

The Effectiveness of Instagram on the Sales Performance of MSMEs in South Kalimantan Within the Context of Post-Digital Fatigue

Rindiani Amelia*, Ignatius Ismojo Herdono

Universitas Ciputra, Indonesia

Email: ismojo.herdono@ciputra.ac.id*

Abstract. Digital transformation is often promoted as a solution to improve the marketing performance of MSMEs. However, in the context of ultra-micro businesses in South Kalimantan, the impact does not always align with this narrative. This research examines the influence of post-digital fatigue, perceived effectiveness of Instagram, and the length of time the business has been active on the platform on MSMEs' perceptions of increased sales. A quantitative approach was used with 204 ultra-micro business owners in 13 districts/cities, analyzed using ordinal logistic regression. The results show that all three variables significantly influence perceptions of increased sales. These findings indicate that digital stress can become a psychological and operational burden rather than guaranteeing sales success, and that sustained digital experience is more critical than mere positive perception of the platform. The study concludes that the effectiveness of Instagram in enhancing MSME sales is highly contextual and mediated by psychological resilience and adaptive experience, rather than platform use alone. This research contributes to the literature on micro-sector digitalization and emphasizes the need for more contextual and applicable digital training.

Keywords: MSMEs; Digital Transformation; Post Digital Fatigue; Instagram Effectiveness; Ordinal Logistic Regression.

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are a key pillar of the Indonesian economy, contributing 61.1% to Gross Domestic Product (GDP) and absorbing 97% of the national workforce (Ministry of Cooperatives and SMEs, 2024). The government is actively promoting MSME digitalization through programs such as MSMEs Go Digital, the National Proudly Made in Indonesia Movement (Gernas BBI), and PaDi UMKM to expand online markets and improve marketing efficiency.

However, the effectiveness of digitalization is not uniform across regions. For example, South Kalimantan still faces limitations in digital literacy and infrastructure, particularly in the ultra-micro business sector operating from home (Ahsanurrahman, 2025). Although social media like Instagram is widely used as a promotional tool, some business owners experience emotional stress and decreased motivation due to the demands of constant activity, adapting to algorithms, and competing with competitors' content. This phenomenon, known as post-digital fatigue, refers to physical and mental exhaustion arising from intense and prolonged use of digital devices (Febreza & Junaidi, 2022). Physically, it manifests as discomfort in the eyes, head, neck, or back. Psychologically, symptoms include emotional stress, decreased motivation, mood swings, and anxiety related to FOMO (Pownall, 2025; Sreehari & Jayakumar, 2025; Vetrivel et al., 2024; Yap et al., 2024).

Nationally, Indonesia's social media user penetration is expected to reach 187 million by 2024, or approximately 67% of the population (We Are Social, 2024). In South Kalimantan, increased digital platform usage is not always accompanied by increased revenue. Local studies show that most MSMEs still rely on traditional marketing despite having active social

media accounts (BPS South Kalimantan, 2024). This indicates that the success of digitalization is highly contextual. Successfully utilizing Instagram depends on various factors, including an understanding of the platform's algorithm, the ability to create engaging and relevant content for the target audience, and the ability to interact effectively with followers (Niha, N., et al., 2025).

Previous research has extensively explored the role of social media in MSME marketing, often highlighting its potential for increasing reach and engagement (Ginting, 2025; Heryadi et al., 2024; Mtjilibe et al., 2024; Ohara et al., 2024). Studies such as Alalwan (2018) and Tafesse and Wien (2018) have emphasized the strategic use of Instagram for brand visibility and customer interaction. However, there is a noticeable gap in the literature that critically examines the psychological and experiential dimensions of digital tool usage among micro-entrepreneurs, particularly in developing regional contexts like South Kalimantan. Research on digital fatigue has predominantly focused on individual well-being in corporate or educational settings (e.g., Tarafdar et al., 2015), with limited application to the entrepreneurial performance of ultra-micro businesses. Furthermore, few studies have empirically integrated variables such as post-digital fatigue, perceived platform effectiveness, and duration of use into a unified model to explain sales performance perceptions, especially using ordinal logistic regression as an analytical tool.

The narrative that digitalization automatically increases sales needs reexamination. Constant digital pressure can serve as a psychological and operational burden rather than a consistently effective transformation tool. The study stems from two key gaps. First, few studies link post-digital fatigue with the perceived effectiveness of Instagram in increasing MSME sales. Second, the context of MSMEs in South Kalimantan has received limited quantitative research using ordinal logistic regression analysis. Therefore, this study aims to analyze the influence of post-digital fatigue, perceived effectiveness of Instagram, and length of time on the platform on the perceived sales increase of MSMEs in South Kalimantan. The research offers practical benefits for MSME actors and business development facilitators by identifying key factors that affect digital marketing effectiveness, thereby informing the design of more contextual and sustainable digital training programs. For policymakers, the findings can support evidence-based interventions that address not only technical digital skills but also the psychological readiness and adaptive capacity of entrepreneurs. Academically, this study contributes to broadening the discourse on digital transformation by incorporating a psychosocial perspective and applying advanced statistical modeling to micro-entrepreneurship research in an underexplored regional context.

MATERIALS AND METHODS

This study used an explanatory quantitative approach to analyze the influence of *post-digital fatigue*, perceived effectiveness of Instagram, and the length of time the business had been active on Instagram on the level of perceived sales increase of *MSMEs* in South Kalimantan. The analysis was conducted using ordinal logistic regression with SPSS software version 26 because the dependent variable was measured on an ordinal scale (Likert 1–5) and this model could describe the relationship between numerical and categorical predictors with multilevel response variables.

The study population included 275,348 *MSMEs* in South Kalimantan. The sample size

was determined using the Slovin formula (7% margin of error), resulting in 204 respondents drawn through purposive sampling. Respondent criteria included business owners domiciled in South Kalimantan, actively using Instagram for at least one year, and having participated in digitalization training at least twice a year. The questionnaire was distributed online and offline using a five-point Likert scale.

Research instrument was tested for validity using item-total correlation (Pearson Product Moment) and for reliability using Cronbach's Alpha coefficient, with a minimum threshold of $\alpha \geq 0.6$ (Sugiyono, 2021). Model testing was conducted through several stages: Model Fitting Information, Test of Parallel Lines, Goodness of Fit, and Parameter Estimates, with a significance level of 5% ($\alpha = 0.05$). Interpretation of the influence was based on the logit coefficient (b), Wald statistic, Sig., and odds ratio (Exp(b)).

RESULTS AND DISCUSSION

This study involved 204 MSMEs in South Kalimantan Province, selected proportionally from each district and city. Respondents were determined based on the following criteria: (1) having actively used Instagram as a promotional medium for at least one year, and (2) having participated in digitalization training at least twice in the past year. The business sector composition included food and beverages (47%), crafts (32%), and fashion (21%), reflecting the general character of MSMEs in this region, which are dominated by home-based businesses (Kemenkop UKM, 2024).

Based on the survey results, the majority of respondents (68.5%) rated their sales increase as moderate, while 21.5% rated it as low, and only 10% reported a high increase. This distribution indicates that despite widespread Instagram use among businesses, the direct impact on sales growth is uneven and tends to be moderate.

This phenomenon reinforces the findings of Dwivedi et al. (2021) and Tafesse & Wien (2018) that digital engagement does not always correlate with sales performance, particularly for micro-enterprises, which still face limitations in time, resources, and technical capabilities in consistently managing digital content. In the context of South Kalimantan, these results confirm the gap between the intensity of Instagram use and its economic effectiveness for MSMEs.

Simultaneous Test Results

A simultaneous analysis was conducted to test the combined effect of *post digital fatigue*, perceived effectiveness of Instagram, and the length of time the business has been active on Instagram on the perception of increased sales of MSMEs in South Kalimantan. Based on the results of the ordinal logistic regression analysis, the research model showed a Chi-Square value of 138.912 with degrees of freedom (df) = 3 and a significance of 0.000 ($p < 0.05$). This indicates that the proposed model fits the empirical data and is statistically significantly different from the model without predictors (intercept only). Thus, the simultaneous hypothesis (H_1) is accepted, which means that the three independent variables together have a significant influence on the probability of increased sales perception.

This model also produces a -2 Log Likelihood of 33.846, much smaller than the Intercept Only value (172.758), which confirms that the addition of predictor variables substantially improves model fit (Hosmer, et al.).

Contextually, these findings reinforce the view that the effectiveness of digital transformation in the micro-sector is influenced not only by the technical factors of social media use, but also by the psychological state and duration of digital adaptation of entrepreneurs. The combination of high digital fatigue, varying perceptions of effectiveness, and varying operational experiences on Instagram play a role in shaping perceptions of increased sales for MSMEs in South Kalimantan.

Table 1. Case Processing Summary

		N	arginal Percentage
Perception of Increased Sales	1.00	43	21.1%
	2.00	141	69.1%
	3.00	20	9.8%
Valid		204	100.0%
Missing		0	
Total		204	

Source: Primary data analysis (2025)

Table 2. Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	172,758			
Final	33,846	138,912	3	.000

Link function: Logit.

Source: Ordinal logistic regression output based on primary data (2025)

Goodness-of-Fit Test of Ordinal Logistic Regression Model

The Goodness-of-Fit test results show that the Pearson significance value is 0.835 and the Deviance is 0.800, both greater than 0.05. This indicates that there is no significant difference between the empirical observation value and the model prediction, so the model is declared fit to the data. Thus, the ordinal logistic regression used is appropriate to explain the relationship between post digital fatigue, perceived effectiveness of Instagram, and the length of active business on Instagram towards the perception of increased sales of MSMEs (Hosmer et al., 2013).

Table 3. Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	8,128	13	.835
Deviance	8,627	13	.800

Link function: Logit.

Source: Author's calculation from ordinal logistic regression analysis (2025)

Empirically, the feasibility results of this model align with the characteristics of the MSME sector in South Kalimantan, which exhibit relatively homogeneous digital behavior patterns. According to a report by the Ministry of Cooperatives and SMEs (2024), approximately 74% of MSMEs in South Kalimantan use Instagram and WhatsApp Business as their primary marketing channels, with similar digital activities, including product photo

promotions, price offers, and customer testimonials. This illustrates that digital media usage patterns by businesses tend to converge and do not exhibit extreme variations among respondents, explaining why the regression model has a high goodness of fit.

Furthermore, data from the Central Statistics Agency (BPS, 2023) also shows that more than 60% of MSMEs in South Kalimantan still conduct digital activities individually, without a team or specialized assistance. Limited time and resources mean that most businesses implement digitalization practices with similar patterns and limited adaptation, allowing their digital behavior to be modeled stably in this study. In other words, the uniformity of these behavioral patterns supports the conclusion that the regression model is able to depict the reality of Instagram usage representatively and does not overfit to field data.

Pseudo R-Square Value

The Pseudo R-Square test shows that the Nagelkerke value is 0.615, Cox & Snell is 0.494, and McFadden is 0.420. Based on the interpretation criteria of ordinal logistic regression (Hosmer et al., 2013), a Nagelkerke value above 0.60 indicates that the model has strong explanatory power, which is able to explain around 61.5% of the variation in the perception of increased sales. Meanwhile, the remaining 38.5% is influenced by other factors outside the research model, such as variations in product strategies, business locations, and fluctuations in people's purchasing power.

Table 4. Pseudo R-Square

Cox and Snell	.494
Nagelkerke	.615
McFadden	.420
Link function: Logit.	

Source: Statistical output from ordinal logistic regression model (2025)

Pseudo-R-square value also indicates that the model has good internal stability for social research. This means that the relationship between post digital fatigue, perceived Instagram effectiveness, and the length of time a business has been active on Instagram is quite strong in explaining the perception of increased sales among MSMEs in South Kalimantan.

From an empirical perspective, the strength of this model aligns with field data showing that digital activities have a significant, but not absolute, impact on MSME sales performance. According to the Ministry of Cooperatives and SMEs (2024), approximately 63% of MSMEs in South Kalimantan experienced a slight to moderate increase in turnover after becoming active on social media, but only 9% reported a significant increase. This means that digital platforms do facilitate customer visibility and interaction, but do not automatically guarantee increased sales (Dwivedi et al., 2021). These findings confirm that the effectiveness of digitalization is contextual, dependent on managerial capacity, content creativity, and the consistency of business actors in implementing online marketing strategies. This aligns with the Resource-Based View (RBV) theory, which emphasizes the importance of internal capabilities and digital literacy as key sources of competitive advantage (Barney, 1991).

Partial Test Results (Parameter Estimates)

A partial test was conducted to examine the effect of each independent variable on the perception of increased MSME sales in South Kalimantan. Based on the results of the ordinal logistic regression (Parameter Estimates Table), the coefficient and significance values are as follows:

Table 5. Parameter Estimates

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Y_PPP = 1.00]	5,328	.936	32,404	1	.000	3,494	7,163
	[Y_PPP = 2.00]	11,312	1,237	83,687	1	.000	8,889	13,736
Location	X1_PDF	1,623	.502	10,468	1	.001	.640	2,606
	X2_PMS	-.246	.493	.249	1	.618	-1.213	.721
	X3_LUAM	2,737	.528	26,830	1	.000	1,701	3,772

Linfunction: Logit.

Source: Author's analysis using ordinal logistic regression on survey data (2025)

The Effect of *Post Digital Fatigue* (H₂)

Post-digital fatigue variable, represented by XI_PDF, has a coefficient of 1.623 with $p = 0.001$ ($p < 0.05$), indicating a significant positive effect on the perception of increased sales. These results indicate that the higher the digital fatigue experienced by MSMEs, the higher their perception of increased sales. This phenomenon illustrates an adaptive paradox: digital pressure actually encourages businesses to survive and innovate.

According to Tarafdar et al. (2015), pressure from technological demands can lead to techno-eustress, a productive form of stress that encourages adaptation. Data from the Central Statistics Agency (BPS) (2023) corroborates this finding: 67% of MSMEs in South Kalimantan remain active on social media despite admitting to feeling bored and burdened, fearing losing customers if they stop. Thus, post-digital fatigue is not merely a negative effect but reflects the digital resilience of entrepreneurs striving to maintain business continuity.

The Influence of Perceived Effectiveness of Instagram (H₃)

The perceived effectiveness of Instagram, represented by X2_PMS, had no significant effect on perceived sales growth ($B = -0.246$; $p = 0.618$). A negative coefficient indicates an inverse relationship, but is not statistically significant. This confirms that positive perceptions of Instagram do not always lead to higher perceived sales growth.

In fact, the Ministry of Cooperatives and SMEs (2024) reported that although 74% of MSMEs in South Kalimantan have used social media, only 9% have experienced a significant increase in turnover. Business owners stated that "they post frequently, but sales remain the same," indicating a sense of digital stagnation. This phenomenon aligns with the Market Fit Strategy theory (Kotler & Keller, 2020), which states that digital marketing effectiveness depends on the fit between product characteristics, market segments, and platforms. For many traditional MSMEs, their business models do not fully align with the logic of algorithm- and

visual-based digital distribution.

The Influence of the Length of Time a Business Has Been Active on Instagram (H₄)

The variable of the length of time a business has been active on Instagram, represented by X3_LUAM, shows a coefficient of 2.737 with $p = 0.000$ ($p < 0.05$), indicating a significant positive effect on the perception of increased sales. The longer MSMEs actively use Instagram, the greater their likelihood of perceiving an increase in sales. These results indicate that digital experience shapes adaptive skills in managing content, understanding algorithms, and establishing customer interactions.

Empirically, the Asian Development Bank (2023) reported that MSMEs that consistently use social media for more than two years have a sales growth rate 1.7 times higher than those that have just started digitizing. Field data in South Kalimantan also shows that businesses with extensive digital experience tend to be more efficient, leveraging insights, story ads, and local collaborations to maintain exposure. This is consistent with the Resource-Based View (RBV) theory (Barney, 1991), which states that digital experience and literacy are internal resources that enhance competitive advantage.

CONCLUSION

This study of 204 MSMEs in South Kalimantan revealed that Instagram usage positively but unevenly influenced perceived sales increases, with most respondents in the moderate category, confirming digitalization as a supportive tool rather than a primary sales driver. Ordinal logistic regression showed a significant simultaneous effect of post-digital fatigue, perceived Instagram effectiveness, and platform tenure (model fit: high goodness-of-fit, Nagelkerke $R^2 = 0.615$), explaining substantial variation in sales perceptions. Partially, post-digital fatigue had a significant positive effect (adaptive paradox amid saturation), perceived effectiveness showed no significant impact (subjective beliefs not aligning with outcomes), and longer tenure yielded significant positive effects (highlighting experience's role). Overall, digitalization's impact proved contextual, reliant on adaptability and fatigue management, urging tailored training that addresses psychological burdens, realistic strategies, and business capacity over mere platform intensity. For future research, longitudinal studies could track actual sales data (beyond perceptions) across diverse Indonesian regions, incorporating moderating variables like business sector or external economic factors, to validate causality and generalizability.

REFERENCES

- Ahsanurrahman. (2025). *Observation of South Kalimantan MSMEs*.
- Alalwan, A. A. (2018). Investigating the impact of social media advertising features on customer purchase intention. *International Journal of Information Management*, 42, 65–77. <https://doi.org/10.1016/j.ijinfomgt.2018.06.001>
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120. [https://doi.org/10.1016/S0742-3322\(00\)17018-4](https://doi.org/10.1016/S0742-3322(00)17018-4)
- Dwivedi, Y. K., et al. (2021). Setting the future of digital and Instagram marketing research. *International Journal of Information Management*, 59, 102168. <https://doi.org/10.1016/j.ijinfomgt.2020.102168>
- Febreza, F., & Junaidi, J. (2022). The phenomenon of digital fatigue in sociology students at

- the Faculty of Social Sciences, Padang State University. *Naradidik: Journal of Education and Pedagogy*, 1(3), 315–326. <https://doi.org/10.24036/nara.v1i3.73>
- Ginting, L. G. (2025). Digital education for MSMEs: Utilizing social media to increase market reach. *Simbisa Community Empowerment*, 1(2), 1–11.
- Heryadi, D. Y., Afiat, M. N., & Kraugusteeliana, K. (2024). Effective social media communication strategies to expand the market reach of MSMEs during Ramadan season. *Journal of Contemporary Administration and Management (ADMAN)*, 2(1), 409–415.
- Hosmer, D. W., Lemeshow, S., & Sturdivant, R. X. (2013). *Applied logistic regression* (3rd ed.). Wiley.
- Jenifer, J., & Nawangpalupi, C. B. (2019). Nothing beats a fabulous post: The influence of Instagram marketing for value creation and promotion. *International Journal of Economics, Business and Accounting Research (IJEBAR)*, 3(4), 447–456. <https://jurnal.stie-aas.ac.id/index.php/IJEBAR/article/view/13436>
- Ministry of Cooperatives and SMEs. (2024). *2024 MSME annual report*. Ministry of Cooperatives and SMEs.
- Mtjilibe, T., Rameetse, E., Mgwenya, N., & Thango, B. (2024). *Exploring the challenges and opportunities of social media for organizational engagement in SMEs: A comprehensive systematic review* (SSRN Working Paper No. 4998542). <https://ssrn.com/abstract=4998542>
- Niha, N., Maulana, S., & Pitaloka, W. (2025). Utilizing Instagram social media in business strategy. *Socius: Journal of Social Sciences Research*, 3(1), 265–273. <https://doi.org/10.5281/zenodo.15831246>
- Ohara, M. R., Suparwata, D. O., & Rijal, S. (2024). Revolutionary marketing strategy: Optimising social media utilisation as an effective tool for MSMEs in the digital age. *Journal of Contemporary Administration and Management (ADMAN)*, 2(1), 313–318.
- Pownall, E. J. (2025). *Psychological adjustment and psychological flexibility following sport-related concussion* (Doctoral dissertation). Trent University, Canada.
- Sreehari, R., & Jayakumar, C. (2025). Physical and psychological health correlates of excessive smartphone usage: A systematic review. *American Journal of Psychiatric Rehabilitation*, 28(1), 903–916.
- Tafesse, W., & Wien, A. (2018). Implementing Instagram marketing strategically: An empirical assessment. *Journal of Marketing Communications*, 24(2), 170–185. <https://doi.org/10.1080/13527266.2015.1096942>
- Tarafdar, M., Cooper, C. L., & Stich, J.-F. (2015). The technostress trifecta: Techno eustress, techno distress and design. *Information Systems Journal*, 25(2), 103–132. <https://doi.org/10.1111/isj.12042>
- Vetrivel, S. C., Saravanan, T. P., Maheswari, R., & Arun, V. P. (2024). Coping mechanisms for stress among students at universities. In *Student well-being in higher education institutions* (pp. 157–186). IGI Global.
- Yap, A. U., Kurniawan, F., Pragustine, Y., & Marpaung, C. (2024). Temporomandibular disorder and somatic symptoms: Relations to fear of missing out and other negative emotional states. *Acta Odontologica Scandinavica*, 83, 40776.

