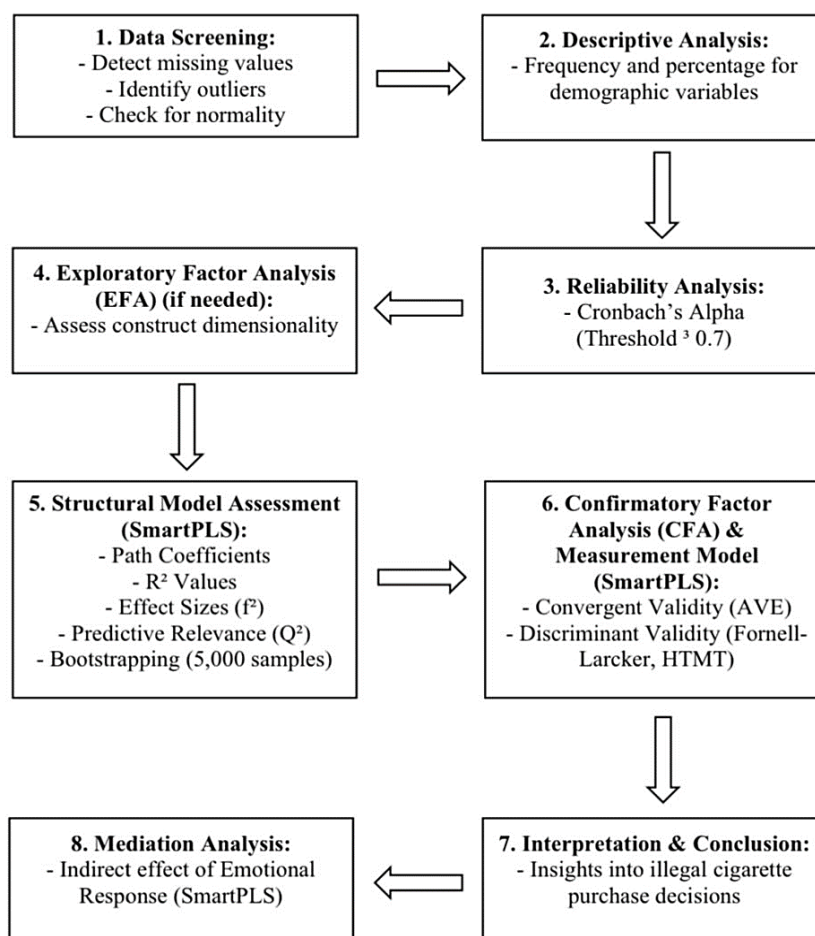


Fig. 3. Analysis procedure flowchart

2.3 Research Design

In this research, the conceptual research design is borrowed to develop a theory-driven framework to understand the decisions of people to purchase illegal cigarettes in Malaysia through a combination of emotional and behavioural arguments. Instead of introducing novel empirical findings, the article undertakes the synthesis of the existing theories and previous empirical findings to form a conceptual model that can inform future empirical studies. Since the illicit consumption behaviour is complex and sensitive, conceptual approach would be suitable to pulling together the tattered explanations and providing a more lucid theoretical perspective of factors that determine illegal cigarette purchases.

The given framework is based on the Emotional Theory and the Stimulus-Organism-Response (SOR) paradigm. With these theoretical approaches, it becomes possible to incorporate external stimuli associated with products and internal psychological functions in the explanation of consumer behaviour. In this context, the quality of the products, the accessibility of the products, as well as the familiarity of the brand are some of the external stimuli, which influence the internal emotional reaction of the consumer, especially pleasure and arousal. It is this emotional response which in turn affects the behavioural outcome, that is, the choice to buy illegal cigarettes. The model also transcends the direct-effects paradigms (such as those used mostly in the study of illicit trade) in which the effect is usually viewed as a direct response to the features of economic or structural conditions. Rather, it emphasises the role of product-related perceptions to elicit an effective response that eventually leads to the possibility of illicit purchasing behaviour, a more detailed way of explaining behaviour with regard to illegal cigarette consumption.

2.4 Specification Conceptual Model

The stimulus variables conceptualised as the quality of a product, accessibility to a product, and brand familiarity are significant product-related conditions in the illegal cigarette market in Malaysia. These stimuli reflect the perceptions of the consumers in terms of the performance of the product, the perceived ease of accessing illegal cigarettes and the knowledge of certain illegal brands offered in the market. Favourable attitudes towards quality, high availability, and high brand recognition in the context when illegal cigarettes are similar to the legitimate products can decrease perceived risk and justify illicit buying behaviour among the consumers.

In the Stimulus-Organism-Response (SOR) model, emotional response is used to capture the organism component, which is operationalised in terms of affective states, namely, pleasure and arousal. These psychological responses are internal and they describe how product-related stimuli are interpreted emotionally by consumers prior to behavioural decisions. Instead of positing that consumers use rational assessment to form their perceptions about a product, the model suggests that emotional reactions are key in articulating product perception into buying action.

The response component is the decision to buy the illegal cigarettes and involves behavioural intention and actual purchasing behaviour. Emotional response is consequently placed as the most important mediating variable between the decision to purchase illegal cigarettes based on product quality, product accessibility, and familiarity with the brand. The framework sheds more light on the mechanisms of mediation and offers a better description of the way product-related stimuli affect illicit consumption behaviour based on affective processes, not on purely economic rationality.

3. Information Situation and Analytical Disposition

The proposed framework is conceptual in nature but based on the Malaysian context by relying on the insights of the national surveys, industry reports, and previous behavioural research on illegal cigarette consumption. These sources give some conceptual background on why illegal cigarette consumption remains widespread and justifies the necessity of studying behavioural and emotional processes involved in consumer decision making. The framework provides a theoretically informed view on the role of product-related stimuli in emotional responses and, therefore, the ultimate cause of illegal cigarette purchase behaviour, through the combination of the evidence on the topic provided by the existing literature.

The proposed model can be validated by future empirical studies with the help of advanced statistical methods like Structural Equation Modelling (SEM) and specifically Partial Least Squares Structural Equation Modelling (PLS-SEM) as it is focused on studying complex relationships and mediation effects in behavioural models. There is also the issue of ethics, which still plays a significant role in the research on illegal consumption behaviour. Voluntary participation, anonymity of respondents and privacy of their responses should be implemented to ensure that the possible harm is reduced and respondents report truthfully. Such ethical protections are of importance more so when examining sensitive behaviours like buying and smoking of illegal cigarettes.

3.1 Research Framework

The suggested conceptual framework will be based on the Stimulus-Organism-Response (SOR) theory that describes consumer behaviour as the process whereby external stimuli affect internal psychological conditions, which eventually determine behavioural responses (Figure 4). Applying the model to the illegal cigarette smoking behaviour in Malaysia it can be argued that the rational or economic factors do not predominantly fuel the purchasing behaviour but rather affective processes, which are the results of the consumer judgment on the product-related characteristics.

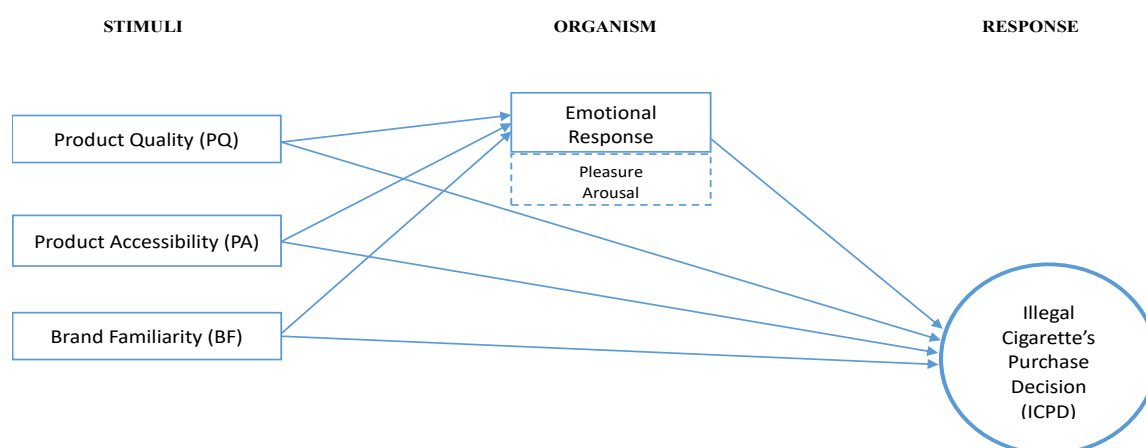


Fig. 4. Conceptual framework

Three major variables are highlighted within the stimulus part of the framework: product quality, product accessibility, and brand familiarity. Product quality: The product quality is defined as the perceptions of consumers about the performance, taste, packaging, and the general standards of illegal cigarettes in relation to the legal substitutes. The tendency to consume illegal products repeatedly might be higher when the consumers are convinced that the products are similar or are

of the same quality. Product accessibility is the ease at which illegal cigarettes are available by informal channels of distribution or street vendors or retailers. The high accessibility lowers the purchase barriers and leads to the normalisation of consumption of illicit products. Brand familiarity is the exposure of the consumers to the familiarity of the particular illegal cigarette brands that are being marketed. Being accustomed to these brands will help lessen perceived uncertainty and bolster the consumer confidence in buying the items.

These stimuli that relate to the product are theorised to cause emotional reactions in the consumers e.g. pleasure and arousal that in turn leads to the purchase of illegal cigarettes. The model draws attention to the impact of product perceptions in creating affective reactions leading to illegal cigarette purchase behaviour by integrating these factors into the SOR framework.

Table 2

Sources of data

Construct / Variable	Operational Context in Study	Primary Data Source(s)	Usage in Conceptual Framework
Product Quality (PQ)	Consumers' perception of the performance, taste, packaging, and overall quality of illegal cigarettes compared to legal products	Chean et al. (2019); Rajadurai et al. (2020); Oxford Economics (2019)	Represents product-related stimulus influencing emotional responses and illegal cigarette purchase decisions
Product Accessibility (PA)	Perceived ease of obtaining illegal cigarettes through informal retail channels, street vendors, or distribution networks	Vijayan & Chethiyar (2020); Thinng & Norashidah (2021); CMTM (2024)	Reflects market availability stimulus shaping consumers' emotional reactions and purchasing behaviour
Brand Familiarity (BF)	Recognition, prior exposure, and consumer familiarity with specific illegal cigarette brands circulating in the market	Oxford Economics (2017; 2019); Hamzah et al. (2021); CMTM (2024)	Explains how familiarity with illegal brands reduces perceived risk and activates emotional responses

4. Conclusion

The present conceptual paper advances the knowledge base of illegal cigarette purchasing behaviour in Malaysia by going beyond the prevailing economic and enforcement-based explanations and emphasising the contribution of behavioural and emotional processes. The research will be based on the Emotional Theory and the Stimulus-Organism-Response (SOR) framework to suggest a parsimonious model where product quality, product availability, and brand familiarity serve as external stimuli that cause emotional responses in consumers that further determine illegal cigarette purchases.

The framework demonstrates that favourable perceptions of product performance, product performance availability in the market, and familiarity with particular illicit brands can be normalised in ways that encourage the illicit consumption of cigarettes by positioning product-related attributes as important stimuli and minimising perceived risks with regards to buying illicit products. These stimuli are hypothesised to have an effect that is indirect, meaning they affect behaviour via the emotional responses of pleasure and arousal. These emotional reactions are the psychological processes by which product judgments are converted to purchases behaviour. This view fills a significant gap in the literature of illicit consumption, which has long been viewed as a consumer as a rational actor who is primarily responsive to price differentials, or regulatory status.

Theoretically, the study builds on the SOR framework to apply to ethically sensitive and unlawful contexts of consumption by highlighting the moderating effect of emotional responses. In practical terms, the framework implies that the supply-side policies on their own might not be effective to decrease the illicit cigarette demand. Rather, demand-side policy that considers positive product

perceptions and sentiment towards illicit brands might be required. Being a conceptual study, the proposed relationships need to be further empirically proven, in this case, in future quantitative and longitudinal studies in the Malaysian context.

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