

PERCEIVED PAIN AND PROMOTIONAL TRIGGERS: UNDERSTANDING IMPULSE BUYING BEHAVIOUR IN OTC PAIN-RELIEF MARKETS

1. Renjusha P, Research Scholar, Tirupur Kumaran College, Tirupur.

2. Dr. S. Ponmalar, Associate Professor, Tirupur Kumaran College, Tirupur.

Abstract

This research examines how perception of pain and marketing signals affect impulsive buying behaviour of over-the-counter (OTC) pain-relief products. Questionnaire was structured and was given to consumers in Erode City, Tamil Nadu and the results were evaluated through descriptive statistics, Garrett ranking, ANOVA and Structural Equation Modelling (SEM). The results indicate that the consumer decision-making is greatly influenced by pain related factors. The majority of the respondents noted that when the level of pain becomes more intense and when they experience sudden pain development, the purchasing decision-making process becomes faster, as well as, less time is needed to analyze the options among the offered products. The sense of emotional urgency also increased the predisposition to impulse choices and consumers started focusing on the easy-to-find solutions and ignore the warnings on the product or advice of the specialist. Garrett ranking recognized the pain intensity as the most powerful among the rest of the promotional offers, product availability, packaging appeal, and brand familiarity.

According to the results of ANOVA, the age factor greatly determined the selective aspects of pain-based impulsivity, especially the decision speed and preference of readily available brands, but not gender. SEM results showed that advertising exposure (= 0.389), packaging appeal (= 0.314), and in-store display (= 0.224) had significant and positive influences on impulse purchase behaviour and explained its 60.4% variance ($R^2 = 0.604$). These results affirm the hypothesis that brand familiarity and marketing cues are not the main influencing factors of impulsive OTC pain-relief buying but are instead reinforced by the urgency that the pain causes. Overall, the research indicates that responsible marketing and educating consumers should be implemented to balance accessibility and safe self-medication.

Keywords: pain perception, impulsive buying, OTC pain-relief products, marketing cues, consumer behaviour, SEM.

Introduction:

Pain prompts individuals to seek relief and often drives consumption behaviour in the self-medication market (Lalitha, 2022). With the rise of over-the-counter (OTC) pain-relief products, consumers increasingly opt for immediate relief rather than consulting medical professionals or deliberating their purchase. The accessibility and convenience of OTC analgesics position them like fast-moving consumer goods (FMCG) where urgency and convenience influence decisions (Pandey & Rashid Khan, 2024).

In consumer-behaviour literature, impulsive buying—defined as spontaneous, unplanned purchases influenced by emotional and situational cues—is recognised as a significant phenomenon (Jagtap, 2023). When individuals perceive pain as urgent and disruptive, their emotional urgency increases, reducing cognitive deliberation and increasing likelihood of impulse purchases (Pandey & Rashid Khan, 2024). Within OTC pharmaceutical purchase contexts, emotional states triggered by pain may act similarly to the ‘organism’ in the Stimulus–Organism–Response (S-O-R) model, where internal stimuli (pain) and external marketing triggers (product visibility, advertising) lead to response (impulsive buying) (Rasmussen, 2019).

Marketing stimuli reinforce this pattern. Advertising of OTC pain-relief drugs demonstrates a significant impact on consumer purchase decisions and levels of trust in the product category (Patil, Patadiya & Patel, 2025). Separately, general studies on OTC purchase behaviour show that internal attitude and external marketing factors both influence purchase intention (Pandey & Rashid Khan, 2024). Exposure to persuasive adverts, prominent point-of-sale display, and messaging emphasising fast relief lower perceived risk and accelerate decision timing.

Despite the growing market and research into OTC consumer behaviour, there remains limited investigation into how perceived pain intensity, emotional urgency, and marketing stimuli jointly drive impulsive OTC purchases in the pain-relief category. This

study aims to fill that gap by examining these psychological and marketing antecedents of impulsive purchase behaviour in the OTC pain-relief market.

Problem statement

People are progressively taking over-the-counter (OTC) pain-relief medications without professional attention to treat pain on their own (Lalitha, 2022). Even though product accessibility, brand familiarity, and promotional approaches are the matters, which drive the OTC market (Pandey and Rashid Khan, 2024), new indications indicate that psychological conditions specifically the intensity and urgency of pain can be responsible of prompting impulsive, unplanned purchasing behaviour. The impulse buying is typically caused by emotional provocation and cognitive lessening (Jagtap, 2023), but scanty studies examined whether the perception of pain in itself serves as a stimulus in the decision-making process.

Persuasive advertising, product visibility, and instant-relief claims are examples of marketing stimuli that can affect OTC buyers and increase the level of emotional urgency (Patil, Patadiya and Patel, 2025). Nevertheless, the nature of the relationship between pain-induced psychological action and marketing stimuli is underresearched. Although some literature has looked into the impact of factors on OTC pharmaceutical purchase intention in general (Pandey and Rashid Khan, 2024), empirical data is lacking on the behavioural-based factors of pain perception as a motivating force influencing OTC pain-relief product impulse purchases, and the reinforcing effect of marketing campaigns on the behaviour in question.

This ignorance poses a problem to marketers, public-health actors, and policy makers. The unplanned use of OTC pain-relief products can result in abuse, concealment of severe symptoms, addiction, or late diagnosis. Hence, it is evident that there is necessity to determine the combined impact of the urgency of pain, psychological motivation, and the marketing stimulus on impulsive OTC purchase behaviour. The gap will be filled by addressing this gap will assist to understand the consumer decision-making processes in pain-relief category better and help to promote the more responsible marketing and consumer-education approaches.

Objectives

1. To examine how pain perception influences the impulsive purchase behaviour of OTC pain-relief products.
2. To analyze the role of marketing cues (e.g., advertisements, packaging, in-store display) in driving impulsive OTC pain-relief purchases.
3. To provide recommendations for responsible marketing and consumer-awareness strategies to ensure safe use of OTC pain-relief products.

Review of Literature

The concept of impulse buying has been extensively debated in the literature of consumer-behaviour as an impulsive act of purchasing that is instigated by emotional stimulation and situational factors during the purchasing decision. The literature demonstrates that store ambiance, product display, and visual merchandising may greatly enhance impulsive purchasing through the decreased deliberation among consumers (Florea et al., 2025; Alexandria et al., 2025; Franjkovic et al., 2022). Product placement and promotion are of a major role in OTC (over-the-counter) products, particularly pain-relievers, located by the counters or in high-volume shelf areas, as it enhances exposure and triggers spontaneous buying choices (Bozorova and Rustamov, 2025). Impulse buying is also affected by price discounts especially when combined with easy payment infrastructure that minimizes purchase tension (Utama et al., 2025). The development of online shopping is also significant: convenience of the platform, client feedback, and reliability of the services influence consumers to make quick purchases, and researchers report that customer satisfaction with online pharmacies is a good predictor of repurchasing behavior (Zhao and Huang, 2024; Fiona et al., 2024). Also, social and personal reference cues, such as pharmacist recommendation and peer influence, were found to influence the decision-making process during the initial stage of OTC purchase, particularly among younger consumers, and high self-medication propensities are observed (Aghaei and Alarsali, 2023; Saqib and Gazerani, 2024). Though consumer impulsivity can be regulated with the help of health literacy to enhance the level of dosage and product appropriateness, urgent situations with pain also seem to provoke immediate self-medication, which is characterized by a high level of psychological need (Tian et al., 2025). The wider impulse-purchase theory underlines these trends, and observes that impulse-buying propensity, mood and time pressure interplay with marketing signals to make instant decisions, especially on low-involvement products (Iyer et al., 2020).

Further research shows that situational factors (time availability, influence of family members) interact with merchandising behavior to increase unplanned OTC purchasing in pharmacies (Alvi and Mudassar, 2025; Thant, 2023). In the case of analgesics, branding and packaging have a significant impact on perceived product safety and efficacy, perceived risk reduction and prompt decision-making (Kumar and Parmar, 2024; Taylor et al., 2023; Ali et al., 2023). After sales experiences such as satisfaction, regretting about buying a product, and post performance experiences, also have an additional impact on subsequent OTC behaviour, and can transform impulse purchases into brand loyalty or dissatisfaction (Beikverdi, Sipilä and Tarkiainen, 2023; Obukhovich, Sipilä and Tarkiainen, 2023). Collectively, these studies indicate that impulsive decision-making in OTC pain-relief purchase is the result of the interplay between internal psychological reactions to pain and external marketing stimuli in both physical and online touchpoints.

Research Gap

Current research on OTC (over-the-counter) purchasing behaviour has concentrated significantly on broad self-medication tendencies, pharmacy merchandising, and the role of the digital in influencing consumer decision-making. The existing evidence points to the fact that the store ambience, product display, packaging, and promotions could lead to unplanned purchases (Florea et al., 2025; Alexandria et al., 2025). Other studies examine the impact of branding, price, and convenience of online platforms on the choice of consumers (Zhao and Huang, 2024; Kumar and Parmar, 2024). Nevertheless, such studies predominantly consider OTC behaviour as being either of a marketing or convenience perspective only, rather than explicitly evaluating how pain perception itself is a psychological stimulus on impulsive purchasing in the pain-relief group.

In the same manner, though literature recognizes the effect of urgency and/or the emotional conditions on impulse purchases in low-involvement settings (Iyer et al., 2020), the academic literature lacks sufficient explanation of how the intensity of pain, emotional discomfort, or perceived vulnerability interacts with marketing stimuli to lead to rapid decision-making. Further, although the phenomenon of digital pharmacy behaviour is gaining increased interest, studies rarely examine the moderation of the effect of promotional tactics (examples include visuals, messages claims, etc.) in impulsive purchase findings by momentary pain perception and instant-relief motivation.

The other gap is related to post-purchase effects: the current literature covers satisfaction and repurchase intention (Beikverdi, Sipilä & Tarkiainen, 2023), but there is limited information to understand whether OTC pain-relief items purchased impulsively can lead to significant consumer learning or impulse buying. Also, majority of literature assumes consumers to be rational in their buying behaviour in matters concerning health-related purchases where actual behaviour is likely to be influenced by emotional, short-cycle judgments which have not been delved into in OTC analgesic settings.

Accordingly, the interaction between the perception of pain, the psychological urgency, and marketing is under-theorised, as well as empirically under-studied. In particular, few studies have examined the interaction between the severity of pain and the desire to obtain instant relief and marketing collections to influence the impulsive use of OTC pain relief products. This gap needs to be filled in developing a more comprehensive picture of consumer behaviour on pain-relief category and in informing responsible marketing that is health-oriented.

Research Methodology

The study design in this research is a mixed-method research design because both the quantitative and qualitative methods will be employed in answering the proposed research question. The paper adopted a stratified purposive sampling, which was used to observe impulsive buying behaviour in relation to analgesic ointments among the adult consumers (1865 in Erode City in Tamil Nadu). The respondents needed to have bought an analgesic ointment (e.g., Volini, Moov, Iodex, Fast Relief) and used it in the last six months to be relevant and recently recalled. The Erode Municipal Corporation (2025) and Census of India (2011), created a sampling frame of 315,202 people in four administrative zones namely Surampatti, Periyar Nagar, B.P. Agraharam, and Kollampalayam, which were used to draw the sampling frame based on the wards level demographic information. A stratified purposive approach was used, which entailed initially dividing sample proportions according to the four zones and then purposely selecting the respondents who were eligible to the inclusion criteria in each of the strata. The sample size was calculated based on the finite population formula (Israel, 1992) at a confidence level of 95% and 5% margin of error resulting in 384 respondents

which were proportionately split. This methodology was sufficient to provide adequate space in geographical representation of the wide range of possible socio-economic and retail access patterns and ensure focus on the people with actual and recent experience of buying analgesic-ointments impulsively thus enhancing representativeness, narrowing sampling bias and also capture context-specific information about impulsive buying behaviour of analgesic-ointments.

Analysis and Result
Demographic profile

Demographic profile shows the major features of the consumers that buy analgesic ointments in Erode City. The Erode Municipal Corporation has four administrative zones whose respondents were equally geographically covered. Male and female consumers were also involved and made participation, thus the opportunity to compare gender-based variation in the use of pain-relief products and the purchase patterns. The majority of the respondents were young and middle-aged (18-45 years), which is the category that has the highest likelihood of having muscular pain at work and self-medicating. A lesser percentage was older adults, who had indicated purchases as a result of chronic or age-related pain. Regarding marital status, both marital statuses were involved with the majority being married respondents. The level of education was not uniform as most of them had higher secondary or undergraduate education, then there were diploma and postgraduate education holders. Respondents occupied themselves occupationally in various sectors- private employees, textile workers, business owners, homemakers and daily wage earners- which is a sign of a wide socioeconomic range which is in line with the industrial orientation of the city. The difference in the household income was also apparent as the majority of people were in the middle-income range, and others occupied lower and higher salary scales. The data also indicated that most of them were in nuclear family set ups though a significant proportion was in joint families. In the use of products, the respondents said that they used the analgesic ointment occasionally to regularly, depending on some factors such as lifestyle, occupation, and exposure to pain. The most popular brands sold were Moov, Volini, Iodex and fast Relief based on the perceived effectiveness, experience, availability and promotion exposure.

The demographic profile in general shows a large variety of consumers who are diverse in terms of age, employment, income, and lifestyle providing a good understanding of the behavioural trends that lead to impulse buying of analgesic ointments.

Influence of Pain Perception on Impulsive Purchase Behaviour of OTC Pain-Relief Products

Table 1. Showing the Classification of respondents based on their perception towards the pain and impulsive buying behaviour

S.No	STATEMENTS		SD	D	N	A	SA
Pain Intensity & Perception							
1.	Higher pain intensity leads to quicker purchase decisions for OTC pain-relief products.	No of respondents	0	0	10	167	197
		Percentage of respondents	0	0	3	45	52
2.	Sudden onset of pain increases the likelihood of unplanned purchase of pain-relief items.	No of respondents	12	12	20	177	153
		Percentage of respondents	3	3	5	48	41
3.	Increasing pain levels reduce the time spent evaluating product alternatives.	No of respondents	0	18	60	175	121
		Percentage of respondents	0	5	16	47	32
Urgency & Emotional Response							
4.	Urgency to relieve pain increases susceptibility to impulse-driven product selection.	No of respondents	11	43	49	176	95
		Percentage of respondents	3	11	13	49	26
5.	Emotional discomfort during pain heightens responsiveness to point-of-sale displays.	No of respondents	14	25	205	130	14
		Percentage of respondents	4	7	54	35	4
6.	Desire for instant comfort increases preference for easily accessible OTC brands.	No of respondents	4	28	53	111	178
		Percentage of respondents	1	7	13	30	49
Risk Negligence During Pain							
7.	Pain-induced urgency lowers attention to product warnings and dosage information.	No of respondents	0	11	48	185	130
		Percentage of respondents	0	3	13	49	35
8.		No of respondents	0	11	11	221	131

	Strong pain reduces the perceived need for professional consultation before purchase.	Percentage of respondents	0	3	3	59	35
9.	Pain diminishes the evaluation of potential product risks during purchasing decisions.	No of respondents	0	11	24	205	134
		Percentage of respondents	0	3	6	55	36
Previous Pain-Experience Influence							
10.	Prior relief experience with specific brands increases impulsive repeat purchases.	No of respondents	12	40	45	175	102
		Percentage of respondents	3	11	12	46	28
11.	Familiar brands gain preference during pain episodes, regardless of product comparison.	No of respondents	13	7	37	153	164
		Percentage of respondents	3	2	10	41	44
12.	Previous successful usage encourages reliance on readily available OTC pain-relief products.	No of respondents	12	5	64	145	148
		Percentage of respondents	3	1	17	39	40

In Table 1, the perception of the respondents regarding the role of pain in impulsive purchase of OTC pain-relief products has been provided in four dimensions, which include pain level, urgency, risk carelessness, and past experience. Under Intensity and Perception of Pain, most people agreed that more intense pain makes them purchase more items at a faster rate as 97% people agreed that the greater the intensity of pain, the higher is the rate of buying a product and 89% people confirmed that the sudden pain they experience makes them buy a product without giving a second thought. Likewise, 79% concurred that the more pain one has, the less time it takes to compare alternatives, and somewhat they are strongly associated with the seriousness of pain and impulsive, convenience-based decision-making. Regarding Urgency and Emotional Response, a large percentage of the respondents were convinced that urgency enhances impulse-oriented selection (75 percent), and over a half of the respondents were convinced that emotional discomfort leads to responsiveness towards point-of-sale displays, which illustrates the power of store-level stimuli during pain. Also, 79 percent reported that need in immediate comfort raises the demand in easily available brands, which implies that the emotional distress directs the decisions to the products of easy access instead of well-considered ones. As of Risk Negligence During Pain, the majority of the respondents indicated decreased attention to warning and dosage information (84%), perceived less need to consult with a professional (94%) and reduced assessment of risks (91%) when in pain. This underscores the fact that pain overwhelms the reasonableness of evaluation that predisposes one to the wanton OTC use. Lastly, the results of Previous Pain-Experience Influence indicate that previous relief by a particular brand stimulates repeat impulse buying (74%), and a significant proportion of the respondents favored familiar brands during pain even in the absence of comparison (85%). In addition, 79 percent were dependent on the product they had experienced to be useful in the past which reflects the reinforcing nature of brand familiarity and positive past results in stimulating impulsive repeat behaviour. Comprehensively, the findings reveal that pain-related perception is an acute stimulant of impulsive buying, information processing, sensitivity to marketing stimuli, and endorsement of habitual brand choices regarding the use of OTC pain-relievers.

Influence of Key Factors on Impulsive Purchase of OTC Pain-Relief Products
Table 2. Ranking of Factors Influencing Impulsive Purchase Behaviour

Ranks		1	2	3	4	5	Sum	Mean	Rank
Garrett value		75	60	50	40	25			
Pain intensity	F	202	36	37	43	65			
	Fx	15150	2160	1850	1720	1625	22505	28.34	I
Brand familiarity / previous experience	F	32	199	59	73	20			
	Fx	2400	11940	2950	2920	500	20710	26.08	II
Product availability	F	39	67	43	185	49			
	Fx	2925	4020	2150	7400	1225	17720	22.32	IV
Promotional offers	F	36	52	217	50	28			
	Fx	2700	3120	10850	2000	700	19370	24.40	III
	F	74	29	27	32	221			

Packaging & product appeal	Fx	5550	1740	1350	1280	5525	15445	19.45	V
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Table 2 provides the ranking of respondents of key factors that affect impulse buying behaviour of OTC pain-relief products based on the ranking method of Garrett. Pain intensity / urgency was found to have the greatest impact and the highest mean score of 28.34, which means that customers are mostly motivated by the necessity to relieve the pain instantly and make impulses. Brand familiarity / previous experience was second (mean = 26.08) and indicates that consumers prefer to stick with those brands that they have tried and trusted in before and thus continue with habitual purchasing during pain attack. The third position was taken up by promotional offers / discounts (mean = 24.40), which indicated that price-based incentive influences the impulse to buy significantly, but in the secondary manner. Fourth, product availability / visibility in stores (mean = 22.32) indicates that even though convenience is important, it is not as decisive as pain or brand familiarity during the process of the spontaneous purchase. Packaging and product appeal (mean = 19.45) was the least-influential factor, showing that, in this category, visual or design attributes have lesser chances of influencing impulse buying because the expectations of usefulness are more important than those of appearance. In general, the results verify that emotional and experiential aspects like the level of pain and brand trust have a significant surge over marketing aesthetics, this is why the motive behind the impulsive buying of the OTC pain relief products is more of a need.

Demographic Influence on Pain-Driven Impulsive Purchase Behaviour of OTC Pain-Relief Products

Age and Influence of Pain Perception on Impulsive OTC Pain-Relief Purchase Behaviour

Table 3. Association between Age and Influence of Pain Perception on Impulsive Purchase Behaviour of OTC Pain-Relief Products

H₁: There is a statistically significant association between age and the influence of pain perception on impulsive purchase behaviour of OTC pain-relief products.

ANOVA							
		Sum of Squares	df	Mean Square	F	Sig.	
Pain Intensity & Perception							
Pain intensity leading to quicker purchase	Between Groups	18.229	4	4.557	4.651	.001	
	Within Groups	370.408	378	.980			
	Total	388.637	382				
Sudden pain increasing unplanned purchase	Between Groups	8.739	4	2.185	2.154	.074	
	Within Groups	383.465	378	1.014			
	Total	392.204	382				
Higher pain reducing evaluation time	Between Groups	13.556	4	3.389	3.058	.017	
	Within Groups	418.951	378	1.108			
	Total	432.507	382				
Urgency & Emotional Response							
Urgency increases impulse selection	Between Groups	9.646	4	2.412	2.888	.022	
	Within Groups	315.638	378	.835			
	Total	325.285	382				
Emotional discomfort increases POS responsiveness	Between Groups	4.951	4	1.238	1.476	.209	
	Within Groups	317.018	378	.839			
	Total	321.969	382				
Instant comfort increases preference for accessible brands	Between Groups	8.884	4	2.221	2.499	.042	
	Within Groups	335.905	378	.889			
	Total	344.789	382				
Risk Negligence During Pain							
Urgency lowers attention to warnings	Between Groups	9.507	4	2.377	2.200	.068	
	Within Groups	408.384	378	1.080			
	Total	417.890	382				
Strong pain reduces need for consultation	Between Groups	8.867	4	2.217	2.463	.045	
	Within Groups	340.240	378	.900			
	Total	349.107	382				
Pain reduces risk evaluation	Between Groups	9.050	4	2.263	2.294	.059	

	Within Groups	372.887	378	.986		
	Total	381.937	382			
Previous Pain-Experience Influence						
Past relief increases impulsive repeat purchase	Between Groups	8.236	4	2.059	2.215	.067
	Within Groups	351.425	378	.930		
	Total	359.661	382			
Familiar brands preferred during pain	Between Groups	6.608	4	1.652	1.945	.102
	Within Groups	321.037	378	.849		
	Total	327.645	382			
Prior success increases reliance on available brands	Between Groups	5.604	4	1.401	1.568	.182
	Within Groups	337.723	378	.893		
	Total	343.326	382			

Results of the ANOVA indicate that the demographic variables have a strong impact on various pain-related perceptions that lead to impulsive OTC purchases of pain relievers. In Pain Intensity and Perception, pain intensity causing faster purchase ($p = .001$) and higher pain causing less time taken to evaluate ($p = .017$) had significant difference whereas sudden pain causing impulsive purchase ($p = .074$) did not vary significantly. Under Urgency and Emotional Response, there were significant differences under, in the case of Urgency increases impulse selection ($p = .022$) and Instant comfort increases preference to accessible brands ($p = .042$) and not significant in the case of Emotional discomfort increases POS responsiveness ($p = .209$). Strong pain decreases need of consultation was the only significant result in Risk Negligence ($p = .045$), whereas attention to warnings ($p = .068$) and risk evaluation ($p = .059$) was the same in all groups. Lastly, every Previous Pain-Experience Influence item was statistically non-significant ($p > .05$), meaning that there is a similar behavioural response in response to demographics in terms of repeat impulsive purchase and familiar brand dependence. Altogether, the impetus and the level of pain differ across demographic groups and seem to be equal, but the brand-based and risk-negligence behaviours seem to be homogenous.

Gender-wise Influence on Awareness-Related Perceptions

The results of the ANOVA show that the overall demographic groups did not have any statistically significant difference on all measured indicators connected to awareness, recognition, exposure, and perceived understanding in the context of impulsive purchasing behaviour with regard to OTC pain relief. In all the above, the significance values ($p > 0.05$) are such that demographic differences do not have a significant effect on the general awareness or recognition patterns of the respondents. The awareness of concepts, content identification, understanding of roles, perceived effectiveness, and recognition patterns did not differ significantly ($p > 0.05$) indicating that respondents do not show any differences in the level of understanding, irrespective of demographic classification. Even though the level of familiarity with sponsored content ($p = 0.060$) and knowledge of transparency regulations ($p = 0.054$) have slightly lower levels of significance, they all are statistically non-significant at the 5% mark. Similarly, the lack of a meaningful demographic impact is also present in responses connected with exposure, perceived authenticity, and recognition of the promotion types like perceiving the labels or differentiating promoted materials. On the whole, these results support the idea that the perception of respondents in terms of awareness are consistent across demographic groups, which means that the variability in impulsive OTC buying pain-relief behaviour may not be rooted in the differences in perception factors affected by the awareness.

Role of Marketing Cues in Driving Impulsive OTC Pain-Relief Purchases

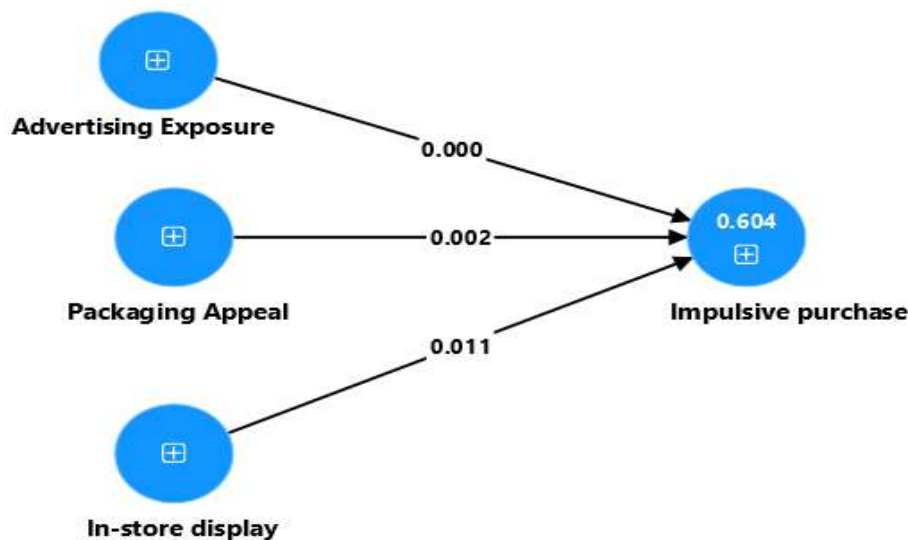
Advertisements, packaging design and the display of products inside the store are also marketing cues that largely contribute to the impulse buying of the OTC pain-relief products. Through adverts, brand recognition is generated and the advertisement emphasizes the allegations of immediate relief which bolsters the desire that consumers have to make purchases without planning to do so. Sensible appealing packaging increases the appeal of the product and generates the perceived trust and shortens the time spent in assessing the product options. Similarly, strategic in-store merchandising e.g. keeping pain relievers at billing counters or eye level shelves will undergo unplanned buying behaviour particularly amongst consumers who have some form of discomfort. Collectively, these cues ease cognitive load, augment convenience perceptions and speed immediate purchase choices in categories of pain relief.

Structural Equation Model Showing the Influence of Marketing Cues on Impulsive Purchase Behaviour

Path coefficient

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Advertising Exposure -> Impulsive purchase	0.389	0.400	0.080	4.882	0.000
In-store display -> Impulsive purchase	0.224	0.230	0.088	2.532	0.011
Packaging Appeal -> Impulsive purchase	0.314	0.308	0.100	3.143	0.002

The results obtained in the path coefficient show that all three marketing cues, which are Advertising Exposure, Packaging Appeal, and In-store Display, have a strong positive effect on impulsive purchase behaviour of OTC pain-relief products. The greatest effect thereof is shown by Advertising Exposure (= 0.389, $t = 4.882$, $p < 0.001$), which means that the frequency or the persuasiveness of the promotional communication has a significant positive impact on the tendency to make spontaneous purchases by consumers. The effect of Packaging Appeal is also significant and strong (0.314, $t = 3.143$, $p = 0.002$), which means that appealing design and visual presentation positively influence the preference of the product and positively stimulate unintended purchases. Similarly, the effect of In-store Display is also considerable but in a rather smaller proportion (0.224, $t = 2.532$, $p = 0.011$), which can be interpreted as the strategic location of the product and its visibility in the retailing venue triggering the impulse buying behavior. On the whole, the strong p-values (< 0.05) substantiate the idea that the three marketing cues have a meaningful impact on impulsive purchasing behaviour, but advertising is the strongest determinant of the phenomenon, and packaging appeal and in-store display are the next two in line.



Coefficient of Determination:

	R-square	R-square adjusted
Impulsive purchase	0.604	0.592

The results of the coefficient of determination indicate that the model gives an explanation of a significant amount of variance in impulse purchase behaviour. The value of R-squared is 0.604, which means that the three marketing cues namely advertising exposure, packaging attractiveness and in-store display explain 60.4 percent of the variation in impulsive purchasing of OTC pain-relief products. The adjusted R-SQ of 0.592 also verifies that the model is robust as it shows a very small decrease in the value of adjusted R-SQ when the number of predictors is adjusted. These values indicate a high explanatory capability, and it is assumed that collective action by the marketing cues is significant in influencing impulsive purchasing behavior in the OTC pain-relief segment of the market.

Results and Discussions

The authors investigated the overall effect of perception of pain and marketing cues on impulsive purchase behaviour of over-the-counter pain-relief products. Findings of descriptive analysis, Garrett ranking, ANOVA, and SEM in combination with each other

support the idea that the urgency of pain and strategic marketing stimuli play a significant role in the purchase decisions of low-involvement health products.

According to the descriptive results (Table 1), the respondents are in high agreement that the perception of pain has a significant effect on the unplanned purchasing. The majority of the respondents believed that a greater level of pain led to rash decision-making (97%), and the sudden occurrence of pain also prompted spontaneous unplanned purchasing (89%). High levels of pain also decreased the duration of comparing product-alternatives (79%), a fact that highlights the fact that consumers favour instant relief over a thorough comparison. Emotional variables also contributed to the impulsiveness; three out of every four said that urgency increases the choice of impulses and almost four out of five said they are guided by the need to feel good now and run toward the nearest OTC item. Most of them also mentioned the disregard of safety cues, 84% of them being less concerned with warnings, 94% less likely to seek professional consultation, and 91% not assessing the risk potential, which is a manifestation of vulnerability in the course of pain. The previous experience also strengthened the habitual brand choice with 85% of them choosing the familiar brands and 79% using the product they already knew to be effective. This implies that consumers are more prone to cognitive overload that is related to pain, which renders them more vulnerable to familiarity and emotional considerations, which is consistent with simplified decision under distress.

The same impressions were supported by the Garrett ranking results (Table 2), where pain intensity/urgency was the most effective factor in purchasing impulsively (mean = 28.34), followed by brand familiarity/previous experience (26.08). Promotional offers (24.40) and product availability (22.32) were secondary roles but packaging appeal (19.45) was least influential. These results suggest that behavioural reactions in the presence of pain are quite different than conventional marketing-driven decision-making models; emotional urgency and familiarity disregard a reasonable evaluation of packaging beauty or display-based persuasion.

The outcome of ANOVA proved that demographic factors had certain impacts on the dimension of pain-perception. Age had a great influence on the pace of buying when in great pain ($p = .001$), less time to rate the product ($p = .017$), the impulse to purchase on the basis of urgency ($p = .022$), and buying an easily available brand ($p = .042$). This indicates the presence of age variations in the impulsive response to pain, perhaps because of the difference in tolerance, coping or the familiarity with OTC. Nonetheless, there was no significant difference in dimensions connected with emotional response, risk disregard, and prior brand experience according to age groups, which points to the fact that brand familiarity and risk negligence are similar among age groups. Gender ANOVA did not show any significant effects in all indicators of awareness, which indicates that factors of informational and recognition are not different in male and female. Therefore, impulsive OTC buying is not based on differences in awareness but instead that which is more prone to experience and situational stimulus.

In order to confirm the role of marketing cues, SEM analysis was conducted. Findings showed advertising exposure (0.389, $p = 0.001$), packaging appeal (0.314, $p = 0.002$), and in-store display (0.224, $p = 0.011$) have significant positive effects on impulsive purchasing. The strongest driver was advertising, which means that brand communication and exposure to the media develop top of mind recall, which promotes impulsive buying when in pain. The packaging attractiveness was also very influential as it shows that visual visibility and the perceived quality of the product influence the consumer when the consumer needs to make a decision under urgency. The influence of in-store display was relatively low, albeit the significant influence, proving the effect of strategic placement of products as a support of the impulse purchase at the point of sale. The R^2 of the model (0.604) is a good indicator of the strength of the explanations of the marketing cues as it shows that marketing cues alone explain 60.4 percent of the variation of impulsive buying.

Taken together, the results underline that emotional discomfort caused by pain, as well as the urge, reduce rational behaviour and cause consumers to ignore professional consultation and warnings. Rather, past experience, brand loyalty and marketing stimuli particularly advertising and packaging become the main determinants of decisions. This supports the fact that OTC pain-relief buying is highly low-involvement, emotionally-focused, and convenience-oriented and is mainly focused on immediate necessity rather than on conscious consideration.

These findings are consistent with consumer behaviour theories which focus on heuristics and emotional stimulation in time-sensitive situations. The presence of pain makes cognitive processes more taxing and decreases the use of information processing

and enhances the use of shortcuts like familiarity with a brand or recalling a message. In the meantime, the importance of marketing cues substantiates the literature that exists on the fact that promotional stimuli influence behaviour within low involvement product categories. These two elements (experience and marketing) imply that persuasive tactics with congruence with consumer need states can effectively affect uptake of OTC pain-relief products.

To sum up, the combination of pain perception and marketing cues is a strong explanatory model of impulsive OTC pain-relief buying, where the importance of the intensity of pain and advertisement become the leading factors. These lessons can be useful to marketers, health professionals, and policymakers interested in maximising communication efforts at the expense of consumer welfare.

Conclusion

This research examined the influence of pain perception and marketing stimulus as determinants of impulsive buying behaviour of over-the-counter (OTC) pain-relief products. The results indicate that the degree of pain and urgency are important factors that affect consumer decision-making, which affects quicker and less reasoned buying. The higher the level of pain, the higher the tendency of people to seek immediate relief, less time to explore their life options, and to ignore product warnings or expert recommendations. Also the familiarity factor is important; consumers tend to stick with the same brand they had previously and this will bring the reinforcing effect of the positive past experience on impulsive purchase.

The ranking analysis proved that the most effective factor in the impulsive buying of OTC is the pain intensity and the second is brand familiarity. Promotional offers and availability have moderate effects whereas the packaging appeal has the least effects and therefore functional urgency is more dominant than the aesthetics during pain episodes.

Demographic: Demographic analysis showed that age plays a significant role in chosen dimensions of pain impulsivity especially immediate purchasing due to pain, and preference of easily accessible brands. Nevertheless, the brand familiarity and perception depending on the risk did not vary among the demographics implying consistency in the behavioural pattern. No significant difference existed in gender on the perceptions based on awareness.

The structural equation model also confirmed that marketing cues particularly exposure to advertisements, packaging attractiveness, and displays in the stores play a critical role in influencing impulsive buying behaviour. Packaging and product placement were the next strongest followed by advertising and the overall model was the strongest in explaining the variation in impulsive purchasing (60.4), implying that it is a strong predictor.

On the whole, the research comes to the conclusion that urgency as a result of pain, brand familiarity as the result of employing the strength of the brand, and marketing strategic stimuli jointly promote impulsive purchase of OTC analgesics. These actions are indicative of low-involvement and emotional decision making processes that are characterized by living in the moment and physical need over rational consideration. The insights highlight the necessity of balanced marketing practices that respond to consumer demands to have quick relief, and safe and informed use of the products.

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