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The Impact of Packaging Type and Mood on Impulse Buying and Customer Satisfaction: A Moderated Mediation Analysis

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Abstract

This study investigates how the three dimensions of packaging—technical, functional, and informational—influence customer satisfaction through impulse buying, with mood serving as a moderator. Data were collected via a structured questionnaire from 122 respondents and analysed using Process Macro Model 14. The results reveal that impulse buying mediates the relationship between technical packaging and customer satisfaction, with this mediation being moderated by consumers' mood. Interestingly, when consumers are in a highly positive mood, impulse purchases triggered by technical packaging may actually reduce satisfaction. In contrast, functional and informational packaging directly enhance customer satisfaction, independent of mood or impulsive behaviour. These findings indicate that different packaging dimensions activate distinct psychological mechanisms. While technical packaging engages emotional and impulsive processes, functional and informational packaging align with more rational, high-involvement decision-making. The study contributes to the literature by uncovering how mood shapes the impulse buying–satisfaction link and by highlighting the direct, stable influence of higher-order packaging attributes on satisfaction. Practically, marketers should utilise technical packaging to attract impulse buyers and emphasise functional and informational packaging to build sustained customer satisfaction. Directions for future research are also proposed.

Keywords: Packaging, Impulse Buying, Mood, Customer Satisfaction, Moderated Mediation

Introduction

Although extensive research has explored the effect of packaging on consumer behaviour, the mechanisms through which packaging influences consumer outcomes have received less attention. The role of impulse buying in the relationship between packaging and customer satisfaction, as well as the impact of mood on this connection, has not been thoroughly studied.

Impulse buying is of interest to both practitioners and academics (Wang, Chapa & Zhai, 2023). Consumers can spend a considerable amount of money per year on impulse purchases (O'Brien, 2018). Consequently, many studies have examined their antecedents and effects (e.g., Bellini, Cardinali & Grandi, 2017; Goel, Parayitam, Sharma, Rana & Dwivedi, 2022; Parsad, Prashar, Vijay & Kumar, 2021; Santini, Ladeira, Vieira, Araujo & Sampaio, 2019). One significant antecedent of impulse buying in marketing is packaging (Belaid, Mrad, Lacoeuilhe & Petrescu, 2017). This is not surprising given that packaging influences customers' expectations of how the product will perform, and these expectations, in turn, influence customers' emotions (Gunaratne et al., 2019). Research has shown that emotions are the primary drivers of impulse purchase decisions (Parsad et al., 2021). While existing research has explored the mediating role of impulse buying in the relationship between packaging and outcomes such as customer satisfaction, there is limited understanding of how this mediating effect may vary based on contextual factors, such as the consumer's mood. Furthermore, few studies have examined whether the impact of packaging on consumer outcomes—via impulse buying—differs depending on the type of packaging involved.

Although prior studies have investigated the effects of specific packaging features—such as colour, size and shape—on consumer behaviour through impulse purchasing (e.g., Bahrainizad & Rajabi, 2018), these dimensions represent lower-level, design-specific characteristics. They are not situated within the broader, theoretically grounded categories commonly used in the

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packaging literature—namely, technical, functional, and informational packaging (cf. Gómez, Martín-Consuegra & Molina, 2015). As a result, it remains unclear whether impulse buying meaningfully mediates the effects of these higher-level packaging dimensions, which are more closely associated with rational and high-involvement decision-making processes. This study addresses that gap by examining whether dimensions such as informational and functional packaging influence customer satisfaction independently of impulse buying, thereby challenging the assumption that impulse purchasing is a universal mechanism across all packaging types. To date, no study has systematically examined whether impulse buying serves as a meaningful mediator across the broader, academically recognised categories of packaging—particularly informational and functional packaging—which are more relevant in high-involvement consumer contexts.

Understanding this issue holds both academic and practical significance. Academically, it addresses a gap in the literature by exploring the intricate dynamics between the dimensions of packaging, impulse buying, mood, and customer satisfaction. Practically, understanding how mood interacts with impulse buying and customer satisfaction can inform more targeted packaging strategies. While emotional states may influence impulsive responses to certain packaging features, this study suggests that higher-level packaging dimensions—such as functional and informational aspects—affect customer satisfaction more directly, without relying on impulse buying as a mediator. This insight is particularly valuable for marketers aiming to engage consumers in more deliberate, high-involvement purchasing contexts, especially in economically constrained environments where excessive impulse buying may lead to dissatisfaction or regret. By designing packaging that prioritises clarity, usefulness, and product information, marketers can foster long-term satisfaction without depending solely on emotionally driven consumer behaviour (Chopdar & Balakrishnan, 2020; Redine, Deshpande, Jebarajakirthy & Surachartkumtonkun, 2023).

The article is structured as follows: it begins with an overview of the conceptual framework, including the hypotheses and the methodology of the survey study. This is followed by an analysis and discussion of the study's results. The article concludes with an exploration of the research implications, an acknowledgement of its limitations, and recommendations for future research paths.

Conceptual Framework and Hypotheses

Impulse Buying

Impulse buying has been defined as "a sudden, compelling, hedonically complex purchase behaviour in which the rapidity of the impulse purchase decision precludes any thoughtful, deliberate consideration of alternatives or future implications" (Sharma, Sivakumaran & Marshall, 2010, p. 277). In its most basic sense, impulse buying is viewed as a purchase made without prior planning (Stern, 1962). However, while all impulse purchases are unplanned, not all unplanned purchases are impulse purchases (Santini et al., 2019). Unplanned purchases often stem from forgetting to buy an essential item (Santini et al., 2019), whereas impulse buying is driven by emotions and irrational impulses (Amos, Holmes, & Keneson, 2014).

The relationship between impulse buying and customer satisfaction is complex and can be either positive or negative (Chopdar & Balakrishnan, 2020; Redine et al., 2023). The outcome of an impulse purchase depends on factors such as the customer's personality characteristics and culture, among others (Lin, Chen, Wang & Lin; Pornpitakpan, Yuan & Han, 2017; Sen & Nayak, 2022). To illustrate the effect of these uncontrollable factors, consider culture as a variable. Certain cultures (e.g., collectivist cultures[1]) encourage customers to practice emotional control and moderation, so impulse buying can conflict with these values as it is an unplanned, spontaneous purchase (Sen & Nayak, 2022). However, an impulse purchase could also lead to customer satisfaction, as customers in individualistic cultures may enjoy the experience of shopping (Lee & Kacen, 2008). Since this

[1] Hofstede declared that almost all developing countries are classified as collective cultures (Hofstede, 1984). In these cultures, there is a tight-knit social framework where individuals expect their in-group to look after them (Hofstede, 1984). In contrast, countries where everyone is expected to look after themselves and their immediate family are recognised as 'individualistic societies' (Hofstede, Hofstede, & Minkov, 2010)

cultural framework identified at the national level could also extend to the individual level, we cannot be sure how impulse buying will affect customer satisfaction in a given country (Hofstede et al., 2010; Yoo, Donthu & Lenartowicz, 2011). Thus, the relationship between impulse buying and customer satisfaction is complex. Rather than a directional hypothesis, we propose the following non-directional hypothesis.

H1: Impulse buying has an effect on customer satisfaction.

Packaging and Impulse Buying

Packaging serves several roles, including a technical role that encompasses protecting the product as well as attracting customers through colour and design (Gelici-Zeko, Lutters, Klooster & Weijzen, 2013). This function of a package is a basic requirement that all packages must meet. Packaging also plays an informational role, as it provides information on product content, how to use the product, expiry dates, and so forth (Hine, 1997). In addition, a package also plays a functional role in making the use of the product easy, such as a squeeze bottle that makes using ketchup not only easy but also mess-free (Gómez et al., 2015). All three roles are essential in creating a complete package experience.

All three roles of a package communicate to a consumer what to expect in terms of sensory attributes (Gunaratne et al., 2019). These expectations of taste, smell, and texture conveyed by the package can evoke emotions that are crucial to consumers' impulse decision-making (Parsad et al., 2021). Therefore, a package can significantly influence customers' impulse purchases. This is because unique packaging can capture attention and potentially influence impulse purchases by standing out from competitors and attracting consumers' attention through strategic graphic placement (Silayoi & Speece, 2004).

Impulse buying is impacted by factors such as external stimuli (e.g., advertising) (Redine et al., 2023), the consumer's traits (e.g., buying impulsiveness[2]) (Chen & Wang, 2016), and information processing overload[3] (Hausman, 2000) among others. However, this research will focus on packaging, as it can be fully manipulated by marketers to influence consumer behaviour, unlike individual consumer differences (e.g., the need for novelty-seeking) and situational factors such as time constraints (Beatty & Ferrell, 1998). In fact, packaging can be used to achieve marketers' goals of encouraging impulse purchases (Amos et al., 2014). Through its colour, shape, and size, a package can attract the attention of a customer (Underwood, 2003). By capturing attention, a package can then influence customers' expectations and subsequent behaviour (Gunaratne et al., 2019).

Thus, based on the preceding discussion, the following hypothesis is formulated:

H2: Packaging has an effect on impulse buying.

Packaging and Customer Satisfaction

Beyond its effect on impulse buying, packaging also impacts customer satisfaction. In this context, satisfaction refers to the intrinsic pleasure derived from the act of purchasing the product due to its packaging, rather than the satisfaction derived from using the product. This conceptualisation of customer satisfaction is supported by the literature (Arnold & Reynolds, 2003; Goel et al., 2022). A package can evoke positive emotions such as pleasure or curiosity, and if these emotions enhance the shopping experience (or intrinsic satisfaction), packaging will lead to greater customer satisfaction (Underwood, 2003). For instance, a unique and attractive package can make a product more appealing, leading to a positive experience even before the product is consumed (Silayoi & Speece, 2004). Thus, we can expect that packaging—through its colour, shape, size, and other attributes—will affect customer satisfaction.

H3: Packaging has an effect on customer satisfaction.

The Mediating Role of Impulse Buying

The effect of packaging on customer satisfaction can be mediated by impulse buying. Packaging attracts attention through various tactics such as colour, design, and other attributes, which can lead to an impulse purchase

[2] Impulse buying tendencies can be understood as a consumer trait, which Rook and Fisher (1995) refer to as buying impulsiveness. This trait describes a consumer's tendency to make spontaneous, unplanned purchases driven by immediate desires rather than careful consideration.

[3] Information overload, as described here, happens when a person is given too much information to process, leading to feelings of being overwhelmed and frustrated (Hausman, 2000).

(Amos et al., 2014). Impulse buying then leads to either a positive or negative experience due to acquiring something impulsively because of its packaging (Santini et al., 2019). A positive impulse buying experience often comes from the immediate gratification and pleasure of purchasing something that appeals to the consumer's emotional or sensory preferences (Hausman, 2000). Conversely, impulse buying can result in a negative experience, such as buyer's remorse or dissatisfaction, if the purchase was made without sufficient consideration (Rook & Fisher, 1995). Thus, the effect of packaging on impulse buying precedes customer satisfaction (Goel et al., 2022). Based on the above argument, the following hypothesis is formulated:

H4: The effect of packaging on customer satisfaction is mediated by impulse buying.

The Role of Moderators

The extant literature shows that the relationship between packaging and customer satisfaction, as mediated by impulse buying, is moderated by various factors such as culture and personality (Lin et al.; Pornpitakpan et al., 2017; Sen & Nayak, 2022). In this paper, we focus on mood as a moderator because, unlike variables such as culture and personality, which affect the relationship between marketing stimuli and customer satisfaction, mood is amenable to change. Marketers can influence a customer's mood through mechanisms such as music and fresh smells (i.e., sensory marketing or atmospheric marketing) (e.g., Karimi & Liu, 2020; Pelet & Papadopoulou, 2012; Swinyard, 1993).

In the next section, we discuss the importance of mood in affecting the relationship between impulse purchases and customer satisfaction.

Mood

In the literature, "emotions" and "moods" are often conflated, though they are distinct concepts (DeLancey, 2006). Emotions are usually strong, connected to specific situations, and can provoke immediate reactions, such as experiencing envy when a consumer sees someone else enjoying a brand or product they highly desire (Van de Ven, Zeelenberg, & Pieters, 2009). In contrast, moods are broader and more generalised, typically categorised as either positive or negative predispositions (Pornpitakpan et al., 2017).

Marketers need to understand how customers' initial moods before making impulsive purchases affect their satisfaction. Moods colour every espect of our behaviour, making experiences and perceptions vary (DeLancey, 2006). Consequently, mood influences customers' impulse purchases and their overall satisfaction with those purchases (Atalay & Meloy, 2011; Ozer & Gultekin, 2015). That is, a negative mood may cast an impulsive purchase decision in a negative light, while a positive mood might make the decision to make an impulse purchase seem more favourable or vice versa (Forgas, 1995). This is because a positive mood makes customers optimistic about their choices, helping them see the positive aspects, which leads to higher satisfaction (Han & Gershoff, 2019; Karimi & Liu, 2020). In contrast, a negative mood can lead to a more critical evaluation of impulse purchases. Consumers in a negative mood are likely to scrutinise their decisions more closely, and if the purchase fails to meet their expectations or is perceived as a mistake, the resulting dissatisfaction is heightened by their already negative emotional state (Mohanty & Suar, 2014; Pelet & Papadopoulou, 2012).

However, while a positive mood generally makes regret less likely, it does not entirely eliminate the possibility. Regret can occur if the purchase is later perceived as unnecessary, financially imprudent, or misaligned with long-term goals (Baumeister, 2002; Dholakia, 2000). This understanding allows for a more nuanced view of the relationship between mood and impulse buying. Thus, mood significantly influences the level of satisfaction or dissatisfaction with an impulse purchase. Consequently, mood impacts customers' responses and can either mitigate or exacerbate the positive or negative effects of impulse purchases on customer satisfaction (Pornpitakpan et al., 2017).

Based on the above discussions, the following hypothesis is formulated:

H5: The mediated effect of packaging on customer satisfaction through impulse buying is moderated by customers' mood.

Method

Participants

To test the above hypotheses, data were collected from students at a private university in Ethiopia. The data were gathered by research assistants who administered the questionnaire to students. Participants were engaged in various locations, such as cafeterias, libraries, and other spots where they were occupied with their tasks. A student sample was chosen due to their accessibility and homogeneity as a group (Calder, Phillips & Tybout, 1981). A total of 122[4] questionnaires were obtained for the study.

At the beginning of each questionnaire, respondents were informed that their responses would remain anonymous and be used solely for academic research. They were also assured that there were no right or wrong answers and that the researchers were seeking their honest personal opinions. This approach was implemented to address potential issues related to common method bias (Podsakoff, MacKenzie, Lee & Podsakoff, 2003).

Measures

The study utilised items adapted from previously developed and validated instruments (refer to Appendix 1). Constructs in this study were assessed using a scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Items used to measure the independent and dependent variables:

Independent Variables

To measure the technical, functional, and informational aspects of packaging, ten items were adapted from Gómez et al. (2015). Impulse buying was measured using a single item adapted from Rook and Fisher (1995). Although multi-item measures are typically preferred, prior studies (e.g., Bergkvist & Rossiter, 2007; Kacen & Lee, 2002) have shown that single-item scales can be valid for concrete, behaviour-specific constructs like impulse buying. Given its spontaneous nature, a single, well-phrased item effectively captures the essence of impulse buying while minimising respondent burden. To measure consumer mood, three items were borrowed from Sirakaya, Petrick and Choi (2004).

Dependent Variable

To measure customer satisfaction, one item was adapted from Gómez et al. (2015). Single-item measures are widely accepted for concrete and unidimensional constructs like satisfaction and have shown acceptable reliability and validity (e.g., Bergkvist & Rossiter, 2007). This approach also minimises respondent burden and enhances data quality.

Covariate

To account for the influence of certain variables on the relationships between constructs, gender was included as a covariate. This variable was chosen due to its potential impact on impulse buying (Bahrainizad & Rajabi, 2018; Santini et al., 2019). Participants were therefore asked to indicate their gender.

Analysis Procedure

For the data analysis, a series of steps were undertaken to ensure the robustness of the findings. Initially, the means and Cronbach's alpha values of the study constructs (i.e., packaging dimensions and mood) were computed. In line with prior research, the packaging construct was conceptualised as a multidimensional variable, comprising technical, functional, and informational dimensions. (e.g., Gómez et al., 2015). Rather than

[4] A priori power analysis was conducted using G*Power to determine the appropriate sample size for a multiple regression analysis in which the effects of an independent variable, a mediator, a moderator, and a covariate on a dependent variable were to be examined. The analysis used an F-test for linear multiple regression with a fixed model, aiming to detect a medium effect size ($f^2 = 0.15$), with an alpha level of .05, and a power of .80. The analysis considered a total of 5 predictors (independent variable, mediator, moderator, covariate, and interaction term). The results indicated that a minimum sample size of N = 119 would be required to detect the hypothesised effects (Faul, Erdfelder, Buchner & Lang, 2009).

aggregating all packaging items into a single index, these dimensions were analysed separately to maintain theoretical rigour and preserve granular insights. This disaggregated approach allows for a more nuanced understanding of the specific aspects of packaging that influence consumer behaviour.

Following this, the assumptions of Process Macro Model 14 were tested to ensure the validity of the mediation analysis. Subsequently, regression analyses were performed to examine the proposed hypotheses, with a focus on the moderated mediation relationships among packaging, impulse buying, mood, and customer satisfaction. Model 14 of the Process Macro was used to test these moderated mediation relationships.

Additionally, to account for the potential issue of common method bias, the study incorporated procedural remedies recommended by Podsakoff et al. (2003) and conducted Harman's single-factor test. The test revealed that the items did not load significantly onto a single factor, with a variance of 32.12%, suggesting that common method bias is unlikely to be a significant concern.

Results

The results of the analysis are reported in the order in which the procedures were conducted. First, the findings from the reliability tests are presented (see Table 1). Next, the assumptions of the Process Macro Model 14 analysis were examined. Finally, the results of the regression analysis testing the moderated mediation hypotheses are presented.

As shown in Table 1, each packaging dimension demonstrated satisfactory internal consistency (Cronbach's $\alpha > 0.70$), justifying their independent treatment in the subsequent analyses. The construct mood also showed acceptable internal consistency, with a Cronbach's alpha value exceeding 0.70.

Table 1: Cronbach's Alpha for Reliability Testing and Average Scores for Mood and Packaging

Construct	Items Measuring the Construct	Cronbach's Alpha	Mean
Functional-packaging	3	0.87	3.80
Informational-packaging	3	0.85	3.65
Technical-packaging	4	0.84	3.56
Mood	3	0.71	2.93

Next, the assumptions related to Process Macro Model 14 were examined. The results of these assumption tests are presented in the appendix.

Testing Study

Hypotheses

To test the study's hypotheses, Process Macro Model 14 was used. Since the marketing literature recognises three dimensions of packaging, the study conducted three separate analyses—one for each independent variable: the technical, functional, and informational aspects of packaging. First, we tested the hypotheses using the technical aspect of packaging as the independent variable, followed by an analysis using the functional aspect, and finally the informational aspect. We then compared the results from each model to determine whether the use of functional, informational, and technical packaging leads to different outcomes, as discussed in the discussion section of the paper. The results of Process Macro Model 14, using technical packaging as the independent variable, are presented below.

H1: Impulse buying has an effect on customer satisfaction.

- *Supported:* The results show that impulse buying has a significant positive effect on customer satisfaction, $\beta = 1.36$, $t(115) = 2.29$, $p = .024$. This indicates that higher levels of impulse buying are associated with increased customer satisfaction.

H2: Packaging has an effect on impulse buying.

- *Supported:* The results demonstrate that Technical Packaging significantly affects impulse buying, $\beta = .58$, $t(118) = 8.07$, $p < .001$.

H3: Packaging has an effect on customer satisfaction.

- *Not Supported:* The direct effect of technical packaging on Customer Satisfaction was not significant, $\beta = -.01$, $t(115) = -.06$, $p = .95$. This suggests that, while controlling for the effects of

the other variables, packaging does not directly influence customer satisfaction.

H4: The effect of packaging on customer satisfaction is mediated by impulse buying,

- *Partially Supported:* The indirect effect of Technical Packaging on Customer Satisfaction through impulse buying varies depending on the customer's mood. Specifically, at higher levels of mood, the indirect effect was negative and significant, Effect = −.31, 95% CI [−.59, −.05]. This partial mediation suggests that impulse buying mediates the relationship between packaging and customer satisfaction, but the direction and strength of this effect depend on mood.

H5: The mediated effect of packaging on customer satisfaction through impulse buying is moderated by customers' mood.

- *Supported:* The results confirm that the indirect effect of technical packaging on customer satisfaction through impulse buying is moderated by mood. The interaction term (Impulse Buying × Mood) was significant, β= −.54, t (115) = −2.71, p = .007, and the index of moderated mediation was also significant, Index = −.31, 95% CI [−.64, −.07]. This result indicates that the mediation effect is contingent upon the customer's mood.

The bootstrap analysis confirmed these findings, with the index of moderated mediation showing a significant effect (see Table 2).

Table 2: Results of Bootstrapping for Model 14 (Technical Packaging as an IV)

OUTCOME VARIABLE: Impulse Purchasing					
	Coeff	**BootMean**	**BootSE**	**BootLLCI**	**BootULCI**
Constant	1.0826	1.0725	.2822	.5044	1.6082
Technical packaging	.6396	.6423	.0826	.4841	.8066
OUTCOME VARIABLE: Customer Satisfaction					
	Coeff	**BootMean**	**BootSE**	**BootLLCI**	**BootULCI**
Constant	-.4055	-.5229	2.3885	-5.5791	3.9909
Technical packaging	.0152	-.0131	.1747	-.3807	.3161
Impulse purchasing	1.3298	1.3953	.7019	.1353	2.9332
Mood	1.7070	1.7704	.8121	.2710	3.5315
Interaction	-.5419	-.5607	.2405	-1.0616	-.1051

Level of confidence for all confidence intervals in output: 95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals: 5000

W values in conditional tables are the 16^{th}, 50^{th}, and 84^{th} percentiles.

Next, the result of the moderated mediation analysis using functional packaging as the independent variable is presented below.

H1: Impulse buying has an effect on customer satisfaction.

The effect of impulse buying on customer satisfaction was not statistically significant, B = −0.10, t (115) = −0.22, p = .82 Thus, the analysis provides no evidence to support H1, as impulse buying does not significantly affect customer satisfaction in this sample.

H2: Functional packaging has an effect on impulse buying.

Functional-informational packaging had no statistically significant negative effect on impulse buying, B = −.11, t (118) = −1.46, p = 0.14. Thus, there is no evidence to support H2, indicating that this type of packaging has no significant effect on impulse buying (see Table 3).

Table 3: Results of Bootstrapping for Model 14 (Functional Packaging as an IV)

Outcome Variable: Impulse Purchasing					
	Coeff	**BootMean**	**BootSE**	**BootLLCI**	**BootULCI**
Constant	3.6781	3.6496	.3692	2.9194	4.3843
Functional packaging	-.1050	-.0978	.0802	-.2514	.0681
Outcome Variable: Customer Satisfaction					
	Coeff	**BootMean**	**BootSE**	**BootLLCI**	**BootULCI**
Constant	1.9051	1.6433	2.1643	-3.1079	5.5189
Functional- packaging	.6950	.6957	.0581	.5796	.8104
Impulse purchasing	-.1030	-.0271	.6413	-1.1859	1.3481
Mood	-.0946	-.0075	.7164	-1.2997	1.5309
Interaction	.0082	.0157	.2076	-.4552	.3645

Level of confidence for all confidence intervals in output: 95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals: 5000

W values in conditional tables are the $16^{th,}$ 50^{th}, and 84^{th} percentiles.

H3: Functional packaging has an effect on customer satisfaction.

Functional packaging had a statistically significant positive effect on customer satisfaction, B = .69, t (115) = 8.96, p < .001. Therefore, there is strong evidence to support H3, suggesting that functional packaging significantly affects customer satisfaction.

H4: The effect of functional packaging on customer satisfaction is mediated by impulse buying.

The indirect effect of functional-informational packaging on customer satisfaction through impulse buying was not statistically significant at any level of mood. For example, at the mean level of mood (3.00), the effect was Effect = 0.082, bootstrapped SE = 0.014, 95% CI [−0.0179, 0.0394]. Therefore, there is no evidence to support H4, as the mediation effect of impulse buying between packaging and customer satisfaction is not significant.

H5: The mediated effect of functional-informational packaging on customer satisfaction through impulse buying is moderated by customers' mood.

The index of moderated mediation was not statistically significant, Index = −0.0009, bootstrapped SE = 0.0274, 95% CI [−.0467, .0708]. Therefore, there is no evidence to support H5, as mood does not significantly moderate the mediated effect of packaging on customer satisfaction through impulse buying.

In the next section, the results of the analysis concerning the effect of informational packaging on customer satisfaction, as well as the mediating role of impulse buying and the moderating role of mood in this relationship, will be examined.

H1: Impulse buying influences customer satisfaction.

The analysis revealed that the relationship between impulse buying and customer satisfaction was not statistically significant (B = 0.10, t (115) = 0.32, p = .74). This suggests that impulse buying does not have a notable impact on customer satisfaction in this context, and thus, there is insufficient evidence to support Hypothesis 1.

H2: Informational packaging influences impulse buying.

The effect of informational packaging on impulse buying was negative but not statistically significant (B = −.12, t (118) = −1.83, p = .06). As a result, Hypothesis 2 is not supported, indicating that informational packaging does not have a meaningful influence on impulse purchasing behaviour (see Table 4).

Table 4: Bootstrap Analysis Results for Model 14 (Informational Packaging as IV)

Outcome Variable: Impulse Purchasing					
	Coeff	**BootMean**	**BootSE**	**BootLLCI**	**BootULCI**
Constant	3.8117	3.7940	.4150	2.9486	4.5803
Informational packaging	-.1288	-.1244	.0819	-.2755	.0417
Outcome Variable: Customer Satisfaction					
	Coeff	**BootMean**	**BootSE**	**BootLLCI**	**BootULCI**
Constant	.0340	-.1183	1.1555	-2.7456	1.8463
Informational packaging	.8600	.8602	.0460	.7713	.9520
Impulse purchasing	.1084	.1544	.3403	-.4199	.9393
Mood	.1416	.1949	.3778	-.4414	1.0543
Interaction	-.0383	-.0543	.1093	-.2997	.1335

Level of confidence for all confidence intervals in output: 95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals: 5000

W values in conditional tables are the 16^{th}, 50^{th}, and 84^{th} percentiles.

H3: Informational packaging influences customer satisfaction.

There was a statistically significant and positive association between functional packaging and customer satisfaction (B = 0.86, t (115) = 15.95, $p < 0.001$). This finding supports Hypothesis 3, indicating that functional packaging contributes positively to customer satisfaction.

H4: Impulse buying mediates the relationship between informational packaging and customer satisfaction.

The indirect pathway from informational packaging to customer satisfaction through impulse buying was not statistically significant at any level of mood. For instance, at the average mood level (3.00), the indirect effect was 0.001 with a bootstrapped SE of 0.0087 and a 95% confidence interval of [−0.0184, 0.0188]. This result does not support Hypothesis 4, suggesting that impulse buying does not serve as a mediator in this relationship.

H5: Mood moderates the mediated relationship between informational packaging and customer satisfaction via impulse buying.

The index of moderated mediation was found to be non-significant (Index = −0.0050, boot SE = 0.0164, 95% CI [−.0222, 0.0466]). Therefore, there is no evidence to support Hypothesis 5, as customer mood does not significantly influence the indirect effect of informational packaging on satisfaction through impulse purchasing.

Conclusion

This study contributes to existing theory by integrating mood as a moderating variable in the relationship between dimensions of packaging, impulse buying, and customer satisfaction. While prior research (e.g., Bahrainizad & Rajabi, 2018; Gómez et al., 2015) has explored the general role of packaging in consumer behaviour, few have examined how mood interacts with specific packaging dimensions to shape impulse buying and satisfaction.

Findings reveal that technical packaging can trigger impulse buying, which in turn affects customer satisfaction—but this effect is significantly influenced by the consumer's mood. Notably, in a highly positive mood, consumers may experience reduced satisfaction from impulse purchases driven by technical packaging, likely due to a mismatch between emotional state and impulsive behaviour. This aligns with the hedonic-contingency view (Wegener, Petty, & Smith, 1995), which suggests that consumers in a positive mood avoid behaviours that could disrupt emotional balance.

In contrast, functional and informational packaging directly enhance customer satisfaction without being mediated by impulse buying or moderated by mood. This implies that consumers respond more rationally to packaging designed to convey usefulness and clarity, especially in high-involvement decisions.

By differentiating the psychological mechanisms through which various packaging dimensions operate, this study refines the existing packaging literature. Previous research has often used fragmented classifications (e.g., colour, size, material), overlooking the broader implications of academically grounded categories such as technical, functional, and informational (e.g., Bahrainizad & Rajabi, 2018; Gómez et al., 2015). Our findings suggest that only technical packaging activates emotional and impulsive responses, while the other dimensions promote more stable, deliberate satisfaction.

Overall, this research provides a more nuanced understanding of how packaging influences consumer satisfaction, emphasising the importance of matching packaging strategies to the consumer's decision context—impulsive or rational. These insights open up new pathways for research and offer valuable direction for marketers seeking to design packaging that balances emotional appeal with long-term satisfaction.

Managerial Implications

The study suggests that organisations aiming to influence impulse purchases via packaging should focus on the technical aspects rather than the functional or informational aspects. However, while impulse buying can boost short-term sales, managers should be cautious of its potential long-term impact on customer satisfaction, especially when customers are in a highly positive mood. They should consider the moderating effect of mood on the indirect impact of packaging through impulse buying, as mood-boosting strategies might be counterproductive. For instance, marketing campaigns should evoke a balanced emotional response rather than heightening positivity, as an excessively positive mood may lead to pre-consumption regret. Additionally, the study indicates that if the goal is to enhance customer satisfaction directly, emphasising functional and informational aspects of packaging is more effective than focusing on technical aspects, which primarily influence impulse buying.

Limitations and Directions for Future Research

The study, which focuses on the Ethiopian snack food market and utilises student samples, may limit the generalisability of its findings to other countries and product categories. Nevertheless, given that the primary aim is to explore the relationships between variables rather than capturing the diverse responses of different consumer groups, the use of student samples is appropriate in this context. One limitation of the study is the relatively small sample size, which may affect the statistical power and generalisability of the results. However, the use of bootstrapping techniques in the analysis helps to mitigate this limitation by providing more robust estimates of indirect and conditional effects.

In addition, the study did not use exploratory or confirmatory factor analysis (EFA or CFA) to empirically validate that packaging in the Ethiopian context is composed of three distinct dimensions—technical, functional, and informational. Instead, the classification was based on theoretical foundations established in prior literature. While this theory-driven approach aligns with existing academic frameworks, future research could strengthen the validity of this dimensional structure through empirical testing, especially in under-explored markets like Ethiopia. Moreover, qualitative methods could be used to gain deeper insights into how packaging influences consumer behaviour, and incorporating multi-item scales for constructs like impulse buying could improve measurement reliability in future studies.

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Author contributions

A.W. conceived and designed the study, performed the data analysis, and wrote the main manuscript text. A research assistant collected the data under A.W.'s supervision. A.W. also reviewed and finalised the manuscript for submission. All authors reviewed and approved the final manuscript.

Appendix

The items listed below were utilised to measure the constructs of interest in this study (see Table 5 below.)

Table 5: Items Used to Measure the Constructs Explored in this Study

Concept	Statement	Adapted from
Packaging	1. When I buy snack food, the colour is what first catches my attention. 2. The attractive design of the package influences my purchase of snack food. 3. The funny and attractive imagery on the packaging can catch my attention. 4. The size of the packaging can catch my attention when I purchase snack food. 5. I prefer to buy snack food with packaging that is easy to open. 6. I prefer to buy snack food with packaging that is easy to close. 7. The ease of serving snack food favours my purchase decision. 8. The informative elements in snack food packaging (e.g., product information and content) help me make the right decision. 9. The location of information on the snack food packaging (e.g., expiration date) helps my purchasing decision. 10. The symbols and codes on the package influence my purchase of snack food.	Gómez et al. (2015)
Impulse buying	1. I buy things I do not need.	Rook and Fisher (1995)
Mood	1. From some reason I am not very comfortable (r). 2. At this moment I feel irritable (r). 3. As I answer these questions, I feel very cheerful.	Sirakaya et al. (2004)
Customer satisfaction	I feel very satisfied with my decision to purchase a product because of its packaging.	Gómez et al. (2015)

Tests of the Assumptions of Process Macro Model 14

The examination of multicollinearity revealed no concerns, as all tolerance values and Variance Inflation Factors (VIFs) fall within acceptable ranges (see Table 6)[5].

[5] The covariate gender was excluded from further analysis because preliminary regression results indicated that it had no effect on the dependent variable.

Table 6: Tests Related to the Assumption of Multicollinearity

Coefficients[a]								
Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.231	.333		-.693	.490		
	Functional packaging	-.077	.086	-.064	-.900	.370	.354	2.829
	Informational packaging	1.100	.083	.943	13.255	.000	.353	2.836
	Technological packaging	.047	.064	.032	.741	.460	.973	1.028
a. Dependent Variable: Customer satisfaction								

To evaluate the assumption of independence of errors, the Durbin-Watson statistic was calculated, resulting in a value of 1.982. This value suggests that there is little evidence of autocorrelation among the residuals, thus supporting the assumption that the errors are independent (see Table 7).

Table 7: Test of the Assumption of Independence of Errors

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.888[a]	.789	.784	.50252	1.982
a. Predictors: (Constant), Technical packaging, Functional packaging, Informational packaging					
b. Dependent Variable: Customer satisfaction					

In this study, the normality of residuals was not assessed because bootstrapping with 5,000 samples was employed. Bootstrapping is robust to violations of normality assumptions and provides reliable estimates of parameter distributions without assuming normality.