



The influence of hedonic shopping motivation on online shopping addiction: A study of the mediating role of exposure to marketing stimuli

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ABSTRACT

Background: The rapid growth of e-commerce has increased online shopping in Indonesia, but excessive shopping may develop into online shopping addiction (OSA). Previous research has mainly examined OSA from psychological perspectives, while the roles of hedonic shopping motivation, marketing stimuli, and shopping frequency remain less integrated. This study examines the effect of hedonic shopping motivation on OSA and the mediating roles of exposure to marketing stimuli and online shopping frequency based on uses and gratifications theory. **Methods:** A cross-sectional survey was conducted among adult online consumers residing on Java, Indonesia. Of 223 responses collected through an online questionnaire, 160 valid responses remained after data cleaning. Data were analyzed using partial least squares-structural equation modeling (PLS-SEM) with SmartPLS 4 and 5,000 bootstrap subsamples. **Findings:** Hedonic shopping motivation significantly and positively affected OSA. Exposure to marketing stimuli significantly mediated this relationship, as did online shopping frequency. However, sequential mediation through exposure to marketing stimuli and online shopping frequency was not significant. **Conclusion:** Hedonic shopping motivation contributes to OSA directly and through marketing exposure and shopping frequency. The findings highlight the importance of considering both internal motivations and external marketing stimuli in understanding problematic online shopping behavior. **Novelty/Originality of this article:** This study integrates hedonic shopping motivation, marketing stimuli, and online shopping frequency into a mediation model of OSA within the uses and gratifications theory framework among adult online consumers in Java, Indonesia.

KEYWORDS: exposure to marketing stimuli; hedonic shopping motivation; online shopping addiction; online shopping frequency.

1. Introduction

The number of people shopping online is increasing year on year. In 2024, online shopping accounted for 20.1% of total consumer spending, and this figure is expected to rise to 22.6% by 2027 (Statista, 2024). According to the Central Statistics Agency of Indonesia/*Badan Pusat Statistik* (BPS, 2025), the total value of e-commerce transactions in 2024 reached IDR 1,288.93 trillion, an increase of 17.08% compared to 2023. E-commerce businesses in Indonesia are dominated by micro and small businesses (97.38%) and are concentrated on the island of Java, particularly in West Java, East Java, Central Java, and Special Capital Region/*Daerah Khusus Ibukota* (DKI) Jakarta. The majority of e-commerce

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businesses are engaged in the wholesale and retail trade sector (31.88%) and the accommodation, food, and beverage sector (23.97%). The popularity of online shopping is apparently driven by two groups, namely Millennials and Generation Z. This finding was obtained from a Populix (2020) survey involving 6,285 respondents from various age groups in Indonesia. According to the results of the Populix (2020) research involving 6,285 respondents, the highest intensity of online shopping based on age group was among those aged 18-21 years with 35% and those aged 22- 28 years with 33% of the votes. The 29-38 age group was in third place with 18%.

However, with the rapid growth of online shopping, negative impacts can also arise. One of these is online shopping addiction. According to Zhao et al. (2017), online shopping addiction (OSA) is a pattern of excessive, compulsive, and problematic shopping behaviour carried out via the internet, which results in poor consumption and purchasing patterns for an individual. In a study conducted by Li et al. (2024) on live-streaming online shopping, they concluded that through tactics such as traffic promotion, traffic capture, utilization of outstanding features, and application of consumer aesthetics, merchants can trigger utilitarian and hedonistic purchases, which ultimately lead to shopping addiction through live streaming among consumers. They added that merchants deliberately create external stimuli to entice consumers to engage in online shopping, implying that online shopping addiction is not merely a simple psychological condition but can be influenced by external factors (Li et al., 2024).

External stimuli can also be triggered by another phenomenon called dark patterns, which are defined as digital user interface designs that influence user decisions through information manipulation (Mathur et al., 2019). According to research by Koh & Seah (2023), consumers are more likely to choose products that use dark patterns. In addition, research by Koh & Seah (2023) also found evidence that limited-time dark patterns are more effective than other dark patterns in influencing product selection.

Another factor is hedonistic value. Consumers feel this value not only from the items they purchase, but also from the shopping experience itself (Brodie et al., 2013; Hollebeek, 2013). Because of this drive for pleasure, shopping has become a form of entertainment and an escape from routine (Arnold & Reynolds, 2003). This means that the process of buying goods is enough to satisfy a person's pleasure (Overby & Lee, 2006). In the context of online shopping, this pleasure arises when consumers browse the Internet, look for discounts, or even when waiting for goods to arrive. This proves that inner satisfaction is derived from the purchasing process and effort, not merely from the ownership of the final product (Ruggiero, 2000). In short, online shopping often becomes a means of entertainment, a distraction from negative emotions (stress), and a source of joy (Bridges & Florsheim, 2008).

Gender has been proven to be a relevant variable in previous OSA studies, with research by Rose & Dhandayudham (2014) and Augsburg et al. (2020) showing that female gender is a predictor of OSA. According to Ünver et al. (2023), as individuals' income levels increase, so does the likelihood that they will use e-commerce or online shopping. Additionally, individuals with higher income levels tend to have higher qualifications (education) and adopt new technologies more quickly (Akman & Mishra, 2010).

Research on online shopping addiction (OSA) has been conducted several times in Indonesia. Rochmansyah et al. (2023) conducted a study in which they attempted to examine the effects of online shopping addiction experienced by the younger generation after the COVID-19 pandemic. This study interviewed four respondents directly, in which the respondents mentioned that lifestyle influences their consumption patterns, which in turn change their shopping habits and ultimately lead to online shopping addiction (Rochmansyah et al., 2023).

Another study was conducted by Malik & Palupi (2024), in which they sought to determine whether there was a relationship between psychological well-being and online shopping addiction, especially in early adulthood. Their study involved 103 respondents. The results of their research hypothesis testing showed a significant negative relationship between all dimensions of psychological well-being and online shopping addiction in early

adulthood, with the strongest correlation found in the dimension of positive relationships with others.

The frequency with which Indonesians shop online has also been documented. In a study by the website Databoks (2022), 37.9 percent of Indonesian respondents shop online several times a month. Around 27 percent of Indonesian respondents shop online once a month. The more intensive group, around 14 percent of Indonesian respondents, shop online two to three times a month. Below that, around eight percent of Indonesian respondents shop online once a week. The smallest group, nearly two percent of Indonesian respondents, report shopping online every day (Databoks, 2022).

Online shopping addiction has been studied extensively in the field of psychology and is related to the brain behavior patterns of each individual. However, this research has not been sufficiently explored in the field of marketing. This lack of research is ironic considering that companies—as the main actors in marketing—often encourage this consumptive behavior to maximize profits. They use various methods such as pop-up ads and many more. As evidence of the seriousness of this issue at the global level, in 2023, the European Union is actively drafting regulations aimed at curbing aspects of digital services that are deliberately designed to encourage addictive behavior (European Parliament, 2023). The existence of aggressive industry practices and the response of regulators at the international level indicate a research gap that can be explored further, especially in the context of Indonesia. This research will determine whether similar interventions can be carried out and how the results can benefit consumers and marketers in the country. To explore and research this gap, the author will replicate and modify Heredero et al. (2025) research about hedonic motivation and marketing stimuli

2. Methods

2.1 Study phase, collection method and model

The study was divided into two main phases: the pre-test and the main test. The pre-test was conducted by gathering approximately 30 respondents using a questionnaire distributed via Instagram, Line, and WhatsApp. Subsequently, the pre-test was repeated with approximately 53 respondents, resulting in more valid and reliable pre-test results. The pre-test was conducted in October 2025. After all data were confirmed to be valid and reliable, the main test was conducted from October 2025 through November 2025. During data collection for the main test, the researcher gathered an additional 170 respondents, bringing the total number of respondents for this questionnaire to 223. After all respondent answers were collected, the researcher verified the authenticity of the responses through data cleaning. Following this process, 63 respondents did not pass the data cleaning stage, leaving 160 respondents whose responses could be used for this study. Subsequently, the responses from these 160 respondents were analyzed through the main test.

Data for this study was collected using a self-administered questionnaire distributed online via Google Forms. The instrument utilizes the measurement model from Heredero et al. (2025), which advances Griffiths (2005) six-factor framework, comprising salience, mood modification, tolerance, withdrawal, conflict, and relapse, into a higher order construct (HOC). In this reflective-reflective model, these dimensions collectively form the single variable of online shopping addiction (OSA). While the majority of the questionnaire items were measured using a 1–6 Likert scale (ranging from 1 = strongly disagree to 6 = strongly agree), the online shopping frequency variable was assessed using a 1–5 scale, consistent with the methodology established in the reference study. The difference in the Likert scale is justified by modifying Heredero et al. (2025) Likert scale to avoid data skewing. The 1-5 scale is maintained in the online shopping frequency variable because data skewing is less likely to happen in the online shopping frequency variable.

2.2 Respondents

The respondents for this research are people who are .. based on several ... First, residing/living on the island of Java. Respondents on the island of Java were selected because e-commerce businesses are concentrated on the island of Java (BPS, 2025). Second, aged 18 years and above. This study sets a minimum age limit of 18 years to maintain data comparability with e-commerce industry reporting standards, such as the Indonesian E-commerce Consumer Behavior report by Kredivo and Katadata Insight Center (2020). Third, have shopped online in the last month. This study selected respondents who had shopped online in the past month. This was done to measure the effect of online shopping frequency, where this variable plays an important role as a mediator linking hedonistic motivation with OSA because when consumers perceive online shopping as a source of entertainment or hedonistic satisfaction, their interaction with the online environment will naturally increase (Ruggiero, 2000).

This study selected respondents who had seen advertisements related to online shopping in the past month. This was done to measure the effect of the variable exposure to marketing stimuli in the form of advertisements. Research by Martin et al. (2013) also shows that advertisements play an important role in driving consumers towards addiction. The data for this study was collected from 160 respondents whose answers had been filtered and cleaned so that the authenticity of the respondents' answers could be ensured. Of the 160 respondents, 79 were male and 81 were female. In terms of online shopping platforms or tools, most respondents used Shopee, with 156 of the 160 respondents using Shopee services for their online shopping activities. Food delivery platforms such as GoFood/GrabFood/ShopeeFood ranked second as the most frequently used service by respondents. TikTok Shop ranked third among the most commonly used services for online shopping activities.

In terms of age, the majority of the 160 respondents to this questionnaire were in the 18 to 22 age group. They made up the majority, representing 67% of respondents. They were followed by the 23 to 27 age group, which represented 24% of all respondents. Other age groups represent 9% of all respondents. In terms of income, with the exception of respondents who earn more than IDR 10 million per month, the respondents in this study have a fairly diverse income range. Thirty-two percent of respondents have a monthly income ranging from IDR 2,500,000 to IDR 5,000,000. Then, around 26% of respondents had incomes between IDR 1,000,000 and IDR 2,500,000 per month and between IDR 5,000,000 and IDR 10,000,000 per month. Then, 13 respondents had monthly incomes below IDR 1 million per month. To assist with data processing, this study used SmartPLS4 data processing software in accordance with the instructions from Hair et al. (2011). The research also used the software IBM SPSS 26 to analyze data validity and reliability.

2.3 Pre-test

As mentioned earlier, a pre-test is conducted to ensure the validity and reliability of a data sample, thereby confirming that the research is worthy of continuation. To conduct the pre- test, a minimum of 30 respondents is required, whose responses can be tested and analyzed. Their responses will be analyzed using two methods, factor analysis and reliability analysis, both conducted using SPSS software.

The validity test is conducted to determine whether, among all collected responses, the variables and individual questions within the questionnaire are statistically significant. Variables are tested using factor analysis via the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity. To ensure a variable is considered valid, it must have a KMO score greater than 0.50 (> 0.50) and a Bartlett's score less than 0.05 (< 0.05). Meanwhile, to test individual questions, the factor loading method was used, whereby each question must have a factor loading score above 0.50 (> 0.50) (Malhotra & Dash, 2016).

2.4 Main test (PLS-SEM analysis)

After the pre-test is conducted, it can be continued into the main-test. The main test is conducted using structural equation modelling (SEM). SEM is a multivariate analysis technique; it is a statistical method used to analyze several variables simultaneously (Hair et al., 2017). This study employs structural equation modelling to examine the relationships among the tested variables simultaneously, as well as to conduct structural model and measurement model tests. This study employs partial least squares-SEM (PLS-SEM) using the SmartPLS data analysis software. PLS-SEM is suitable when the research focuses on understanding relationships among constructs (Hair et al., 2011).

In data analysis using the PLS-SEM method, it is necessary to follow a series of steps, beginning with model specification, followed by analysis of the measurement model (outer model) and the structural model (inner model) (Hair et al., 2017). The measurement model is used to test the relationship between indicators and the constructs they represent. Meanwhile, the structural model is used to examine the relationships among the observed constructs.

2.4.1 Measurement model analysis (outer model)

Measurement model analysis is an analysis conducted to determine the accuracy of observed variables in measuring the latent variables tested in the study. A measurement model depicts the relationship between a construct and its associated indicators (Hair et al., 2017). In conducting measurement model analysis, tests are performed for internal consistency, convergent validity, and discriminant validity. Cronbach's alpha and composite reliability are two indicators that determine the consistency of this study's measurement model. A variable can be considered reliable if it has a Cronbach's alpha value of ≥ 0.6 (Malhotra & Dash, 2016) and a composite reliability value of ≥ 0.7 (Hair et al., 2019).

Convergent validity is an indicator used to measure the extent to which a measurement instrument positively correlates with alternative measures of the same construct (Hair et al., 2017). The average variance extracted (AVE) and outer loadings are two indicators used to measure convergent validity. A variable and indicator can be considered acceptable if the analyzed variable and indicator have an AVE value ≥ 0.50 and outer loadings ≥ 0.70 (Hair et al., 2017). This analysis is conducted to determine whether one construct differs from another, to ensure that the two constructs are not simply similar constructs with different names. This analysis is performed using the heterotrait-monotrait ratio method, with a maximum threshold of < 0.90 (Henseler et al., 2015).

2.4.2 Structural model analysis (inner model)

In structural model analysis, the relationships among constructs are tested (Hair et al., 2019). Structural model analysis is also conducted to assess the validity of the structural model. In performing this analysis, tests are conducted for collinearity, R-squared, and path coefficients. Collinearity occurs when there is a high correlation among the formative indicators; a high level of correlation may indicate that some indicators are measuring the same thing (Hair et al., 2017). The threshold value is 5.00; when the inner variance inflation factor (VIF) is less than 5.00, it indicates the absence of multicollinearity (Hair et al., 2017).

The coefficient of determination, or R-squared, measures how accurately a construct within the research model is predicted (Hair et al., 2017). The R-squared value ranges from 0 to 1. A higher value indicates a stronger model. An R-squared value of 0.75 indicates a strong model, 0.50 indicates a moderate model, and 0.25 indicates a weak model (Hair et al., 2021). The value of the path coefficient can be used to determine the relationship within the structural model. Path coefficients range from -1 (negative effect) to +1 (positive effect); as the path coefficient approaches 0. It indicates that the relationship between the constructs under study is becoming weaker. To determine the significance of each relationship, it is necessary to examine the p-value. In this study, a significance level of 5%

($p < 0.05$) and a one-tailed test were used; thus, the hypothesis is accepted if the t -value is ≥ 1.645 or ≤ -1.645 (Hair et al., 2017).

2.4.3 Mediation analysis and operationalization of variables

The research model used in this study includes a mediation effect that needs to be tested. Mediation occurs when a mediator variable—a third variable—intervenes between two related constructs (Hair et al., 2017). According to Hair et al. (2017), there are several types of mediation effects; (1) direct-only non-mediation, occurs when the direct effect is significant but the indirect effect is not; (2) no-effect non-mediation, occurs when neither the direct nor the indirect effect is significant; (3) complementary mediation, occurs when both the direct and indirect effects are significant and point in the same direction; (4) competitive mediation, occurs when both the direct and indirect effects are significant but point in opposite directions. These opposing directions result in competition between the relationships of influence; and (6) indirect-only mediation, occurs when the indirect effect is significant but the direct effect is not. Meanwhile, the operationalization of variables that is used to make the questions that is asked to the respondents for this paper is shown as follows:

Table 1. Operationalization of variables

Definition	Operationalization of questions
Salience (Sa) Indicates whether addictive behavior (online shopping in this context) has become an important aspect of an individual's life (Heredero et al., 2025).	Sa1: When I'm not shopping online, I keep thinking about it Sa2: I often think about ways to save more money so I can use it for online shopping. Sa3: Online shopping is beneficial to my life.
Mood (Mo) Related to positive feelings or relief from tension or anxiety felt by individuals when engaging in addictive behavior (online shopping) (Heredero et al., 2025).	Mo1: Online shopping makes me feel better. Mo2: Online shopping helps me forget my real-life problems for a while. Mo3: I am driven to shop online when I feel stressed.
Tolerance (To) Refers to an increase in the frequency or regularity of behaviours or activities (online shopping) performed by individuals to achieve the same effect as in the past. (Heredero et al., 2025).	To1: Lately, I've been wanting to shop online more and more. To2: I spend a lot of time shopping online. To3: I often shop online without a plan (buying without a clear purpose).
Withdrawal (Wi) Refers to the negative emotional response that arises when individuals are unable to continue their addictive behavior (online shopping). (Heredero et al., 2025)	Wi1: I feel happy and calm when I can shop online. Wi2: Online shopping is something I enjoy. Wi3: My thoughts often turn to things I want to buy online, even when I'm not shopping online.
Conflict (Co) Measures whether addictive behaviour (online shopping) affects an individual's personal relationships or causes internal conflict. (Heredero et al., 2025)	Co1: I like shopping online, even though it can cause my work or study productivity to decline. Co2: I like shopping online, even though it can negatively affect my relationships with other people (family, friends). Co3: I spend a lot of time thinking about online shopping, even when i should be focusing on work or other activities.
Relapse (Re)	Re1: I still enjoy online shopping even though I have tried to cut back on it.

Refers to an individual's tendency to fall back into addictive behavior (online shopping) despite having tried to stop. (Heredero et al., 2025)

Online shopping frequency (Osf)
Refers to how often a person/individual shops online. (Heredero et al., 2025)

Hedonic motivations (Hm)
Refers to the drive or motivation to shop online based on pleasure, emotions, and enjoyable experiences, rather than solely on functional or utilitarian needs (such as low prices or efficiency). (Heredero et al., 2025)

Exposure to online marketing stimuli (Ems)
Refers to how often someone sees or is exposed to advertisements/promotions while shopping online or following the latest information related to products they like. (Heredero et al., 2025)

Re2: I still enjoy online shopping, even though I have decided to reduce the frequency.

Re3: I still enjoy online shopping, even though I stopped shopping online for a while.

Osf1: How often do you shop online in a month?

Hm1: When I visit an online store, I spend a lot of time browsing/looking at the items for sale.

Hm2: I often visit online stores to look at items, even though I have no intention of buying anything.

Hm3: For me, online shopping is a form of entertainment.

Hm4: I often view online purchases as a personal gift/reward.

Hm5: I feel happy when I can get the items I have purchased online.

Ems1: I subscribe to newsletters from my favorite products.

Ems2: I noticed a pop-up ad from an online store I like.

Ems3: I always follow information about products I like via social media and e-mail.

Ems4: I always follow the latest information/updates on products I like on social media platforms.

Ems5: I often receive a lot of notifications about offers and promotions for the products that I like.

Ems6: I always look out for discount and promotion information from my favourite online stores.

Ems7: I use discounts/vouchers when purchasing goods in online stores.

3. Results and Discussion

3.1 Hypothesis development and research model

This study will examine hedonic shopping motivation as an independent variable. In addition, this study uses online shopping frequency and exposure to marketing stimuli as mediator variables. Finally, this study uses OSA as a dependent variable. First, hedonic shopping motivation increases the likelihood of a person experiencing online shopping addiction (H1). To test H1, which states that "hedonic shopping motivation increases the likelihood of developing online shopping addiction," a direct effect test must be conducted using SmartPLS4 software. H1 examines the relationship between the variable Hedonic shopping motivation and online shopping addiction, also referred to by the acronym OSA. The research model will be tested using the bootstrapping method with 5,000 subsamples (Heredero et al., 2025). This study also employs a one-tailed test and sets the significance level at 0.05.

Second, exposure to marketing stimuli positively mediates the relationship between hedonic shopping motivation and the likelihood of a person experiencing online shopping

addiction (H2). To test H2, which states that “exposure to online marketing stimuli positively mediates the relationship between hedonic shopping motivation and the likelihood of developing online shopping addiction,” an indirect effect analysis is conducted using SmartPLS4 software. The analysis was performed using the bootstrap method with 5,000 subsamples (Heredero et al., 2025). We also used a one-tailed test and set the significance level at 0.05. Third, online shopping frequency mediates the relationship between hedonic shopping motivation and online shopping addiction, both individually and sequentially with exposure to marketing stimuli (H3). To test H3, which states that hedonic shopping motivation influences online shopping addiction through the mediation of online shopping frequency, as well as through sequential mediation between exposure to marketing stimuli and online shopping frequency, an analysis using SmartPLS4 software is required. The analysis is conducted using 5,000 bootstrap subsamples (Heredero et al., 2025). Other steps included setting the test to one-tailed and setting the significance level to 0.05. The proposed research model is illustrated below:

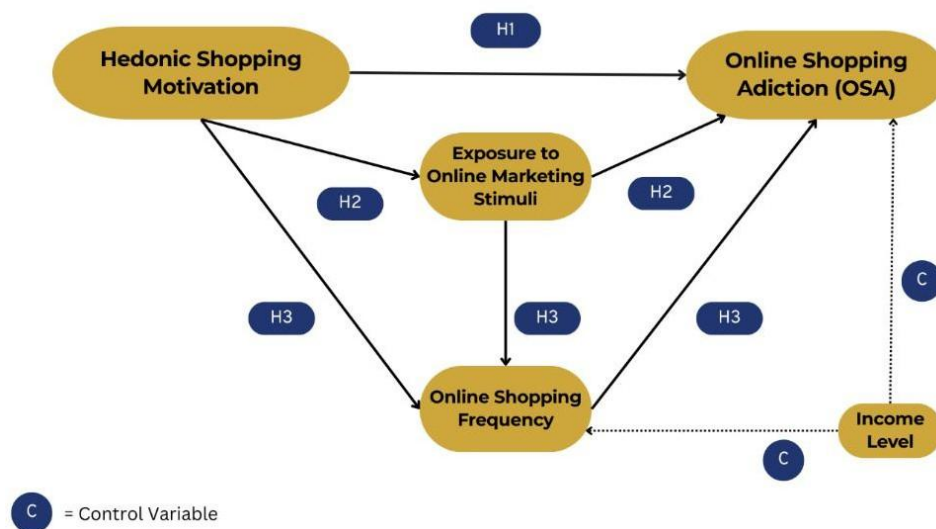


Fig. 1. Research model

3.2 Findings

Based on the analysis above, it can be determined that H1 is accepted because, based on the results of the path coefficient analysis, hedonic shopping motivation and online shopping addiction have a significant and positive relationship with a value of 0.428, and the results are statistically significant because the p-value is below 0.05 ($p < 0.05$) (see Table 2). This shows that there is a significant effect between hedonic shopping motivation and online shopping addiction, where hedonic shopping motivation greatly influences the effect of online shopping addiction. The results of this hypothesis testing are in line with one of the hypotheses proposed by Heredero et al. (2025), which states that hedonic shopping motivation increases the likelihood of a person experiencing online shopping addiction. For example, if respondents feel that shopping at online stores is a form of entertainment, then these respondents will feel increasingly trapped to shop again and feel addicted to online shopping, even though they have tried to stop shopping online.

H2 is also accepted because the path coefficient analysis results show that there is a positive indirect effect of 0.260. This is also reinforced by a p-value of 0.000, which is smaller than the maximum value ($p < 0.05$) (see Table 2). This indicates that exposure to marketing stimuli such as advertisements and promotions can encourage people with hedonic shopping motivation to experience the effects of online shopping addiction. The results of testing this hypothesis are in line with one of the hypotheses proposed by Heredero et al. (2025), which states that exposure to online marketing stimuli positively mediates the

relationship between hedonic shopping motivation and the likelihood of an individual experiencing online shopping addiction.

Table 2. Results of path coefficient analysis

Variables	Original sample (O)	T statistics (O/STDEV)	P-values	Conclusion
Exposure to marketing stimuli -> OSA	0,397	5,578	0,000	Significant
Exposure to marketing stimuli -> online shopping frequency	0,160	1,756	0,040	Significant
Hedonic shopping motivation -> exposure to marketing stimuli	0,651	15,364	0,000	Significant
Hedonic shopping motivation -> OSA	0,435	7,139	0,000	Significant
Hedonic shopping motivation -> Online shopping frequency	0,304	4,083	0,000	Significant
Monthly income -> OSA	-0,011	0,233	0,408	Not significant
Monthly income -> online shopping frequency	0,137	1,949	0,026	Significant
Online shopping frequency -> OSA	0,120	2,142	0,016	Significant

H3 is partially accepted because in the first part, it can be seen that there is a small but positive relationship of 0.036 in the relationship between hedonic shopping motivation and online shopping addiction through the mediator of online shopping frequency. The results of this series are significant because the p-value (0.030) is below the maximum limit ($p < 0.05$), so the results of the original sample are significant (see Table 3). However, in the second part of H3, there is a small and positive effect of 0.019 in the original sample. However, the results are not significant because the p-value is 0.114, which exceeds the maximum limit ($p < 0.05$). This is only partially consistent with the hypothesis proposed by Heredero et al. (2025), which states that hedonic shopping motivation influences online shopping addiction through the mediation of online shopping frequency and through the sequential mediation of Exposure to marketing stimuli and online shopping frequency.

Table 3. Results of specific indirect effect analysis

Variables	Original sample (O)	T statistics (O/STDEV)	P-values	Conclusion
Monthly income -> online shopping frequency -> OSA	0,016	1,400	0,081	Not significant
Hedonic shopping motivation -> exposure to marketing stimuli -> online shopping frequency -> OSA	0,012	1,179	0,119	Not significant
Hedonic shopping motivation -> exposure to marketing stimuli -> OSA	0,258	5,301	0,000	Significant
Hedonic shopping motivation -> exposure to marketing stimuli -> online shopping frequency	0,104	1,705	0,044	Significant
Exposure to marketing stimuli -> online shopping frequency -> OSA	0,019	1,204	0,114	Not significant
Hedonic shopping motivation -> online shopping frequency -> OSA	0,036	1,877	0,030	Significant

This difference in results can be explained by the research conducted by Challet-Bouju et al. (2020). They state that the risk of compulsive buying or addiction is more influenced by internal psychological factors such as buying motives and impulsivity than by external triggers such as promotions. This means that exposure to marketing stimuli such as advertisements may only trigger purchases in the short term, but hedonic shopping motivation is the main driver that turns online shopping frequency into an addiction. Below are the illustration of the research findings through the research model:

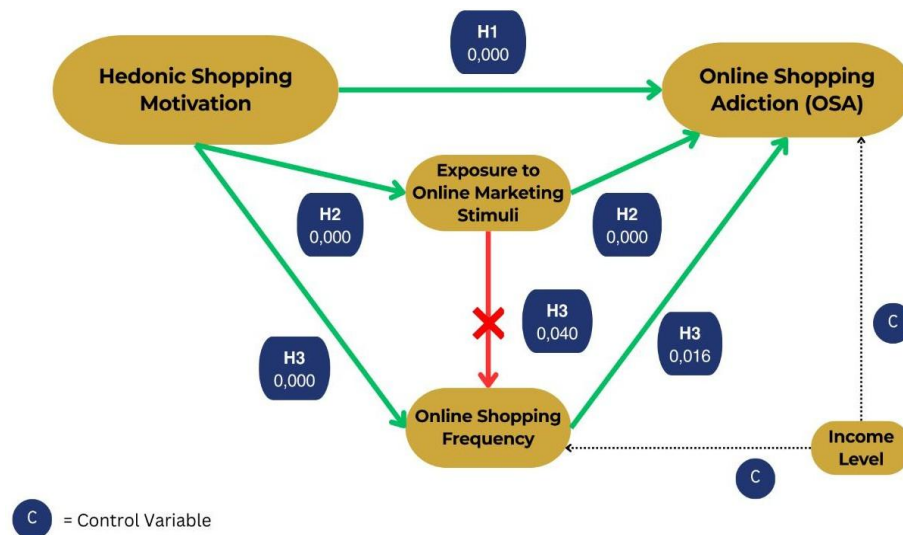


Fig. 2. Analysis results

3.3 Managerial implication

The managerial implications of these research findings can be directed toward two distinct groups: policymakers and owners of online shopping or e-commerce platforms. The following are the managerial implications that can be implemented. First, raise awareness about the phenomenon of online shopping addiction. Based on the results of hypothesis 1 (H1), which indicates that high hedonistic motivation can lead to online shopping addiction, a recommendation that can be implemented by the government and social activists is to raise awareness about the phenomenon of OSA. This can be achieved by creating educational programs and public service announcements that educate the public on how to recognize the symptoms of online shopping addiction and how to address them.

Second, optimize marketing stimuli derived from social media. Based on the results of hypothesis 2 (H2), which indicate that external stimuli can drive online shopping addiction. Based on the highest factor loadings for variables Ems3 and Ems4 regarding the role of social media in external stimuli, a recommendation for marketers is to further investigate which types of social media most influence this phenomenon and how this is rationalized, as most respondents consistently follow information about products they like through social media. Based on the highest factor loadings for the OSA variables—specifically withdrawal and tolerance—marketers can also investigate the impact of social media on how much respondents enjoy online shopping and how frequently their thoughts turn to online shopping. Third, add a spending limit feature. Based on the results of hypothesis 3 (H3), which indicate that the frequency of online shopping can lead to online shopping addiction, e-commerce companies can add a feature that limits the amount of money consumers can spend within a certain period. E-commerce companies can emulate the spending limit system implemented by banks for credit cards, where the amount of money that can be spent using the card is capped over a specific period.

3.4 Social and ethical implications

Social and ethical implications are also evident in this study. From an ethical standpoint, companies that own e-commerce platforms must also protect their consumers to mitigate the effects of online shopping addiction. First, dark patterns, as previously mentioned in this study, are a form of information manipulation that can mislead consumers in making purchasing decisions (Mathur et al., 2019). Based on the findings of this study, external stimuli can encourage consumers to develop an addiction to online shopping. This aligns with the findings of Koh & Seah (2023), who found that consumers are more likely to choose products that employ dark patterns. If left unaddressed, the continued use of these dark patterns could increase the number of people experiencing online shopping addiction.

Second, consumer self-regulation, where consumers derive hedonistic value not merely from the goods they purchase, but from the sensory experience of shopping itself (Brodie et al., 2013; Hollebeek, 2013). Driven by this pursuit of pleasure, shopping has evolved into a means of seeking entertainment, joy, adventure, and even an escape from routine or fantasy (Arnold & Reynolds, 2003). In the context of online shopping, this pleasure arises as consumers browse the internet, search for discounts, and even anticipate the delivery of goods. This demonstrates that inner satisfaction stems from the process of “hunting” and the effort involved, not merely from the ownership of the final product (Ruggiero, 2000). This study found that consumers’ hedonistic motivations can increase the likelihood of engaging in online shopping. Consistent with these findings, consumer self-regulation is crucial in preventing online shopping addiction. Governments and social activists can also raise public awareness about the phenomenon of online shopping addiction by creating educational programs and public service announcements that teach the public to recognize the symptoms of online shopping addiction and how to address them.

3.5 Limitations of the study

Although this study was conducted to the best of our ability, it still has several limitations. The limitations of this study here. First, all respondents are from and reside on the island of Java, where most economic activity in Indonesia takes place on Java. However, the results of this study may not be accurate if applied outside of Java, where online shoppers outside the island may have different preferences and needs compared to those on Java. Second, the absence of the financial enabler variable. This variable could be used to determine whether the ease of transactions, with the availability of multiple payment options (cash, debit cards, QRIS, etc.), can influence someone to develop an online shopping addiction. Additionally, the widespread use of PayLater features could be included in this variable, as this is also a factor that may influence whether someone develops an online shopping addiction. Third, age bias in the study, where most respondents in this study were aged 18–22 years. Although the study’s findings are accurate for this age range, the results may not be the same if the number of respondents over 22 years old were greater than those aged 22 and under. Fourth, type of platform. Most respondents in this study are Shopee users. Therefore, the data from this study will be relevant in the context of Shopee’s e-commerce platform, but not particularly relevant for other online shopping platforms such as TikTok Shop and Tokopedia.

Fifth, lack of stringency in screening questions. This relates to the limitations mentioned earlier; with screening questions that are not stringent or specific enough, respondent data will be biased in a certain direction, which will lower the quality of the research. Sixth, inappropriate use of variables. In the reference research model, the variable exposure to marketing stimuli is used as a mediator between the variables hedonic shopping motivation and online shopping addiction (OSA). However, according to the stimulus-organism-response (SOR) theory by Mehrabian & Russell (1974), stimuli are the triggers of responses, not the other way around. Seventh, inappropriate research scales. In this study, the exogenous variable represented by online shopping frequency uses a 1–5

Likert scale, whereas the other exogenous variables, namely, hedonic shopping motivation, exposure to marketing stimuli, and online shopping addiction, use a 1–6 Likert scale.

4. Conclusions

With the increasing use of the internet and online shopping platforms, the researchers decided to replicate the study conducted by Heredero et al. (2025) by applying the model and theory used in that study to individuals residing on the island of Java and aged 18 years and above. The hypothesis used for this study is also the same as the hypothesis used in the study by Heredero et al. (2025). The study was conducted with the help of SmartPLS 4 and SPSS software.

Based on the results of data processing previously used by SmartPLS4, it can be concluded that; (1) hedonic shopping motivation has been proven to have a positive and significant effect on online shopping addiction. This shows that individuals who have a high motivation to shop for pleasure (hedonic) are directly more likely to experience online shopping addiction. This is evidenced by the original sample (O) conducted through SmartPLS analysis, which has a value of 0.428, indicating that the effect is large enough to prove this hypothesis. This is also reinforced by a p-value below 0.05 ($p < 0.05$); (2) exposure to marketing stimuli can mediate the influence of Hedonic shopping motivation on online shopping addiction. These results indicate that hedonic motivation encourages individuals to pay more attention to marketing stimuli (advertisements/promotions), which ultimately increases their level of online shopping addiction. This is evidenced by looking at the indirect effect results, where the original sample (O) result is 0.260, which is also reinforced by a p-value of 0.000, which is less than the maximum number ($p < 0.05$); and (3) online shopping frequency was found to mediate the effect of hedonic shopping motivation on online shopping addiction. Online shopping frequency was found to have a specific but limited role as a mediating variable. This variable can mediate the relationship between hedonic shopping motivation and OSA, indicating that internal hedonistic drives effectively trigger shopping frequency that leads to addiction. However, online shopping frequency is not proven to mediate the path from exposure to marketing stimuli. This shows that shopping frequency can only cause OSA if it is driven by the consumer's internal motivation, not just by external advertising.

For future research, several insights can be drawn from the findings of this study. First, expand the geographic and demographic scope; this study was conducted only on respondents in Java. Research could be conducted by expanding the scope of respondents beyond Java, for example, by setting a minimum quota of 100 respondents from Kalimantan or Eastern Indonesia to observe variations in shopping culture in those regions. Second, adding the financial enabler variable. Future research could introduce a new variable—financial enablers—to determine whether factors that facilitate online shopping transactions, such as payment method options and PayLater features, influence an individual's tendency toward online shopping addiction. Third, respondent age segmentation. Future research could refine the selection of respondent age groups to ensure the data is not skewed toward a specific age range, as different age groups typically exhibit distinct consumption patterns and income levels.

Fourth, selecting a single e-commerce platform. By selecting just one platform, future research will yield richer results because the findings can be easily compared with other e-commerce platforms and eliminate outliers (such as using e-commerce platforms rarely used in Indonesia) that would otherwise affect the quality of the research results. Fifth, refining the screening questions. By making the screening questions more specific, future research can yield richer results, as the data will be more accurate and representative of the phenomena studied in subsequent research. Sixth, changing the role of the exposure to marketing stimuli variable. For future research, the exposure to marketing stimuli variable can be used as a moderator variable to explore whether exposure to marketing stimuli strengthens the relationship between hedonic shopping motivation and online shopping addiction, rather than mediating it. Seventh, further investigating the roles of hedonic and

utilitarian motivations. Although utilitarian and hedonic motivations have been partially discussed in this study, future research could delve deeper into utilitarian and hedonic motivations to determine whether these two types of motivation influence the effects of online shopping addiction experienced by an individual. Eighth, use of the same scale. It is recommended that all variables, both exogenous and endogenous, use a Likert scale with the same range (1–6) to avoid bias in the analysis calculations and to ensure that significant findings are not compromised.

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Author Contribution

The authors contributed to the data acquisition, analysis, and interpretation in this study. Conceptualization: A. Y., N. G. R.; Methodology: A. Y., N. G. R.; Data Curation: A. Y.; Writing – Original Draft Preparation: A. Y., N. G. R.; Writing – Review & Editing: A. Y., N. G. R.

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During the preparation of this work, the authors used Grammarly to assist in improving grammar, clarity, and academic tone of the manuscript. After using this tool, the authors reviewed and edited the content as needed and took full responsibility for the content of the publication.

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