



Anaphylactic Shock due to Oral Levofloxacin After Cataract Surgery: A Case Report

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Abstract: Background: Levofloxacin is a fluoroquinolone antibiotic that is generally safe to use, but can cause severe hypersensitivity reactions such as anaphylactic shock in rare cases. **Objectives:** This study are use to report a case of anaphylactic shock following oral levofloxacin administration after cataract surgery and to describe its clinical manifestations and management. **Methods:** This study used a case study design with retrospective data collection from the patient's medical records. Data were analyzed descriptively and compared with literature findings related to fluoroquinolone hypersensitivity reactions. **Results:** A 60-year-old man developed a generalized erythematous rash, recurrent vomiting, diarrhea, shortness of breath, severe hypotension, and tachycardia within 15 minutes of taking oral levofloxacin following cataract surgery. Physical examination revealed widespread urticaria accompanied by a blood pressure of 70/50 mmHg, and laboratory tests revealed leukocytosis, elevated creatinine, and hypokalemia. The patient showed clinical improvement after fluid resuscitation, administration of the vasopressor norepinephrine, intravenous corticosteroids, antihistamines, and other supportive therapy, and was ultimately discharged in stable condition. **Conclusions:** Anaphylactic shock due to oral levofloxacin is a rare but life-threatening event that can occur even in the absence of a prior history of allergy. Early recognition and prompt and appropriate management are crucial to prevent fatal clinical outcomes.

Keywords: Anaphylactic shock; Levofloxacin; Fluoroquinolone

Abstrak: Latar Belakang: Levofloksasin adalah antibiotik fluorokuinolon yang umumnya aman digunakan, tetapi dapat menyebabkan reaksi hipersensitivitas berat seperti syok anafilaktik dalam kasus yang jarang terjadi. **Tujuan:** Penelitian ini bertujuan untuk melaporkan kasus syok anafilaktik setelah pemberian levofloksasin oral pascaoperasi katarak serta mendeskripsikan manifestasi klinis dan penatalaksanaannya. **Metode:** Penelitian ini menggunakan desain studi kasus dengan pengumpulan data secara retrospektif dari rekam medis pasien. Data dianalisis secara deskriptif dan dibandingkan dengan temuan literatur terkait reaksi hipersensitivitas fluorokuinolon. **Hasil:** Seorang pria berusia 60 tahun mengalami ruam eritematosa menyeluruh, muntah berulang, diare, sesak napas, hipotensi

berat, dan takikardia dalam waktu 15 menit setelah mengonsumsi levofloksasin oral pascaoperasi katarak. Pemeriksaan fisik menunjukkan urtikaria luas dengan tekanan darah 70/50 mmHg, serta hasil laboratorium menunjukkan leukositosis, peningkatan kreatinin, dan hipokalemia. Pasien menunjukkan perbaikan klinis setelah resusitasi cairan, pemberian vasopresor norepinefrin, kortikosteroid intravena, antihistamin, dan terapi suportif lainnya, hingga akhirnya dipulangkan dalam kondisi stabil. **Kesimpulan:** Syok anafilaktik akibat levofloksasin oral merupakan kejadian langka namun mengancam jiwa yang dapat terjadi bahkan tanpa riwayat alergi sebelumnya. Pengenalan dini serta penanganan yang cepat dan tepat sangat krusial untuk mencegah hasil klinis yang fatal.

Keywords: Syok anafilaksis; Levofloxacin; Fluorokuinolon

INTRODUCTION

Fluoroquinolones are a widely-prescribed class of broad-spectrum antibiotics and are generally considered safe and well-tolerated. However, in recent decades, the incidence of hypersensitivity reactions—including severe, immediate-type reactions—has increased, paralleling the growing use of these agents. Among antibiotics, fluoroquinolones are now recognized as the most frequently implicated non-beta-lactam drugs in allergic drug reactions and are second overall after beta-lactams in terms of hypersensitivity risk. Immediate hypersensitivity reactions (IHRs) to fluoroquinolones, such as anaphylaxis and anaphylactic shock, have been increasingly reported in pharmacovigilance studies and clinical case series^{1,2}.

Population data from Asia and Europe indicate that fluoroquinolones are responsible for approximately 11-30% of antibiotic-induced anaphylaxis cases in hospitalized patients. Within the class, levofloxacin, ciprofloxacin, and moxifloxacin are most frequently associated with hypersensitivity reactions. In the Beijing Pharmacovigilance Database (2004–2014), for example, fluoroquinolones accounted for nearly 30% of all antibiotic-induced anaphylaxis cases, with levofloxacin involved in 17.6% of those events. Similarly, in Western settings, the incidence of anaphylaxis due to fluoroquinolones was estimated at 1.8–2.3 per 10 million treatment days, with moxifloxacin and levofloxacin being prominent culprits^{2,3}. Here, we report an anaphylactic shock case due to oral levofloxacin after cataract surgery.

Mr S, a 60 year old man, presented to the emergency department with a 3 hour history of generalized erythematous rash. The rash appeared approximately 15 minutes after he had taken an oral dose of levofloxacin 500 mg, which was prescribed following cataract surgery earlier that day. The skin eruption was accompanied by more than 10 episodes of vomiting containing food particles and fluid, and more than 5 episodes of watery diarrhoea without blood. He also complained of shortness of breath, but denied cough and chest pain. His past medical history was significant for type 2 diabetes mellitus, treated with glimepiride 2 mg once daily and metformin 500 mg twice daily, and hypertension, treated with candesartan 16 mg once daily. There was no previous history of drug or food allergy.

On physical examination, his general condition appeared moderately ill with clear consciousness (*compos mentis*). Blood pressure was 70/50 mmHg, heart rate 120 beats per minute, respiratory rate 26 breaths per minute, and he was afebrile. Cardiac, pulmonary, and abdominal examinations were within normal limits. Dermatologic examination revealed extensive urticarial lesions over the body. Initial laboratory tests showed leukocytosis, elevated serum creatinine, and hypokalemia. During hospitalization, the patient was treated with fluid resuscitation, norepinephrine infusion at 0.05 mcg/kg/min, intravenous dexamethasone 5 mg three times daily, KCl drip 50 meqs, and oral cetirizine 10 mg once daily; his routine medications for diabetes and hypertension were continued. The patient's

clinical condition gradually improved over the course of hospitalization, and he was discharged home on day 4 of admission.

METHODS

This study used a case study design that aims to describe in detail the clinical manifestations, diagnostic process, management, and clinical outcomes of a patient who experienced anaphylactic shock following oral levofloxacin administration after cataract surgery. Data were collected retrospectively from the patient's medical record, including demographic data, past medical history, medication history, clinical findings upon admission to the emergency department, physical examination results, laboratory investigations, and the patient's response to therapy administered during the hospitalization period. Data were analyzed descriptively by comparing the case findings with relevant current scientific literature on fluoroquinolone hypersensitivity reactions and the pathophysiology of anaphylaxis. Patient identity was kept confidential by using initials and without including any identifiable personal information. This study did not involve additional interventions beyond standard clinical management and was conducted in accordance with the ethical principles of medical research and the clinical case reporting guidelines (CARE guidelines).

RESULTS AND DISCUSSION

Anaphylactic shock due to fluoroquinolones, including levofloxacin, is a recognized but relatively rare severe immediate hypersensitivity reaction; fluoroquinolones as a class are responsible for about 4.5% of drug-induced anaphylaxis cases, with an estimated incidence of quinolone-induced anaphylaxis of 1.8–2.3 per 10 million treatment days in hospitalized patients². Among individual fluoroquinolones, moxifloxacin appears to be the most common cause of anaphylaxis, but levofloxacin is also a well-documented culprit, with levofloxacin being implicated in a significant proportion of fluoroquinolone-related anaphylactic reactions reported in pharmacovigilance databases^{2,3}. In a large Chinese pharmacovigilance study, levofloxacin was one of the leading fluoroquinolones associated with drug-induced anaphylaxis, and it was among the antibiotics causing fatal anaphylactic reactions, highlighting that anaphylactic shock from levofloxacin, while uncommon, can be life-threatening and is more frequently reported with intravenous administration³. Our patient indeed a rare case because his anaphylactic shock was due to oral administration of levofloxacin.

Anaphylactic shock due to levofloxacin represents a severe, immediate type I hypersensitivity reaction in which fluoroquinolone exposure triggers rapid mast cell and basophil activation with systemic mediator release, leading to vasodilation, increased vascular permeability, bronchospasm, and distributive shock. In reported levofloxacin reactions, symptoms such as flushing, generalized urticaria, angioedema, bronchospasm, and hypotension typically occur within minutes to hours after the first dose, consistent with an acute systemic anaphylactic response rather than a delayed hypersensitivity pattern. Although the precise immunologic mechanism is not fully elucidated, fluoroquinolones can induce IgE-mediated anaphylaxis or IgE-independent “anaphylactoid” reactions, both converging on massive mast cell degranulation and release of histamine, tryptase, leukotrienes, and other vasoactive mediators that drive shock⁴⁻⁶.

At the cellular and molecular level, levofloxacin's high tissue and cellular penetrability appears to facilitate direct or immune-mediated activation of mast cells, promoting the liberation of histamine and tryptase into the circulation. In a provocation-confirmed case, oral re-exposure to levofloxacin reproduced generalized urticaria, bronchospasm with a significant fall in FEV1, and hypotension, accompanied by an elevated serum tryptase level several hours after the onset of shock, which supports mast cell degranulation as the central pathophysiologic event. Histamine and other mediators cause

systemic vasodilation, increased capillary permeability, and plasma leakage, which reduce effective circulating volume and venous return, while concurrent bronchial smooth-muscle contraction leads to acute airflow limitation and hypoxemia, further aggravating tissue hypoperfusion and end-organ dysfunction characteristic of anaphylactic shock ⁴⁻⁶.

Levofloxacin shares the 4-oxo-1,4-dihydroquinoline ring structure common to fluoroquinolones, and this core moiety has been associated with quinolone-specific IgE formation and clinically relevant cross-reactivity within the class, explaining why a subset of patients experience immediate hypersensitivity, angioedema, or full-blown anaphylaxis on first or early exposures. Epidemiologic estimates suggest that fluoroquinolone-associated anaphylaxis occurs in approximately 0.46–1.2 per 100,000 treated individuals, but reported cases emphasize that reactions often appear with the initial dose and can rapidly progress to cardiovascular collapse if not promptly recognized and treated with intramuscular epinephrine and adjunctive measures. Given this pathophysiologic profile, patients with documented levofloxacin-induced anaphylaxis should avoid all fluoroquinolones, as re-exposure risks recurrent, potentially fatal mast-cell-mediated shock ⁴⁻⁷.

During anaphylactic shock, the increase in leukocytes (leukocytosis) is primarily driven by the intense systemic inflammatory response following massive mast cell and basophil degranulation, resulting in the release of cytokines such as interleukin-6 (IL-6), tumor necrosis factor-alpha (TNF- α), and others. These cytokines stimulate the bone marrow to increase the production and release of leukocytes into the circulation. Case reports in the literature show that drug-induced anaphylaxis, including that from levofloxacin, may result in marked leukocytosis as well as elevated C-reactive protein (CRP) and procalcitonin levels, mimicking the laboratory profile of sepsis. The acute stress response associated with anaphylaxis, through increased catecholamines and glucocorticoids, also contributes to demargination and mobilization of leukocytes. Therefore, the observed leukocytosis in anaphylactic shock is a multifactorial process involving cytokine-mediated marrow stimulation, acute stress response, and systemic inflammation, and is not necessarily indicative of a bacterial process ^{8,9}.

Perioperative anaphylaxis is a rare but potentially fatal immediate hypersensitivity reaction that typically occurs within minutes after induction of anaesthesia, most often following intravenous administration of neuromuscular blocking agents or antibiotics, and less frequently due to latex, colloids, dyes, or other agents ¹⁰⁻¹³. The clinical picture is dominated by sudden cardiovascular collapse with hypotension, tachycardia or paradoxical bradycardia, often accompanied by bronchospasm and cutaneous signs such as generalized erythema or urticaria, although skin manifestations may be absent or appear late because the patient is draped and peripheral perfusion is compromised ¹⁰⁻¹². Epidemiological data suggest an incidence of perioperative anaphylaxis in the order of 1 in 3,500–1 in 25,000 anaesthetics, with mortality of approximately 3–5% of reported cases, and higher case-fatality rates than for anaphylaxis from food or Hymenoptera venom ^{10,11}. Established risk factors for severe or fatal perioperative anaphylaxis include older age, high ASA physical status, male sex, obesity, cardiovascular comorbidities, and treatment with beta-blockers or renin-angiotensin system inhibitors ¹⁰⁻¹².

Intraoperatively, the diagnosis of perioperative anaphylaxis is challenging because early subjective symptoms are absent, many drugs are given in rapid succession, and differential diagnoses such as haemorrhage, myocardial events, bronchospasm of other causes, or anaesthetic depth issues must be considered ¹⁰⁻¹³. The Ring and Messmer grading system is widely used to categorize severity, with grades III–IV (life-threatening hypotension with or without bronchospasm, or cardiac arrest) corresponding to true anaphylactic shock ^{12,13}. Timely management requires immediate discontinuation of suspected agents, airway support with 100% oxygen, rapid infusion of crystalloids in large volumes to counteract vasodilation and capillary leak, and titrated intravenous adrenaline as the cornerstone of

therapy; delays or under-dosing of adrenaline are associated with worse outcomes^{10–12}. Serum tryptase (and, where available, plasma histamine) should be sampled within the first hours to support the diagnosis of mast-cell mediated anaphylaxis, and a structured post-event allergy work-up using skin tests and specific IgE is recommended 4–6 weeks later to identify the culprit drug and safe alternatives^{10,12,13}.

CONCLUSIONS AND RECOMMENDATIONS

Anaphylactic shock due to levofloxacin is a rare but potentially life-threatening immediate hyper-sensitivity reaction that can occur even after oral administration. The case highlights the capacity of fluoroquinolones to trigger rapid mast cell activation, resulting in severe systemic manifestations typical of type I hypersensitivity reactions. Early recognition is essential, as symptoms may progress rapidly to cardiovascular collapse during the perioperative period, where diagnostic delays are common. Prompt administration of intramuscular or intravenous adrenaline, aggressive fluid resuscitation, and vigilant supportive management are critical to improving outcomes. This report underscores the importance of considering levofloxacin as a potential trigger of perioperative anaphylaxis, recommending strict avoidance of fluoroquinolones in patients with confirmed hypersensitivity and thorough post event allergologic evaluation to guide future antibiotic use.

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The Role of Customer Engagement in Mediating Experiential Marketing and Self-Expression Value on Cafe Customer Loyalty in Jambi City

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Abstract: *The increasing competition in the café industry requires business owners to build customer loyalty through memorable experiences and values that align with customer identity.*

*The **research gap** in this study is that previous studies still show mixed results regarding the influence of experiential marketing on customer loyalty, while the role of customer engagement as a mediating variable is still limited. This study aims to analyze the role of customer engagement in mediating the relationship between experiential marketing and self-expression value on café customer loyalty in Jambi City. The study used a quantitative approach with the SEM-PLS method using SmartPLS 3.0. The research sample consisted of 147 respondents selected through a purposive sampling technique with the criteria of customers who have made at least two purchases. The results showed that Experiential Marketing and Self-Expression Value have a positive effect on Customer Engagement. Furthermore, Self-Expression Value and Customer Engagement were proven to have a positive effect on customer loyalty, while Experiential Marketing did not have a direct effect on customer loyalty. The mediation test showed that Customer Engagement was able to mediate the relationship between Experiential Marketing and customer loyalty, but was unable to mediate the relationship between Self-Expression Value and customer loyalty. This (**novelty**) finding suggests that café customer loyalty is formed through different mechanisms between customer experience and self-expression values.*

Keyword: *Experiential Marketing, Self-Expression Value, Customer Engagement, Customer Loyalty, Cafe.*

INTRODUCTION

The development of the food and beverage service industry in Indonesia shows a continuously increasing trend, driven by changes in consumer lifestyles and the growth of the service-based economy. Cafés are no longer viewed merely as places to enjoy food and drinks, but also as spaces for working, socializing, and expressing one's lifestyle. This condition has encouraged a growing number of business actors in this sector, making competition increasingly intense. Statistics Indonesia (Badan Pusat Statistik) reported that in 2023, there were 4.85 million food and beverage service businesses in Indonesia, employing 9.80 million people, while in 2024, the number of such businesses increased to approximately 5.28 million units (Badan Pusat Statistik, 2024, 2025). This increase indicates that the success of a café business is no longer determined solely by product quality and price, but also by the ability to create memorable experiences and build long-term relationships with customers.

Competition in the café industry has currently underscored the importance of experiential marketing strategies in building customer loyalty. A number of studies have shown that positive customer experiences can enhance satisfaction, emotional attachment, and brand loyalty (Brakus et al., 2009; Rather, 2020; Rather & Sharma, 2021). However, several studies have found that the influence of experiential marketing on loyalty is not always direct, but rather mediated by relational factors such as customer engagement, perceived value, and brand attachment (Hollebeek et al., 2014; Rather et al., 2022; Khan et al., 2023). These divergent findings indicate a **research gap**, suggesting that the mechanism of customer loyalty formation through experiential marketing has yet to yield consistent conclusions.

In addition to customer experience, self-expression value also constitutes an important aspect of modern consumer behavior (Escalas & Bettman, 2005; Japutra et al., 2018). Nevertheless, research on self-expression value has largely been conducted in the contexts of fashion, luxury brands, and brand communities (Batra et al., 2012; Huang et al., 2021), while studies within experience-based service industries such as cafés remain relatively limited. This gap indicates that the influence of self-expression value on customer loyalty in the café industry context has yet to be extensively demonstrated empirically.

On the other hand, customer engagement is increasingly viewed as a crucial mechanism for building long-term relationships between customers and brands (Brodie et al., 2011; Vivek

et al., 2014; Hollebeek et al., 2020). However, the majority of studies still position customer engagement either as a consequence of marketing activities or as a predictor of loyalty, rather than as a mediating variable that explains the relationship between customer experience, symbolic value, and loyalty (Dessart et al., 2016; Rather et al., 2022). These research discrepancies indicate a gap in that the mediating role of customer engagement in linking experiential marketing and self-expression value to customer loyalty remains underexplored, particularly within the café industry.

Based on these various gaps, previous studies have not extensively integrated experiential marketing, self-expression value, and customer engagement into a single research model to explain customer loyalty, particularly in the café industry. Most studies still examine the relationships between variables partially and are largely conducted in the context of global brands or industries other than cafés (Hollebeek et al., 2014; Japutra et al., 2018; Rather, 2020). Therefore, the **research gap** of this study lies in the absence of an empirical model that simultaneously tests the mediating role of customer engagement in the relationship between experiential marketing, self-expression value, and café customer loyalty.

Based on the limitations of previous studies, the novelty (**state of the art**) of this research lies in the development of a model that integrates experiential marketing, self-expression value, customer engagement, and customer loyalty within a single conceptual framework in the context of the café industry. Unlike prior studies that generally examined direct relationships between variables or employed mediators such as customer satisfaction and perceived value, this study tests customer engagement as a psychological mechanism that explains the formation of customer loyalty. The results show that customer engagement effectively mediates the influence of experiential marketing, but not the relationship between self-expression value and loyalty. Thus, this study offers a new perspective that customer experience and self-expression value follow distinct pathways in shaping loyalty, thereby enriching the understanding of customer loyalty models within the café industry.

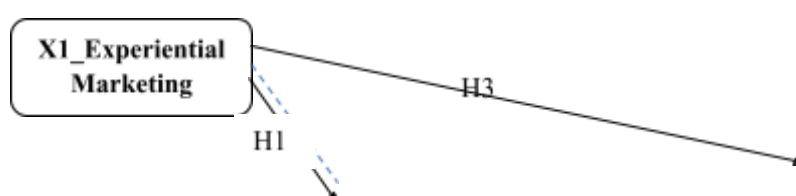
Based on this description, the problem can be formulated as follows:

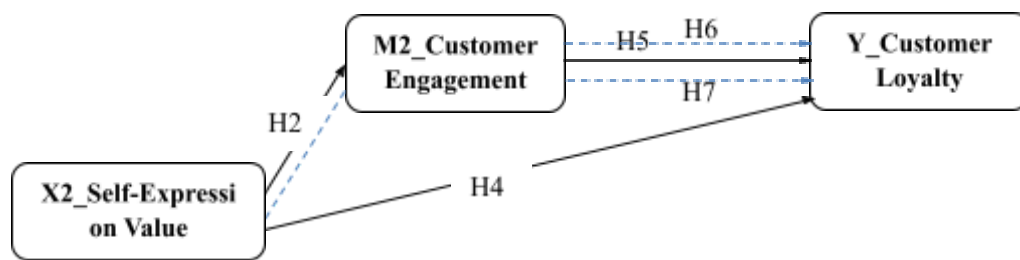
1. Does experiential marketing influence customer engagement?
2. Does self-expression value influence customer engagement?
3. Does experiential marketing influence customer loyalty?
4. Does self-expression value influence customer loyalty?
5. Does customer engagement influence customer loyalty?
6. Does experiential marketing influence customer loyalty through customer engagement?
7. Does self-expression value influence customer loyalty through customer engagement?

METHOD

This study employs a quantitative approach with an explanatory research design aimed at examining the causal relationships among variables in the research model (Sekaran & Bougie, 2020). The population of this study consisted of café customers in Jambi City, totaling 147 respondents. Data analysis was conducted using SmartPLS 3.0 with the SEM-PLS approach. The testing included an evaluation of the outer model to assess the validity and reliability of the constructs, as well as the inner model to examine the relationships among variables and test the research hypotheses. This method was chosen because it is capable of testing complex models involving multiple latent constructs and mediating relationships simultaneously (Hair et al., 2021).

Based on the phenomena, research gaps, and novelty outlined above, this study develops a conceptual model in the form of the following conceptual framework.





Information:

- : Direct Influence (H1, H2, H3, H4, H5)
- - - : The Influence of Mediation (H6, H7)

Figure 1. Conceptual Framework

RESULTS AND DISCUSSION

Result

Evaluation of the Measurement Model (Outer Model)

Prior to testing the relationships among constructs in the structural model, the initial step that must be undertaken is to evaluate the measurement model. This evaluation serves to assess the ability of indicators to reflect the latent variables being measured. In the SEM-PLS approach, the measurement model is tested through the outer loading values, which reflect the validity and reliability of the indicators. Referring to Hair et al. (2021), an indicator is declared convergently valid if its outer loading value exceeds 0.70. The higher the value, the stronger the indicator is in explaining the respective construct. The overall results of the measurement model testing are presented in the figure below.

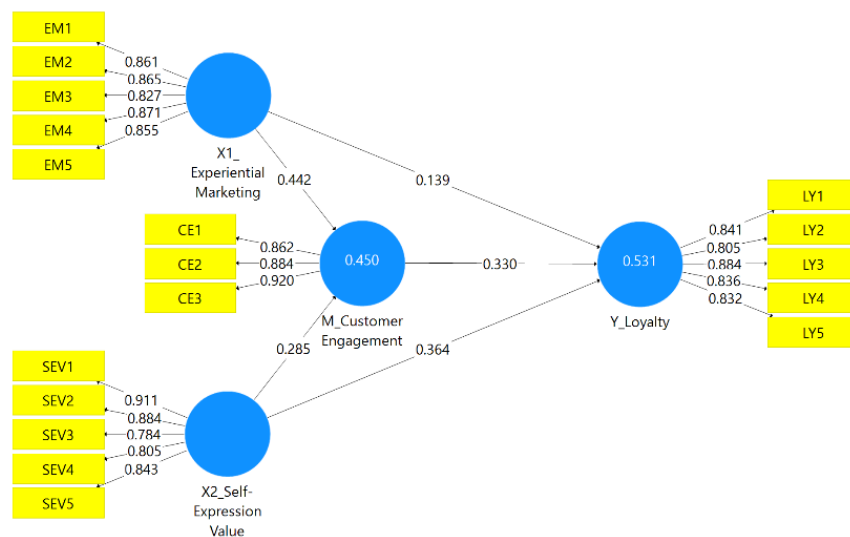


Figure 1. Full Outer Model

Based on the full outer model results presented in the figure, it is found that all indicators of the research variables have outer loading values above 0.70. Therefore, all indicators are declared valid and suitable for use in the study.

Structural Model Test Results (Inner Model)

After the measurement model has been proven to meet the standards of validity and reliability, the next stage is to test the structural model. This testing is conducted to evaluate the relationships among constructs as formulated in the research hypotheses.

The R-Square value analysis is used to assess the quality of the research model. According to Ghozali and Latan (2015), an R-Square value of 0.75 indicates a strong effect, a value of 0.50 indicates a moderate effect, and a value of 0.25 is considered weak. The complete results of the analysis are presented in Table 2.

Table 2. R-Square Test Results

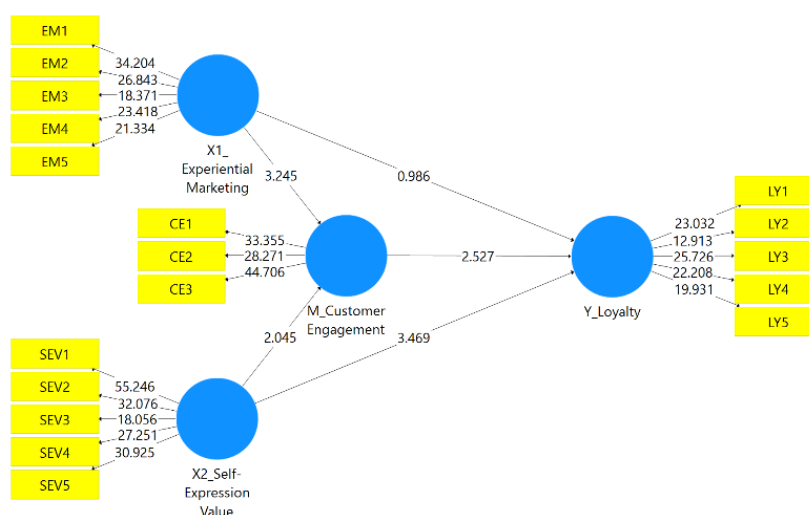
	R Square	R Square Adjusted
M Customer Engagement	0.450	0.443
Y Loyalty	0.531	0.521

Source: SmartPLS Output 3 (2026).

Based on the R-Square test results, the Customer Engagement variable obtained an R-Square value of 0.450, which means that Experiential Marketing and Self-Expression Value are able to explain 45% of the variance in Customer Engagement, while the remaining 55% is influenced by other factors outside the research model. Furthermore, the Loyalty variable obtained an R-Square value of 0.531, indicating that Experiential Marketing, Self-Expression Value, and Customer Engagement are able to explain 53.1% of the variance in customer loyalty, while the remainder is influenced by other variables not examined in this study. Based on the SEM-PLS interpretation criteria, both values indicate that the research model has a moderate explanatory power in explaining customer engagement and loyalty among café customers in Jambi City.

Hypothesis Testing

This testing is conducted by examining the significance of the structural paths, where the t-statistic values for the significance tests of the inner and outer models are obtained using a procedure called bootstrapping. The probability values are evaluated through the p-value with an alpha of 5% ($p < 0.05$). Alternatively, significance can also be determined from the t-statistic values, with the rule of thumb requiring values greater than 1.96 for a significance level of 5%, and greater than 2.58 for a significance level of 1% (Hair et al., 2021). This study employs the rule of thumb of 1.96 (significance level = 5%) as the indicator for hypothesis testing. A summary of the test results is presented in Figure 2 and Table 3.


Figure 3. Research Construct Relationship Model Using the Bootstrapping Method
Table 3. Direct and Indirect effect

Hypothesis	Variable Relationship	Original Sample (O)	T Statistics	P Values	Decision
H1	X1_ Experiential Marketing -> M Customer Engagement	0.442	3.245	0.001	Supported

H2	X2_Self- Expression Value -> M_Customer Engagement	0.285	2.045	0.041	Supported
H3	X1_Experiential Marketing -> Y_Loyalty	0.139	0.986	0.325	Not Supported
H4	X2_Self- Expression Value -> Y_Loyalty	0.364	3.469	0.001	Supported
H5	M_Customer Engagement -> Y_Loyalty	0.330	2.527	0.012	Supported
H6	X1_Experiential Marketing -> M_Customer Engagement -> Y_Loyalty	0.146	2.253	0.025	Supported
H7	X2_Self- Expression Value -> M_Customer Engagement -> Y_Loyalty	0.094	1.502	0.134	Not Supported

Source: Smart PLS Output 3 (2026)

Discussion

1. The Effect of Experiential Marketing on Customer Engagement

The results show that experiential marketing has a positive and significant effect on customer engagement; thus, the first hypothesis is accepted. This finding indicates that the experiences created by cafés through sense experience, feel experience, think experience, act experience, and relate experience are able to enhance customer engagement with the café in the form of cognitive engagement, emotional engagement, and behavioral engagement. The more positive the experience perceived by customers, the higher the attention, participation, and emotional connection that are formed.

The results of this study are consistent with the concept of the experience economy, which states that experience is the primary source in building customer relationships (Pine & Gilmore, 1998), and support the findings of Brakus et al. (2009), Brodie et al. (2011), and Hollebeek et al. (2014), who found that positive experiences drive the formation of customer engagement. Thus, experiential marketing serves as an effective strategy for enhancing customer engagement in the café industry.

2. The Influence of Self-Expression Value on Customer Engagement

The findings reveal that self-expression value exerts a positive and significant influence on customer engagement; consequently, the second hypothesis is supported. This suggests that customers who perceive a café as capable of reflecting their lifestyle, self-image, self-expression, personality, and social identity tend to exhibit higher cognitive, emotional, and behavioral engagement toward the café. From a theoretical standpoint, this result corroborates the self-congruity theory, which posits that consumers are more inclined to establish relationships with brands that align with their self-concept (Sirgy, 1982).

These findings are also in line with the studies of Escalas and Bettman (2005), Japutra et al. (2018), and Wallace et al. (2014), who contend that congruence between consumer identity and brand identity fosters emotional bonds and customer engagement. Accordingly, self-expression value emerges as a key psychological factor contributing to the development of customer engagement among café patrons.

3. The Influence of Experiential Marketing on Customer Loyalty

The findings reveal that experiential marketing exerts no significant influence on customer loyalty; consequently, the third hypothesis is not supported. This suggests that positive experiences delivered by cafés are insufficient to directly foster customer loyalty. Given the highly competitive nature of the café industry, customers are able to encounter relatively comparable experiences across different cafés, rendering experience alone inadequate as a basis for loyalty.

While these findings diverge from those of Brakus et al. (2009) and Rather (2020), they corroborate the perspective of Hollebeek et al. (2014), which contends that customer experience must be complemented by customer engagement to cultivate enduring relationships. Accordingly, experiential marketing functions more as a catalyst for fostering customer engagement than as a direct antecedent of loyalty.

4. The Influence of Self-Expression Value on Customer Loyalty

The results show that self-expression value has a positive and significant effect on customer loyalty; thus, the fourth hypothesis is accepted. This indicates that customers who perceive the café as a reflection of their lifestyle, self-image, self-expression, personality, and social identity tend to have a higher commitment to repeat visits, recommendation intentions, preference commitment, relationship continuity, and emotional attachment to the café.

This finding is consistent with the studies of Escalas and Bettman (2005), Batra et al. (2012), and Japutra et al. (2018), which explain that the symbolic relationship between a brand and self-identity is able to strengthen customer loyalty. Thus, a café's ability to build self-expression value serves as one of the important factors in maintaining customer loyalty.

5. The Influence of Customer Engagement on Customer Loyalty

The findings reveal that customer engagement exerts a positive and significant influence on customer loyalty; consequently, the fifth hypothesis is supported. This suggests that customers exhibiting high levels of cognitive, emotional, and behavioral engagement are more likely to demonstrate loyalty, manifested through intentions to revisit, willingness to recommend, commitment to preference, continuity of the relationship, and emotional attachment toward the café.

This result supports the studies of Brodie et al. (2011), Vivek et al. (2014), Hollebeek et al. (2014), and Dessart et al. (2016), which state that customer engagement is one of the key determinants of customer loyalty. Therefore, customer engagement is an important factor that needs to be cultivated by café managers in order to build long-term relationships with customers.

6. The Influence of Experiential Marketing on Customer Loyalty through Customer Engagement

The findings reveal that customer engagement significantly mediates the influence of experiential marketing on customer loyalty; consequently, the sixth hypothesis is supported. This suggests that customer experience alone is insufficient to directly engender loyalty; rather, it must first foster customer engagement, which subsequently translates into loyalty. In essence, customer engagement functions as the underlying mechanism through which consumption experiences evolve into enduring customer relationships.

These findings corroborate the studies of Brodie et al. (2011), Hollebeek et al. (2014), Rather and Sharma (2021), and Khan et al. (2023), which contend that customer experience is more effective in fostering loyalty when it succeeds in generating customer engagement with the brand.

7. The Influence of Self-Expression Value on Customer Loyalty through Customer Engagement

The results show that customer engagement is not able to mediate the effect of self-expression value on customer loyalty; thus, the seventh hypothesis is rejected. This finding indicates that customer loyalty is formed more directly through the congruence between customer identity and café image than through the process of customer engagement. In other words, when customers feel that the café is able to represent themselves, loyalty can be established without necessarily going through an increase in customer engagement.

This finding provides a different perspective from several previous studies that positioned customer engagement as the primary mediator in loyalty formation (Brodie et al., 2011; Hollebeek et al., 2014). This result indicates that the symbolic value possessed by the café has a more dominant direct influence on loyalty compared to its indirect influence through customer engagement.

The novelty of this research is that customer engagement only plays a mediating role in the relationship between experiential marketing and customer loyalty, but fails to mediate the relationship between self-expression value and customer loyalty. This finding indicates that the experiences created by cafés do not automatically shape loyalty; rather, they must first enhance customer engagement. In contrast, self-expression value has a more dominant direct influence on loyalty, such that customer loyalty is built more through the congruence between customers' self-identity and café image than through the process of customer engagement. This finding enriches the services marketing literature by demonstrating that the mechanisms of loyalty formation differ between experiential factors (experience-based) and symbolic factors (self-expression), thereby indicating that customer engagement does not always function as a universal mediator in the formation of customer loyalty.

CONCLUSION AND SUGGESTIONS

Conclusion

Based on the findings of this study, the following conclusions can be drawn:

1. Experiential marketing has a positive and significant effect on customer engagement. This finding indicates that the experiences created by cafés through sense, feel, think, act, and relate experiences are able to enhance customer engagement with the café.
2. Self-expression value has a positive and significant effect on customer engagement. This finding indicates that customers who feel that the café is able to represent their lifestyle reflection, self-image, self-expression, personality reflection, and social identity tend to have higher engagement with the café.
3. Experiential marketing does not have a significant effect on customer loyalty. This finding indicates that positive experiences provided by cafés have not been able to directly build customer loyalty.
4. Self-expression value has a positive and significant effect on customer loyalty. This indicates that customers who consider the café as a representation of their identity and lifestyle tend to have a higher commitment to revisit and recommend the café to others.
5. Customer engagement exerts a positive and significant influence on customer loyalty. This suggests that customers exhibiting high levels of engagement are more likely to demonstrate loyalty, manifested through intentions to revisit, willingness to recommend, commitment to preference, continuity of the relationship, and emotional attachment toward the café.
6. Experiential marketing through customer engagement has a positive and significant effect on customer loyalty. This finding indicates that customer experience is not yet able to directly create loyalty, but rather it first enhances customer engagement, which in turn impacts loyalty.
7. Self-expression value through customer engagement does not have a significant effect on customer loyalty. This finding indicates that customer loyalty is formed more directly through the congruence between customer identity and café image than through the process of customer engagement.

Limitations

This study has several limitations, particularly regarding the scope of the research object, which was limited to café customers in Jambi City, so the results cannot be generalized to other regions or service industries. In addition, this study only employed Experiential

Marketing, Self-Expression Value, and Customer Engagement as variables in explaining customer loyalty; thus, there are still other potential factors influencing customer loyalty that have not been examined. The use of a quantitative approach with a questionnaire instrument also means that this study focuses more on respondents' perceptions and has not been able to explore customer experiences in greater depth.

Recommendation

Based on the research findings, café managers in Jambi City are advised not only to focus on creating attractive customer experiences, but also to enhance customer engagement through more personal interactions, digital communication, and the development of customer communities. In addition, strengthening self-expression value through the café concept, brand identity, design, products, and marketing activities warrants attention, as it has been proven to directly drive customer loyalty. Future research is advised to expand the research scope, incorporate other variables such as brand love, customer satisfaction, or brand attachment, and employ more diverse research approaches in order to gain a more comprehensive understanding of customer loyalty formation.

Author Contribution

The first author took primary responsibility for the research conceptualization, data collection, data analysis, and drafting of the manuscript. The second author contributed to the formulation of the conceptual framework, the interpretation of results, and the critical review and revision of the manuscript. Both authors have read and endorsed the final version of the article submitted for publication.

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