Dissecting the Synergistic Effects of Social Media Interaction, Consumer Innovativeness, and Cognitive Behavioral Constructs on Health-Protective Outcomes: A Multi-Dimensional Exploration of Digital Marketing Strategies in the Healthcare Sector in SDGs

Jack Ng Kok Wah*

Independent Researcher, Malaysia

***Corresponding Author:** Jack Ng Kok Wah, Independent Researcher, Malaysia.

Abstract

This research review presents a comprehensive examination of the intricate relationships between social media engagement, consumer innovativeness, and psychological constructs within the private healthcare sector in SDGs, with particular emphasis on the behavioral shifts during the pandemic. Utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze data from 400 respondents, the research investigates the complex interplay between key psychological drivers' self-efficacy, perceived benefits, and behavioral beliefs and their collective influence on health-protective behaviors. The findings underscore the pivotal role of social media engagement in shaping health-related actions, revealing that consumer innovativeness partially mediates these relationships. Notably, behavioral beliefs emerged as the most significant predictor of health-protective behaviors, followed by self-efficacy and perceived benefits, highlighting the nuanced impact of cognitive factors on digital health engagement. The mediating role of consumer innovativeness underscores the necessity for healthcare marketers to foster innovative consumer mindsets to drive the adoption of health-promoting behaviors through social media channels. This study offers crucial theoretical insights into the evolving role of digital marketing in healthcare and provides practical recommendations for healthcare providers seeking to enhance patient engagement and health outcomes through strategic social media use. By identifying the mechanisms through which psychological elements interact with digital platforms, this research contributes to the broader discourse on optimizing digital communication for health promotion in the post-pandemic era.

Keywords: Structural Equation Modeling, Consumer Innovativeness, Artificial Intelligence, Digital Marketing, E-Health Technology

Introduction

The pandemic, declared in early 2020 by the World Health Organization (WHO), has caused a significant shift in global behaviors and daily routines. This public health crisis brought about unprecedented changes, particularly in the way's individuals engage with health services and access information about health and wellness. As governments worldwide, imposed lockdowns and restricted in-person interactions, people turned to social media platforms and e-health technologies for communication, education, and, most importantly, health-related information. For instance, Rasheed, A. F., & Balakrishnan, J. (2024) investigated strategies for enhancing customer retention in theme parks [1]. The findings identify key factors, including customer satisfaction, personalized experiences, and loyalty programs, as crucial for improving retention rates. The authors emphasize the importance of creating memorable experiences that engage customers on an emotional level. Recommendations include implementing targeted marketing strategies that foster long-term relationships with visitors, ultimately enhancing customer loyalty and retention in the competitive theme park industry. Gu, C., & Duan, Q. (2024) explored the dynamics of consumer engagement in social media influencer marketing through the lens of self-determination theory [2]. The findings indicate that intrinsic motivations, such as a desire for self-expression and social connection, significantly enhance consumer engagement with influencer content. The study highlights the importance of fostering authentic relationships between influencers and consumers to drive engagement and brand loyalty. The authors recommend brands prioritize collaborations that align with consumer

values and preferences to maximize the effectiveness of influencer marketing strategies. In addition, Gu, C., & Duan, Q. (2024) also explored the dynamics of consumer engagement in social media influencer marketing through the lens of self-determination theory [2]. The findings indicate that intrinsic motivations, such as a desire for self-expression and social connection, significantly enhance consumer engagement with influencer content. The study highlights the importance of fostering authentic relationships between influencers and consumers to drive engagement and brand loyalty. The authors recommend brands prioritize collaborations that align with consumer values and preferences to maximize the effectiveness of influencer marketing strategies. In the private healthcare sector, these platforms have emerged as critical tools for engaging patients, disseminating information, and promoting health protective behaviors. Gadge, S., et al. (2024) investigated the role of fashion-consciousness, health awareness, and environmental concerns on millennials' usage of smartwatches [3]. The findings reveal that higher fashion-consciousness and health awareness positively influence the adoption of smartwatches, as these consumers seek devices that align with their lifestyle and values.

Environmental concerns also play a role, with consumers preferring brands that demonstrate sustainability in their products. The authors recommend that marketers emphasize both functional and fashionable aspects of smartwatches to attract environmentally conscious consumers, particularly within the millennial demographic. Social media engagement refers to the interaction between users and social media platforms through activities such as likes, shares, comments, and posts. In the context of private healthcare, this engagement has facilitated the spread of essential health information and has proven to be an effective medium for promoting health protective behaviors. Asad Abdulhamid, T., et al. (2024) investigated the relationship between brand passion and consumer well-being among smart device users in Egypt [4].

The findings indicate that brand passion positively influences consumer well-being, enhancing emotional satisfaction and overall life quality. The research highlights those passionate consumers exhibit stronger brand loyalty and more positive purchasing experiences. Additionally, the study reveals that brand passion mediates the relationship between brand engagement and well-being, suggesting that deeper emotional connections with brands lead to increased happiness and fulfillment. The authors advocate for brands to cultivate passion-driven relationships with consumers to foster loyalty and improve consumer satisfaction. Also, Damian-Okoro, I. R., & Akani, G. H. (2024) focused on consumer satisfaction and retention strategies in the banking sector in Nigeria [5]. It finds that personalized banking services, loyalty programs, and responsive customer service are critical for customer retention. The findings suggest that banks need to adopt a customer-centric approach by leveraging data analytics to understand consumer preferences and enhance the banking experience. The study emphasizes the importance of building long-term relationships with customers to ensure sustained loyalty and retention in a competitive banking environment. However, the extent to which social media influences public health behaviors, particularly in private healthcare, remains a crucial question. The private healthcare sector, in particular, faces unique challenges and opportunities in engaging patients through social media platforms. This study aims to explore the influence of social media engagement on consumer behavior, particularly focusing on consumer innovativeness and its connection to psychological factors such as self-efficacy, perceived benefits, and behavioral beliefs. Recently, Wiastuti, R. D., & Rashid, B. (2024) evaluated restaurant innovativeness from the perspective of Generation Z across different dining formats [6]. Findings indicate that innovative dining experiences significantly influence Generation Z's perceptions and preferences. The authors highlight the importance of incorporating technology and unique concepts to attract this demographic. Recommendations include adapting menu offerings and marketing strategies to align with Generation Z's values and expectations, enhancing overall customer engagement and satisfaction in the restaurant industry. In addition, Wu, M. et al., (2024) investigated the effects of motivated consumer innovativeness on acceptance of autonomous delivery robots [7]. Findings indicate that consumers with higher levels of innovativeness are more likely to embrace autonomous delivery technologies due to perceived convenience and novelty.

The research underscores the importance of consumer education and transparency in addressing safety concerns. Recommendations include promoting the benefits of autonomous delivery systems through targeted marketing strategies to enhance acceptance and integration into daily consumer behaviors. Understanding how these factors interact is crucial for developing strategies that encourage health-protective actions among consumers in the private healthcare sector. Recently, Kim, Y., & Lee, H. (2024) examined consumers' responses to metaverse advertisements, focusing on the roles of hedonic and utilitarian appeals and the moderating effects of the need for touch [8]. Findings indicate that hedonic appeals are more effective in capturing consumer attention, while utilitarian appeals influence purchase intentions. The need for touch moderates these relationships, with tactile experiences enhancing consumer engagement in virtual settings. The authors recommend that marketers balance hedonic and utilitarian elements in metaverse advertising to optimize consumer responses and drive conversions. The central question guiding this research is: How does consumer engagement through social media influence health protective behaviors, and what role do psychological factors and consumer innovativeness play in this relationship? In a recent study, Liang, S., et al. (2024) investigated the impact of social exclusion on the adoption of new products, highlighting the psychological motivations driving consumer behavior [9]. Findings indicate that individuals experiencing social exclusion are more likely to seek out new products as a means of social re-integration and self-affirmation. The study emphasizes the need for marketers to understand the emotional context of consumers, suggesting strategies that tap into the desires for belonging and acceptance to enhance product adoption during times of social exclusion. In addition, Zhao, L., & Fu, B. (2024) assesssed the impact of recommendation novelty on older consumers, challenging the assumption that older individuals avoid innovative products [10]. Findings reveal that older consumers are open to novel recommendations when perceived as relevantand beneficial.

The authors highlight the importance of understanding older consumers' unique preferences in marketing strategies. Recommendations include developing targeted communication that emphasizes the advantages of innovative products for older demographics, fostering acceptance and adoption in the marketplace. Therefore, by addressing these questions, the research seeks to fill a gap in the literature on social media's role in health communication during crises and its potential for fostering health-related innovations in consumer behavior.

Literature Review

The literature on social media engagement, consumer innovativeness, and health behaviors is vast, with research examining various psychological, technological, and behavioral aspects. Muhammad Dhia Afiq Mohd Iza et al. (2022) extended the Theory of Planned Behavior (TPB) to explore household intentions to recycle clothes, considering factors like social media usage and lack of facilities [11]. Findings indicate that social media positively influences recycling intentions by enhancing awareness and social norms. The research highlights the importance of providing recycling facilities to support consumer behavior. The authors recommend that policymakers and organizations promote recycling initiatives through social media campaigns to encourage sustainable practices in clothing disposal. In addition, Baiwir, L., et al. (2024) explored consumer engagement with preventive health technologies and its impact on wellbeing [12]. The findings present a "double-edged sword" effect, where preventive health technologies enhance user engagement and health awareness but also lead to stress and anxiety over health monitoring. The study suggests balancing technological intervention with human elements in healthcare to reduce potential negative effects on mental wellbeing. It highlights the need for user-centered design to ensure consumer health technologies promote holistic wellness. In addition, Cassia, F., & Magno, F. (2024) applied self-determination theory to the context of anti-food waste apps, using PLS-SEM and NCA methods [13]. The findings reveal that consumers are motivated by intrinsic factors such as personal satisfaction and the desire to contribute to environmental sustainability, rather than external rewards. The study highlights the importance of designing apps that foster consumer autonomy and competence to encourage long-term engagement.

Businesses are advised to emphasize ethical and environmental benefits to strengthen consumer commitment to food waste reduction. This section explores the key variables in this study self-efficacy, perceived benefits, behavioral beliefs, consumer innovativeness, and health protective behaviors drawing on previous studies to build a conceptual framework for understanding their interactions.

Self-Efficacy and Health Protective Behaviors: Self-efficacy refers to an individual's belief in their ability to execute behaviors necessary to produce specific performance attainments. Bandura's Social Cognitive Theory highlights the importance of self-efficacy in behavioral change, suggesting that higher self-efficacy leads to a greater likelihood of engaging in health-protective behaviors. For example, Kim, J. J., et al. (2024) investigated the potential of Central Bank Digital Currency (CBDC) payments to impact the tourism industry [14]. Findings suggest that consumers view CBDC as a secure and efficient payment method that can enhance their overall travel experience. The study identifies concerns regarding privacy and the digital divide among different demographics. The authors recommend that tourism operators and policymakers promote the benefits of CBDC, ensuring inclusivity in access and education to maximize its adoption within the tourism sector. Recently, Saikia, W., & Bhattacharjee, A. (2024) also estimated that consumer brand engagement with brand equity through brand trust for organic retail products on social media [15]. Findings indicate that brand trust positively influences brand engagement, which in turn enhances brand equity perceptions among consumers. The study emphasizes the importance of transparent communication and quality assurance in building trust for organic products. The authors recommend that organic retailers leverage social media to strengthen brand trust and engagement, ultimately improving brand equity in the competitive market. In addition, Sohn, S. (2024) also investigated consumer perceived risk associated with using autonomous retail technology [16]. The findings reveal that concerns regarding security, reliability, and personal data privacy significantly influence consumer acceptance of autonomous technologies. The study emphasizes the need for retailers to address these risks through clear communication and robust security measures. The authors recommend that businesses focus on building consumer trust by ensuring transparency and demonstrating the reliability of autonomous systems to enhance adoption rates.

In the context of social media, self-efficacy can influence how individuals engage with health-related content, process the information, and adopt protective behaviors. Ndawula, Y. K., et al. (2024) examined psychographic characteristics influencing demand decisions for life insurance products in Uganda [17]. Findings indicate that factors such as risk perception, financial literacy, and cultural beliefs significantly affect consumer preferences. The research highlights the importance of understanding this psychographics to tailor marketing strategies effectively. The authors recommend that life insurance providers develop targeted campaigns that address specific consumer concerns and educational needs, enhancing awareness and adoption of life insurance products in the market. In addition, De Kervenoael, R., et al. (2024) examined the use of recommender systems in food choices and the perceived epistemic value of Yuka, a French mobile app that evaluates product healthiness [18]. The study finds that consumers perceive recommender systems like Yuka as valuable for making informed food choices but also express concerns about data privacy and over-reliance on technology. The authors suggest that recommender systems should balance automation with consumer empowerment by providing clear, reliable information while maintaining transparency in data handling practices. Prior have shown that self-efficacy significantly impacts how individuals use social media for health-related purposes studies [19,20]. For instance, Hameed, I., et al. (2024) investigated consumer mobile payment innovations, examining the interplay between coping theory factors, individual motivations, social influence, and word-of-mouth effects [21].

Findings reveal that positive social influences and individual motivations significantly enhance consumers' acceptance of mobile payment solutions. Additionally, effective coping strategies for perceived risks contribute to a greater likelihood of adoption. The authors emphasize the importance of building trust and providing educational resources to alleviate concerns, suggesting that marketing strategies should leverage social proof to encourage the use of mobile payment innovations. In addition, Mu, W., & Yi, Y. (2024) investigated the impact of direct-to-consumer marketing characteristics on consumer loyalty in the digital intermediary era. Findings reveal that personalization, engagement strategies, and brand transparency significantly enhance consumer loyalty [22]. The study emphasizes the need for brands to adopt innovative marketing strategies that prioritize direct interactions with consumers. The authors recommend utilizing digital platforms to build trust and foster loyalty through transparent communication and personalized experiences that resonate with consumers' values and preferences. Higher self-efficacy correlates with more proactive engagement in health discussions and higher adoption rates of health innovations shared on these platforms. This study builds on this foundation by exploring how self-efficacy influences consumer innovativeness in the private healthcare sector. In a recent study, Blösser, M., & Weihrauch, A. (2024) focused on the current landscape of AI certification from a consumer perspective, examining approval rates and areas for improvement [23]. The findings indicate that while consumers value AI certifications, there is skepticism about their transparency and relevance. The authors call for clearer standards and certifications that emphasize ethical considerations and consumer safety. Recommendations for future research include exploring consumer trust in certified AI products and developing globally recognized certification frameworks to enhance consumer confidence in AI technologies. On top of that, Sowmya, G., et al. (2024) investigated the adoption patterns of matrimonial apps by analyzing user gratifications among diverse demographics [24]. Findings reveal that users are primarily motivated by emotional and social gratifications, such as companionship and relationship building. The research identifies distinct patterns based on age, gender, and cultural background, indicating that younger users prioritize user-friendly features and personalization, while older users seek reliability and security. The authors emphasize the importance of understanding these motivations and consumer beliefs to improve app design and marketing strategies, ultimately enhancing user engagement and satisfaction in the competitive matrimonial app market.

Perceived Benefits of Social Media Engagement: The perceived benefits of engaging with social media are a significant predictor of consumer behavior. Pang, H., & Zhang, K. (2024) investigated how multidimensional benefits determine cumulative satisfaction and electronic word-of-mouth (eWOM) engagement on mobile social media [25]. For instance, Lianga, C. et al., (2024) examined the influence of green product attributes on consumer perceived value and purchase intention, specifically focusing on green household appliances [26]. The findings indicate that attributes such as energy efficiency and eco-friendliness significantly enhance perceived value, leading to increased purchase intentions among environmentally conscious consumers. The authors emphasize the importance of clear communication of green attributes in marketing strategies to attract consumers seeking sustainable alternatives. Recommendations include enhancing product visibility and promoting environmental benefits to drive sales in the green product market. In addition, findings suggest that perceived benefits from mobile social media use, such as connectivity and entertainment, lead to higher cumulative satisfaction, which in turn drives eWOM engagement. The authors propose a framework reconciling motivation and expectation disconfirmation perspectives to explain user behavior on social media. Recommendations include enhancing the user experience on mobile platforms to boost satisfaction and encourage positive eWOM.

In addition, Choi, Y., et al. (2024) explored the drivers of fintech adoption among elderly consumers, focusing on trust, perceived ease of use, and social influence [27]. The findings show that elderly users are more likely to adopt fintech if they perceive it as trustworthy and simple to use, especially with social endorsements from peers or family. The research suggests that fintech companies should develop intuitive user interfaces and build trust through transparent policies to increase adoption among older demographics, with an emphasis on peer influence and social support. According to Siegel et al. (2015), consumers who perceive clear benefits such as access to information, ease of communication, and social connection are more likely to engage actively on social media platforms [28]. This is particularly relevant in healthcare, where consumers seek reliable information and convenience in managing their health. In this research, perceived benefits are examined in relation to health protective behaviors. The study hypothesizes that the more benefits consumers perceive in using social media for health-related activities, the more likely they are to adopt innovative health behaviors and protective measures. In addition, Huang, H. L. (2024) also investigated factors influencing citizens' attitudes toward engaging with solar energy in Taiwan. The findings reveal that perceived benefits, personal norms, and environmental awareness significantly impact citizens' intentions to engage with solar energy initiatives. Additionally, socio-demographic factors such as education level and income influence these attitudes [29].

The authors recommend promoting the environmental and economic advantages of solar energy through targeted campaigns, emphasizing the importance of increasing public awareness and knowledge to drive greater engagement with renewable energy solutions.

Behavioral Beliefs and Consumer Behavior: Behavioral beliefs are the underlying convictions that individuals hold about the outcomes of their actions. In the Theory of Planned Behavior (TPB), these beliefs form the foundation for attitudes toward behaviors, which in turn influence intentions and actions. For instance, Lin, J., Huang, Y., & Li, M. (2024) examined the relationship between consumer perceived green brand innovativeness and green word-of-mouth intentions, emphasizing the moderating role of green knowledge [30]. Findings suggest that consumers with higher green knowledge are more likely to engage in positive word-of-mouth regarding green brands perceived as

innovative. The study underscores the importance of educating consumers about environmental issues to enhance brand loyalty and advocacy. The authors recommend that brands actively communicate their sustainability initiatives to boost consumer engagement and encourage positive word-of-mouth. Recently, Arachchi, H. D. M., & Samarasinghe, G. D. (2024) investigated how AI-powered mobile speech recognition affects consumer attitudes and purchase intentions across Generations X and Y [31]. Results show that Generation Y exhibits higher acceptance and positive attitudes towards AI due to familiarity with technology, while Generation X demonstrates hesitancy due to privacy concerns. The findings highlight the generational divide in AI adoption, emphasizing the need for marketers to target messaging and strategies based on generational preferences to encourage positive consumer attitudes and boost AI-related purchases. Research has shown that positive behavioral beliefs, especially regarding the efficacy of health interventions, lead to greater adoption of health protective behaviors [32]. In the context of social media engagement, behavioral beliefs about the effectiveness of information and interventions shared on these platforms play a crucial role. For example, Yok Yan Fong et al. (2023) assessed factors affecting customer satisfaction in online shopping, identifying key elements such as website usability, product quality, and customer service [33]. Findings suggest that positive online experiences enhance overall customer satisfaction and loyalty. The authors emphasize the need for online retailers to prioritize user-friendly interfaces and responsive customer service. Recommendations include continuous improvement of the online shopping experience to meet consumer expectations and foster long-term customer loyalty in the competitive e-commerce landscape. Hence, individuals who believe in the value and accuracy of health information provided through social media are more likely to engage in protective behaviors.

Consumer Innovativeness and Health Protective Behaviors: Consumer innovativeness, the tendency to adopt new products or services earlier than others, is a critical mediator in the adoption of health protective behaviors through social media. Ghali, Z., et al. (2024) examined the impact of firm and customer innovativeness on customer value co-creation, happiness, and satisfaction [34]. The findings indicate that higher levels of innovativeness in firms lead to greater customer engagement in co-creation processes, enhancing overall satisfaction and happiness. The study highlights the importance of fostering an innovative culture within organizations to encourage collaborative value creation with consumers. The authors suggest that businesses should invest in training and development to cultivate both firm and customer innovativeness to optimize value creation and customer experiences. Hwang, J., et al. (2024) examined the effects of motivated consumer innovativeness on the adoption of facial recognition payment systems in the restaurant industry [14]. The findings indicate that consumers with high innovativeness are more likely to accept new payment technologies, influenced by their desire for convenience and novelty. Cultural factors play a significant role, with varying levels of acceptance across different demographics. The authors recommend that restaurants tailor their payment solutions to meet diverse consumer preferences while highlighting the security and efficiency of facial recognition technology. Research by Thakur and Jasrai (2018) suggests that individuals with higher levels of innovativeness are more open to trying new health interventions and adapting to new ways of managing health information [35].

This study examines consumer innovativeness as a mediating variable, hypothesizing that innovative consumers are more likely to use social media in novel ways to enhance their health protective behaviors. The analysis focuses on how consumer innovativeness strengthens the relationship between psychological factors (self-efficacy, perceived benefits, and behavioral beliefs) and health behaviors. In addition, Trisna Jaya et al., (2024) as well explored how virtual reality (VR) influences nostalgic emotions and imagery in travel intentions [36]. Findings reveal that immersive VR experiences can evoke strong nostalgic feelings, significantly enhancing consumers' intention to travel. The research underscores the potential of VR as a marketing tool for the tourism industry. Recommendations include leveraging VR technology to create engaging experiences that connect emotionally with consumers, thereby promoting travel intentions and enhancing overall consumer engagement in tourism marketing.

Methodology

This study employed a quantitative research design to investigate the relationships between social media engagement, consumer innovativeness, and psychological constructs (self-efficacy, perceived benefits, behavioral beliefs) and their collective impact on health protective behaviors. The methodology is centered around a deductive approach, starting from established theories such as the Health Belief Model (HBM), the Theory of Planned Behavior (TPB), and the Protection Motivation Theory (PMT) to develop hypotheses that can be tested through structural equation modeling (SEM). The population of interest in this study comprises individuals who engage with private healthcare providers through social media platforms in the Klang Valley region of Malaysia. This study focuses on both local and foreign healthcare consumers, given the diverse demographic and cultural landscape of this metropolitan area. A total of 400 respondents were selected for the survey using purposive sampling, a non-probability sampling technique. The primary criterion for inclusion was that respondents must have used social media to engage with healthcare providers or to obtain health-related information during the pandemic. Data was collected using an online survey distributed via Google Forms.

The survey link was shared through various healthcare-related channels, including private healthcare organizations, pharmacies, insurance companies, third-party administrators (TPAs), and direct patient networks. Respondents were asked to complete the questionnaire anonymously to protect their privacy and encourage honest responses. The survey was administered between July and August 2023, at a time when the effects of the pandemic on public health behaviors were still prominent. The survey used a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) to measure

respondents' perceptions across various constructs, including self-efficacy, perceived benefits, behavioral beliefs, consumer innovativeness, and health protective behaviors. The Likert scale is a well-established psychometric tool, allowing for the capture of nuanced attitudes and perceptions. The questionnaire was divided into several sections. The first section gathered demographic information, such as age, gender, education, and monthly income, as well as details on social media use (e.g., frequency, platforms used for health information). The measured variables are 1) Self-Efficacy (SE): Adapted from the General Self-Efficacy Scale (GSE), developed by Guang Zeng et al. (2020), focusing on how respondents perceive their ability to manage health-related issues via social media. 2) Perceived Benefits (PB): Based on scales used in previous research (Siegel et al., 2015), these items assessed the respondents' perception of the benefits derived from engaging with social media for health purposes. 3) Behavioral Beliefs (BB): Items measuring behavioral beliefs were adapted from the work of Shabrina Prayidyaningrum and MD Djamaludin (2016) [28]. These items examined respondents' beliefs about the outcomes of using social media for health engagement. This variable was chosen as Wu, J. F., et al. (2024) examined the effects of augmented reality (AR) embedding and embodiment attributes on consumer-based brand equity in shopping experiences [37]. Findings reveal that AR features enhance consumer engagement and brand perceptions, leading to increased brand equity. The study emphasizes the importance of creating immersive and interactive shopping environments to foster positive beliefs in brand associations. Recommendations include integrating AR technologies into marketing strategies to enhance consumer experiences and strengthen brand positioning in the competitive retail landscape. 4) Consumer Innovativeness (CI): This scale, adapted from model, measured the degree to which respondents are open to new trends in using social media for health purposes. For instance, Goh, Y. S. et al., (2024) investigated the impact of atypicality in product design on brand perceptions and consumer responses [38]. The findings suggest that while atypical product designs can create perceived novelty, they also present trade-offs with brand typicality.

Consumers exhibit mixed reactions, balancing their attraction to novel designs with their loyalty to established brand identities. The study emphasizes the mediating role of perceived novelty, suggesting that brands must carefully navigate these trade-offs to optimize consumer acceptance and enhance brand value through innovative design. 5) Health Protective Behaviors (HPB): Items were adapted from Norazryana et al. (2021) and focused on respondents' adoption of behaviors aimed at preventing the spread of diseases and maintaining personal health during the pandemic.

This variable was chosen as recently Martinelli, E., & De Canio, F. (2024) investigated the motives and drivers behind the consumption of plant-based foods among Italian consumers [39]. The findings indicate that health consciousness, environmental concerns, and ethical considerations significantly influence consumer choices. The authors emphasize the need for effective communication strategies that highlight the health benefits and sustainability of plant-based foods. Recommendations include targeting health-conscious consumers through educational campaigns to increase awareness and adoption of plant-based diets, which align with growing consumer trends toward sustainable eating. The data was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with Smart PLS 3.0 software. PLS-SEM is particularly suited for studies that involve complex models with multiple mediating variables and does not require a normal distribution in the data. Descriptive statistics were first computed to summarize the demographic characteristics of the sample. Confirmatory factor analysis (CFA) was used to assess the validity and reliability of the measurement model. Convergent and discriminant validity were assessed using the Average Variance Extracted (AVE), and Cronbach's alpha was used to test internal consistency reliability. Finally, structural model analysis was performed to test the hypothesized relationships between the variables. Path coefficients and t-values were examined to assess the strength and significance of the relationships, while the mediating role of consumer innovativeness was evaluated using the Variance Accounted For (VAF) method.

Results and Findings

The demographic profile of the 400 respondents. The sample consisted of 55% female and 45% male respondents. The majority of respondents (60%) were aged between 25 and 40 years, with 25% falling between the ages of 41 and 55. Most respondents (70%) held a tertiary-level education, and 65% reported a monthly household income of more than RM 5,000. Regarding social media use, 85% of respondents indicated that they used social media platforms daily for health-related information, with Facebook and Instagram being the most popular platforms, followed by YouTube and Twitter. The structural equation model revealed significant relationships between social media engagement and the psychological constructs under study. The path coefficient analysis shows that Self-efficacy had a significant positive impact on health protective behaviors, with a path coefficient of 0.138 (p = 0.000, t = 3.489). This suggests that individuals with higher confidence in their ability to manage health issues via social media are more likely to engage in health protective behaviors. Pereira Petrucci, I. (2024) examined and proved that the impact of consumer perceptions of personalized advertising on purchase intention [40]. The findings suggest that personalized advertising enhances consumer engagement and positively influences purchase intentions by fostering a sense of relevance and connection.

The study highlights the importance of data privacy and transparency in personalized marketing. Recommendations include developing ethical frameworks for personalized advertising to build consumer trust while maximizing the effectiveness of targeted marketing strategies. Meanwhile, perceived benefits also had a significant positive impact on health protective behaviors, with a path coefficient of 0.116 (p = 0.025, t = 2.261). Respondents who perceived greater benefits from using social media for health purposes were more likely to adopt health protective behaviors. For instance, Sun, H., & Gu, C. (2024) examined the determinants of end-user's continuance intention regarding fitness wearable

technology [41]. Findings reveal that user satisfaction, perceived usefulness, and social influence significantly impact the likelihood of continued use. The authors emphasize the role of community engagement and personalized experiences in enhancing user retention. Recommendations include fostering social connections within fitness apps and continuously improving user experiences to encourage long-term usage and engagement with wearable technologies in fitness contexts. In addition, Dovalienė, A., & Salciute, L. (2024) as well investigated the antecedents influencing consumers' willingness to rent clothes online, focusing on the growing trend of circular fashion [42].

The findings indicate that environmental consciousness, perceived quality, and convenience significantly affect consumers' intentions to rent apparel. The study reveals a positive correlation between awareness of sustainability and the likelihood of choosing rental options over traditional purchasing. The authors recommend that retailers promote the environmental benefits of clothing rental services and enhance user experiences to capitalize on the increasing demand for sustainable fashion practices. Sari, I. P., & Atmaja, F. T. (2024) explored the impact of social comparison and peer pressure on consumer happiness and innovativeness regarding iPhone purchases [43]. Findings reveal that social comparison negatively affects happiness, while peer pressure can enhance purchase intentions among consumers seeking social approval. The study highlights the need for marketers to understand the social dynamics influencing consumer behavior. Recommendations include promoting individual benefits of products to mitigate negative social comparisons and emphasizing community values to encourage innovative consumption. In addition, behavioral beliefs as well exhibited the strongest positive impact on health protective behaviors, with a path coefficient of 0.294 (p = 0.000, t = 4.726). This finding indicates that respondents' beliefs about the effectiveness of social media in promoting health significantly influence their protective behaviors. This has proved that Zhang, J., et al. (2024) investigated the effect of regulatory fit on new product recommendations, highlighting how alignment with consumer goals influences their acceptance and beliefs of innovations [44]. Findings suggest that when new products align with consumers' regulatory focus, they are more likely to respond positively. The authors emphasize the importance of tailoring marketing messages to resonate with consumer motivations.

Recommendations include utilizing consumer insights to create targeted marketing strategies that enhance the acceptance of new product offerings. Lastly, consumer innovativeness was found to partially mediate the relationship between psychological constructs and health protective behaviors. Ebmann, L. M. (2024) examined the influence of consumer innovativeness and psychological factors on attitudes toward indoor vertical farmed greens [45]. The study highlights that consumer with higher levels of innovativeness are more open to adopting vertical farming products, driven by their concern for sustainability and health. Psychological factors, such as perceived risk and knowledge about vertical farming, also play critical roles in shaping attitudes and purchase intentions. The research emphasizes the need for effective marketing strategies that educate consumers about the benefits of vertical farming to enhance acceptance and drive sales. The mediating effect of consumer innovativeness was most significant in the relationship between behavioral beliefs and health protective behaviors, with a VAF of 48.74%, followed by the relationships between self-efficacy and health protective behaviors (VAF = 43.11%) and perceived benefits and health protective behaviors (VAF = 27.85%). These findings suggest that individuals with higher levels of innovativeness are more likely to adopt new health protective behaviors via social media. This result is consistent with previous research by Thakur and Jasrai (2018), which emphasized the role of innovativeness in the adoption of new products and behaviors [35].

For instance, Twum, K. K., & Yalley, A. A. (2024) investigated marketing analytics acceptance through the lens of the UTAUT model, perceived trust, and personal innovativeness in information technology [46]. Findings indicate that perceived trust significantly enhances users' acceptance of marketing analytics tools. The study highlights the importance of fostering an innovative mindset among users to improve analytics adoption. Recommendations include developing training programs that enhance user skills and build trust in marketing analytics tools to facilitate their effective use in businesses. In addition, Kaur, J. et al., (2024) examined the role of fashion involvement and consumer innovativeness in shaping purchase intentions related to apparel [47]. Findings indicate that higher levels of fashion involvement and innovativeness lead to stronger purchase intentions, particularly among younger consumers. The authors suggest that brands should focus on fostering consumer engagement through innovative marketing strategies that emphasize fashion trends and individuality. This approach will cater to consumers' desires for self-expression while enhancing brand loyalty and purchase behaviors in the fashion industry. In addition, Kim, S., & Manoli, A. E. (2024) explored motivated consumer innovativeness in the context of augmented reality (AR) live sport streaming [48]. Findings reveal that consumers with higher levels of innovativeness are more likely to adopt AR technologies for an enhanced sport viewing experience.

Motivational factors, such as excitement and enjoyment, significantly drive engagement with AR features. The authors suggest that sports marketers should leverage innovative technologies to create immersive experiences, catering to the preferences of tech-savvy consumers while enhancing overall satisfaction and loyalty. In addition, Lee, K. S. et al., (2024) explored the correlates of life satisfaction among consumers, focusing on demographics, cognitive age, materialism, fashion innovativeness, and health satisfaction [49]. Findings reveal that materialism negatively affects life satisfaction, while fashion innovativeness positively correlates with self-fulfillment. Cognitive age acts as a moderator, influencing how consumers perceive their satisfaction in relation to their materialistic values. The authors suggest that marketers consider these psychological dimensions when developing strategies that resonate with consumers' values and improve overall satisfaction. The overall model fit was assessed using standard fit indices. The Root Mean Square Error of Approximation (RMSEA) was 0.042, and the Comparative Fit Index (CFI) was 0.957, both indicating an acceptable

model fit. The R-squared values for health protective behaviors (R^2 = 0.64) and consumer innovativeness (R^2 = 0.52) suggest that the model explains a significant proportion of the variance in these variables. This has proved that Liao, Y., & Wu, L. (2024) explored how brand greenwashing affects electric vehicle (EV) purchase intentions, focusing on the moderating roles of consumer innovativeness and peer brand attitude [50]. Findings reveal that consumers perceive greenwashing negatively, which diminishes their intention to purchase EVs. However, high levels of consumer innovativeness can mitigate these effects, as innovative consumers are more likely to seek information and discern authentic green practices. The authors recommend that brands foster transparency in their sustainability claims to build trust and enhance consumer engagement in the EV market. In addition, Rebelo, A. et al., (2024) examined the role of innovativeness and a sense of community in boosting customer co-creation in open-source software environments [51].

Findings reveal that higher levels of user innovativeness and a strong sense of community significantly enhance participation in co-creation activities. The authors suggest that software developers foster collaborative environments that encourage user feedback and contributions. Recommendations include leveraging community-driven initiatives to enhance product development and customer satisfaction within open-source ecosystems. Besides that, Teng, H. Y., et al. (2024) also investigated the influence of restaurant innovativeness on customer advocacy, highlighting the mediating roles of self-image congruity and customer engagement [52]. Findings indicate that innovative dining experiences enhance customer satisfaction and advocacy through alignment with consumers' self-image. The study emphasizes the importance of creating unique and personalized experiences to foster loyalty. Recommendations include implementing innovative practices that resonate with consumers' identities to drive positive word-of-mouth and customer advocacy in the restaurant industry.

Discussion and Conclusion

The results of this study offer important insights into the role of social media engagement in promoting health protective behaviors during a public health crisis like the pandemic. Recently, Qing, W. et al., (2024) explored the influence of social media communication on consumer purchase decisions in the luxury hotel sector, focusing on perceived brand authenticity, prestige, and familiarity [53]. Findings indicate that consumers value perceived authenticity and prestige when choosing luxury accommodations, with social media communication significantly enhancing these perceptions. The authors recommend that luxury hotels utilize social media to effectively communicate their brand values and enhance customer relationships, ultimately influencing consumer decision-making in the competitive hospitality market. In addition, Shen, Y. C., et al. (2024) as well investigated the role of informational cues in brand memes on social media and their influence on consumer-brand relationships [54]. The findings suggest that informative and engaging brand memes foster positive relationships and enhance brand loyalty among consumers. The authors emphasize the importance of creativity and relevance in meme marketing. Recommendations include integrating humor and informative content in meme strategies to strengthen consumer connections and enhance brand perception in the competitive landscape of social media marketing. In the research, the significant relationships between psychological constructs (self-efficacy, perceived benefits, behavioral beliefs) and health protective behaviors highlight the importance of understanding how individuals' perceptions shape their engagement with health-related content on social media. For this, Al-Adwan, et al. (2024) integrated UTAUT2 and dual-factor theory to explore consumers' perceptions of metaverse commerce [55].

The authors examine how positive and negative influences, such as hedonic motivation and perceived risk, impact metaverse adoption. Findings indicate that perceived enjoyment and social influence drive adoption, while privacy concerns and technological complexity act as barriers. The study provides insights for businesses on mitigating risks and leveraging social factors to promote metaverse commerce adoption. The findings suggest that behavioral beliefs have the strongest direct effect on health protective behaviors, indicating that individuals who believe in the effectiveness of social media for health engagement are more likely to adopt protective measures. This aligns with prior research on the Theory of Planned Behavior (TPB), which posits that beliefs about the outcomes of behaviors are critical determinants of intentions and actions. In addition, Xie, Q., et al. (2024) explored consumer psychological tendencies and value perceptions regarding branded non-fungible tokens (NFTs) in marketing contexts [56]. Findings indicate that consumers are influenced by factors such as perceived exclusivity and uniqueness, impacting their willingness to purchase NFTs. The authors emphasize the importance of understanding consumer motivations in the evolving NFT market. Recommendations include leveraging storytelling and exclusivity in NFT marketing strategies to enhance consumer interest and drive sales.

Recently, Siew Yong Leong et al. (2024) analyzed the effect of social media influencers on Generation Y's purchase intentions regarding men's skincare products in Malaysia [57]. Findings indicate that influencer credibility and relatability significantly enhance purchase intentions among consumers. The authors highlight the importance of authenticity in influencer marketing strategies. Recommendations include brands collaborating with influencers who align with their values and target demographics to improve engagement and drive purchase decisions in the competitive skincare market. Moreover, the mediating role of consumer innovativeness underscores the importance of fostering an innovative mindset among consumers. Al-Banna, H., & Berakon, I. (2024) examined the switching intention of Indonesian SMEs from traditional banks to peer-to-peer (P2P) lending platforms [58]. Using push-pull-mooring theory, the study identifies factors such as high banking fees and limited credit access as push factors, while P2P lending offers ease of use and better loan terms as pull factors. The findings suggest that while trust remains a barrier, innovative lending platforms attract

SMEs with their flexibility and responsiveness. The research advises financial service providers to address trust issues for successful adoption of P2P lending. For another example, Su, L., & Ellis, J. (2024) explored how production method information impacts the acceptance of precision-grown food compared to conventional and organic food, focusing on the role of consumer innovativeness [59]. Findings indicate that consumers are more likely to accept precision-grown food when informed about its sustainable production methods. The research emphasizes the importance of educating consumers about innovative agricultural practices. Recommendations include clear communication of the benefits and sustainability of precision-grown food to enhance consumer acceptance and drive market growth. Hence, as digital health platforms continue to evolve, healthcare providers must develop strategies that appeal to consumers' desire for innovation and novelty, particularly in the post-pandemic era where online health engagement has become more prominent. For instance, Mai, X. T., & Nguyen, T. (2024) explored switching behaviors in peer-to-peer mobile payment applications, emphasizing the role of sociability in influencing user decisions [60].

Findings indicate that social interactions and recommendations significantly affect users' willingness to switch payment platforms. The study suggests that payment app developers should enhance social features to facilitate user engagement and loyalty. The authors emphasize the importance of creating a community-oriented user experience to drive adoption and retention in the competitive landscape of mobile payment solutions. On top of that, this research has several limitations that must be acknowledged. First, the study is geographically restricted to the Klang Valley region in Malaysia, which may limit the generalizability of the findings to other regions or countries with different healthcare systems and digital engagement behaviors. Future research could explore a broader demographic, covering more regions or countries to gain a more comprehensive understanding of social media engagement in diverse healthcare settings. For instance, Zhang, S., et al. (2024) explored the psychological changes in green food consumption within a digital context, focusing on the role of green online interactions [61]. Findings indicate that online interactions related to sustainability positively influence consumers' attitudes and intentions towards green food products. The authors emphasize the importance of creating supportive online communities that promote green consumption. Recommendations include leveraging digital platforms to enhance consumer engagement with sustainable food choices, ultimately driving growth in the green food market. Second, the study relies on self-reported data collected through an online survey. While this method is efficient for gathering data from a large sample, it is susceptible to biases such as social desirability bias and recall bias. Respondents may overreport socially desirable behaviors, such as health protective actions, or inaccurately recall their engagement with social media platforms. Future studies could employ mixed-method approaches, combining qualitative interviews or focus groups with quantitative surveys to cross-validate the data and obtain deeper insights into consumer motivations and behaviors. For instance, Mohammadi, S., & Jafari, S. M. (2024) examined the impact of AI-generated content on customer engagement in advertising, focusing on the moderating role of customer attributes [62].

Findings reveal that consumers perceive AI-generated content as more innovative and engaging, leading to higher levels of interaction. However, individual attributes such as age and tech-savviness influence the effectiveness of AI content. The authors recommend that marketers leverage AI technologies while considering consumer demographics to tailor advertising strategies and enhance overall engagement in digital marketing campaigns. Another limitation of the study is that it examines social media platforms collectively, without distinguishing between different platforms (e.g., Facebook, Instagram, Twitter). Given the varying nature of these platforms, future research could investigate the differences in consumer engagement across specific social media channels i.e., artificial intelligent. This would provide a more detailed understanding of which platforms are most effective for promoting health protective behaviors. For instance, Lee, C. C. et al., (2024) investigated the effects of live marketing on green purchase intentions in the context of artificial intelligence (AI) [63]. Findings suggest that interactive live marketing strategies significantly enhance consumers' intentions to purchase environmentally friendly products by fostering engagement and perceived credibility. The study highlights the role of AI in personalizing consumer interactions during live marketing events. The authors recommend that brands utilize AI technologies to create compelling narratives and real-time engagement, thereby promoting sustainable consumption behaviors among consumers. Finally, the study does not account for the long-term sustainability of health protective behaviors promoted through social media. Future research could conduct longitudinal studies to examine whether the impact of social media engagement on health behaviors is sustained over time or diminishes after the initial exposure. In sum, the novelty of this research lies in its comprehensive exploration of the intricate relationships between social media engagement, consumer innovativeness, and psychological constructs within the private healthcare sector during the pandemic.

By employing PLS-SEM to analyze data from 400 respondents, the study uncovers the mediating role of consumer innovativeness in the context of health-protective behaviors, a previously underexplored area. Additionally, it identifies behavioral beliefs as the most significant predictor of health-related actions, contributing to a nuanced understanding of how cognitive factors shape digital health engagement. Lately, Borah, S., & Chaudhary, M. L. (2024) examined how consumer risk perception and innovativeness affect digital banking adoption in India [64]. It identifies that risk perception, such as concerns over security, inhibits digital banking adoption, while higher consumer innovativeness promotes it. Findings suggest that banks need to reduce perceived risks through transparent communication and enhanced security features while fostering an environment of innovation to attract tech-savvy consumers. The study emphasizes the importance of addressing consumer apprehensions to increase digital banking adoption. This research enhances existing theoretical frameworks by integrating psychological elements with digital marketing strategies, thereby offering practical recommendations for healthcare providers. Fatimah Az Zahra Zulkifli, et al. (2024) explored

the impact of social media advertising on online shopping preferences among consumers in Nilai City, Malaysia. Findings indicate that social media ads significantly influence consumer attitudes and increase purchase intentions, particularly among younger demographics [65]. The study emphasizes the importance of engaging content and targeted advertising in shaping consumer preferences. The authors suggest that brands leverage social media platforms to enhance visibility and foster relationships with consumers to capitalize on changing shopping behaviors influenced by digital marketing. Lately, Yi Ling Chan & Rohaizan Ramlan (2024) ranked social media factors influencing the purchasing decisions of Malaysian Generation Y customers [66]. Findings indicate that factors such as influencer credibility, user-generated content, and social media engagement significantly impact purchase intentions. The authors emphasize the importance of understanding the unique preferences of Generation Y to tailor marketing strategies effectively. Recommendations include utilizing targeted advertising and engaging content that resonates with this demographic to enhance purchasing decisions through social media channels. In addition, Zhi Wei Lim et al. (2024) as well examined the impact of social media marketing on Generation Z's awareness of cosmetic brands [67].

Findings indicate that engaging social media content significantly enhances brand awareness and purchase intentions among this demographic. The authors emphasize the importance of influencer partnerships and interactive campaigns in fostering brand engagement. Recommendations include leveraging social media platforms to create dynamic content that resonates with Generation Z, ultimately driving awareness and preference for cosmetic brands. The insights gained can guide marketers in fostering innovative consumer mindsets and optimizing social media and e-health technologies communication to promote health behaviors effectively, making significant contributions to both academic discourse and practical applications in the evolving landscape of digital health marketing [68-75].

References

1. Rasheed, A. F., & Balakrishnan, J. (2025). Innovating for retention: Strategies for enhancing customer retention in theme parks. *World Leisure Journal, 67*(1), 105-123.
2. Gu, C., & Duan, Q. (2024). Exploring the dynamics of consumer engagement in social media influencer marketing: From the self-determination theory perspective. *Humanities and Social Sciences Communications, 11*(1), 1-17.
3. Gadge, S., Kasera, S., Yeravdekar, R., Singh, A., & Borlepawar, V. (2024). Role of fashion-consciousness, health-awareness and environmental concerns on millennials' usage of smartwatches. *International Journal of Pharmaceutical and Healthcare Marketing,* (ahead-of-print).
4. Asad Abdulhamid, T., Elsetouhi, A., Hany, M., & Mona Samir Sadek, M. S. S. (2024). The Effect of Brand Passion on Consumer Well-being (An empirical study on consumers of smart devices in Egypt). المجلة المصرية للدراسات التجارية, 48(1), 546-574.
5. Damian-Okoro, I. R., & Akani, G. H. ISIR Journal of Business and Management Studies (ISIRJBMS).
6. Wiastuti, R. D., & Rashid, B. (2024). Evaluating Restaurant Innovativeness-The Generation Z Perspective Across Dining Format. *International Journal of Sustainable Development & Planning, 19*(1).
7. Wu, M., Lin, A. S. Q., & Yuen, K. F. (2024). The effects of motivated consumer innovativeness on consumer acceptance of autonomous delivery robots. *Journal of Retailing and Consumer Services, 81*, 104030.
8. Kim, Y., & Lee, H. (2024). Consumers' responses to metaverse ads: The roles of hedonic versus utilitarian appeal and the moderating role of need for touch. *Journal of Business Research, 179*, 114677.
9. Liang, S., Lan, B., Li, R., Zhang, M., Chu, Y., & Li, L. (2024). Give me the newest! Effect of social exclusion on new products adoption. *International Journal of Consumer Studies, 48*(3), e13046.
10. Zhao, L., & Fu, B. (2024). Assessing the Impact of Recommendation Novelty on Older Consumers: Older Does Not Always Mean the Avoidance of Innovative Products. *Behavioral Sciences, 14*(6), 473.
11. Muhammad Dhia Afiq Mohd Iza Ney, Sangeetha A/P Karunagaran, Shannon Praveen & Siow-Hooi Tan. (2022). Understanding Household's Intention of Recycling Clothes: An Extension of TPB with Lack of Facilities and Social Media Usage. International Journal of Management, Finance and Accounting (IJOMFA).
12. Baiwir, L., Dessart, L., & Delcourt, C. (2024). Consumer engagement with preventive health technologies: A double-edged sword for consumer wellbeing. *Journal of Consumer Affairs, 58*(4), 872-904.
13. Cassia, F., & Magno, F. (2024). The value of self-determination theory in marketing studies: Insights from the application of PLS-SEM and NCA to anti-food waste apps. *Journal of Business Research, 172,* 114454.
14. Hwang, J., Kim, J. S., Kim, H. M., & Kim, J. J. (2024). Effects of motivated consumer innovativeness on facial recognition payment adoption in the restaurant industry: A cross-cultural study. *International Journal of Hospitality Management, 117,* 103646.
15. Saikia, W., & Bhattacharjee, A. (2024). Estimating consumer brand engagement with brand equity via brand trust for organic retail products on social media. *International Journal of Internet Marketing and Advertising, 21*(1-2), 118-148.
16. Sohn, S. (2024). Consumer perceived risk of using autonomous retail technology. *Journal of Business Research, 171*, 114389.
17. Ndawula, Y. K., Neema, M., & Nkote, I. (2024). Psychographic characteristics and demand decisions for life insurance products in Uganda. International Journal of Social Economics, 51(11), 1498-1513.
18. de Kervenoael, R., Schwob, A., Hasan, R., & Kemari, S. (2024). Food choice and the epistemic value of the consumption of recommender systems: the case of Yuka's perceived value in France. *Behaviour & Information Technology, 43*(7), 1381-1400.

19. de Kervenoael, R., Schwob, A., Hasan, R., & Kemari, S. (2024). Food choice and the epistemic value of the consumption of recommender systems: the case of Yuka's perceived value in France. *Behaviour & Information Technology, 43*(7), 1381-1400.

20. Huo, W., Luo, W., Yan, J., Wang, Y., & Deng, Y. (2024). Medical artificial intelligence information disclosure on healthcare professional involvement in innovation: a transactional theory of stress and coping model. *International Journal of Human–Computer Interaction, 40*(22), 7655-7667.

21. Hameed, I., Akram, U., Khan, Y., Khan, N. R., & Hameed, I. (2024). Exploring consumer mobile payment innovations: An investigation into the relationship between coping theory factors, individual motivations, social influence and word of mouth. *Journal of Retailing and Consumer Services, 77*, 103687.

22. Mu, W., & Yi, Y. (2024). The impact of characteristic factors of the direct-to-consumer marketing model on consumer loyalty in the digital intermediary era. *Frontiers in Psychology, 15*, 1347588.

23. Blösser, M., & Weihrauch, A. (2024). A consumer perspective of AI certification–the current certification landscape, consumer approval and directions for future research. *European Journal of Marketing, 58*(2), 441-470.

24. Sowmya, G., Chakraborty, D., Polisetty, A., & Jain, R. K. (2024). Exploring the adoption patterns of matrimonial apps: an analysis of user gratifications. *Journal of Retailing and Consumer Services, 78*, 103731.

25. Pang, H., & Zhang, K. (2024). How multidimensional benefits determine cumulative satisfaction and eWOM engagement on mobile social media: Reconciling motivation and expectation disconfirmation perspectives. *Telematics and Informatics, 93*, 102174.

26. Liang, C., Ding, J., & Lee, E. S. (2024). Exploring the Influence of Green Product Attributes on Consumer Perceived Value and Purchase Intention: Taking Green Household Appliances as an Example. 무역연구, 20(2), 23-38.

27. Choi, Y., Han, S., & Lee, C. (2024). Exploring drivers of fintech adoption among elderly consumers. *Technology in Society, 78*, 102669.

28. Ussher, J. M., Chrisler, J. C., & Perz, J. (Eds.). (2020). Routledge international handbook of women's sexual and reproductive health. New York: Routledge.

29. Huang, H. L. (2024). Factors influencing attitudes toward and intention of citizens' engagement with solar energy in Taiwan. *Energy Efficiency, 17*(5), 43.

30. Lin, J., Huang, Y., & Li, M. (2024). Consumer perceived green brand innovativeness and green word-of-mouth intention: the moderating role of green knowledge. *Total Quality Management & Business Excellence, 35*(7-8), 814-834.

31. Arachchi, H. D. M., & Samarasinghe, G. D. (2024). Impact of embedded AI mobile smart speech recognition on consumer attitudes towards AI and purchase intention across Generations X and Y. European Journal of Management Studies, 29(1), 3-29.

32. Rubin, G. J., Amlôt, R., Page, L., & Wessely, S. (2009). Public perceptions, anxiety, and behaviour change in relation to the swine flu outbreak: cross sectional telephone survey. *Bmj, 339.*

33. Fong, Y. F., Tai, C. T., & Lau, T. C. (2023). Factors affecting customer satisfaction on online shopping: An empirical study. *International Journal of Management, Finance and Accounting, 4*(2), 55-82.

34. Ghali, Z., Rather, R. A., Abumalloh, R. A., Ghaderi, Z., Nawaz, M. Z., Abbasi, A. Z., & Jaziri, D. (2024). Impact of firm/ customer innovativeness and identification on customer value co-creation, happiness and satisfaction. Technology in Society, 78, 102639.

35. Ghali, Z., Rather, R. A., Abumalloh, R. A., Ghaderi, Z., Nawaz, M. Z., Abbasi, A. Z., & Jaziri, D. (2024). Impact of firm/ customer innovativeness and identification on customer value co-creation, happiness and satisfaction. Technology in Society, 78, 102639.

36. Trisna Jaya, I. P. G. I., & Jaw, C. (2024). Innovativeness or involvement: How virtual reality influences nostalgic emotion and imagery in travel intention. *Journal of Hospitality & Tourism Research, 48*(6), 975-990.

37. Wu, J. F., Dong, J., Wu, Y., & Chang, Y. P. (2024). Shopping through mobile augmented reality: The impacts of AR embedding and embodiment attributes on consumer-based brand equity. *Information & Management, 61*(6), 103999.

38. Goh, Y. S., Chattaraman, V., & Shim, S. I. (2024). Can Atypicality in Product Design Benefit Brands? Trade-Offs in Product and Brand Typicality and the Mediating Role of Perceived Novelty. The International Journal of Design Management and Professional Practice, 18(1), 103.

39. Martinelli, E., & De Canio, F. (2024). Consumption of plant-based foods: motives and drivers among Italian consumers. In Plant-Based Food Consumption (pp. 33-57). Woodhead Publishing.

40. Pereira Petrucci, I. (2024). The Impact of Consumer Perceptions of Personalised Advertising on Purchase Intention (Master's thesis).

41. Sun, H., & Gu, C. (2024). Understanding determinants of end-user's continuance intention on fitness wearable technology. *International Journal of Human–Computer Interaction, 40*(3), 537-557.

42. Dovalienė, A., & Salciute, L. (2024). An Investigation of Circular Fashion: Antecedents of Consumer Willingness to Rent Clothes Online. *Sustainability, 16*(9), 3862.

43. Sari, I. P., & Atmaja, F. T. (2024). Impact of social comparison and peer pressure on iPhone consumer happiness and innovativeness. Manajemen dan Bisnis, 23(1), 42-55.

44. Zhang, J., Balaji, M. S., Luo, J., Jha, S., & Dwivedi, Y. K. (2024). It is a match! The effect of regulatory fit on new products recommendations. Psychology & Marketing, 41(8), 1882-1899.

45. Eßmann, L. M. (2024). Cultivating change: the role of consumer innovativeness and psychological factors on the attitudes towards indoor vertical farmed greens (Master's thesis, Universidade Catolica Portuguesa (Portugal)).

46. Twum, K. K., & Yalley, A. A. (2024). Marketing analytics acceptance: using the UTAUT, perceived trust, personal innovativeness in information technology and user attitude. Journal of Science and Technology Policy Management.

47. Kaur, J., Malik, P., & Singh, S. (2024). Expressing your personality through apparels: Role of fashion involvement and innovativeness in purchase intention. FIIB Business Review, 13(3), 318-330.

48. Kaur, J., Malik, P., & Singh, S. (2024). Expressing your personality through apparels: Role of fashion involvement and innovativeness in purchase intention. FIIB Business Review, 13(3), 318-330.

49. Lee, K. S., Mathur, A., & Zhang, Y. (2024). A Cross-national Study of Life Satisfaction: Demographics, Cognitive Age, Materialism, Fashion Innovativeness and Health Satisfaction as Correlates. Global Business Review, 09721509241232474.

50. Liao, Y., & Wu, L. (2024). The Influence of Brand Greenwashing on EV Purchase Intention: The Moderating Role of Consumer Innovativeness and Peer Brand Attitude. World Electric Vehicle Journal, 15(7), 313.

51. Rebelo, A., Varela-Neira, C., & Ruzo-Sanmartín, E. (2024). Boosting Customers' Co-Creation in Open-Source Software Environments: The Role of Innovativeness and a Sense of Community. *Journal of Theoretical and Applied Electronic Commerce Research, 19*(3), 2476-2496.

52. Teng, H. Y., Chen, C. Y., & Han, T. C. (2024). Does restaurant innovativeness influence customer advocacy? The roles of self-image congruity and customer engagement. *Journal of Hospitality and Tourism Insights, 7*(4), 1831-1851.

53. Qing, W., Safeer, A. A., & Khan, M. S. (2024). Influence of social media communication on consumer purchase decisions: do luxury hotels value perceived brand authenticity, prestige, and familiarity? *Journal of Hospitality and Tourism Technology, 15*(3), 465-478.

54. Qing, W., Safeer, A. A., & Khan, M. S. (2024). Influence of social media communication on consumer purchase decisions: do luxury hotels value perceived brand authenticity, prestige, and familiarity? *Journal of Hospitality and Tourism Technology, 15*(3), 465-478.

55. Al-Adwan, A. S., Jafar, R. M. S., & Sitar-Tăut, D. A. (2024). Breaking into the black box of consumers' perceptions on metaverse commerce: An integrated model of UTAUT 2 and dual-factor theory. Asia Pacific Management Review, 29(4), 477-498.

56. Xie, Q., Muralidharan, S., & Edwards, S. M. (2024). Who will buy the idea of non-fungible token (NFT) marketing? Understanding consumers' psychological tendencies and value perceptions of branded NFTs. *International Journal of Advertising, 43*(6), 987-1015.

57. Leong, S. Y., Yip, M. Y., Tan, C. H., & Chan, M. S. (2024). Effect of social media influencers on Generation Y purchase intention: Evidence from men's skincare products in Malaysia. International Journal of Management, Finance and Accounting, 5(1), 111-135.

58. Al-Banna, H., & Berakon, I. (2024). From bank to P2P lending: switching intention of SME's: evidence from Indonesia. *Journal of Financial Services Marketing, 29*(2), 568-581.

59. Su, L., & Ellis, J. (2024). Influence of Production Method Information on Acceptance of Precision-Grown Food Compared to Conventional and Organic Food: The Role of Consumer Innovativeness. Journal of Applied Communications, 108(2), 3.

60. Mai, X. T., & Nguyen, T. (2023). Switching behaviors in peer-to-peer mobile payment applications: the role of sociability. Journal of Systems and Information Technology, 26(1), 1-30.

61. Mai, X. T., & Nguyen, T. (2023). Switching behaviors in peer-to-peer mobile payment applications: the role of sociability. Journal of Systems and Information Technology, 26(1), 1-30.

62. Mohammadi, S., & Jafari, S. M. (2024). AI-Generated Content and Customer Engagement in Advertising: The Moderating Role of Customers' Attributes. EIRP Proceedings, 19(1), 434-441.

63. Lee, C. C., Pan, C., & Song, Y. (2025). How Live Marketing Affects Green Purchase in the Age of Artificial Intelligence? Emerging Markets Finance and Trade, 61(1), 1-20.

64. Borah, S., & Chaudhary, M. L. (2024). A Study on The Impact of Consumer Risk Perception and Innovativeness on Digital Banking Adoption in India. Educational Administration: Theory and Practice, 30(5), 11889-11896.

65. Zulkifli, F. A. Z. B., Ismail, S., & Mohamad, S. F. S. The Impact of Social Media Advertising on Online Shopping Preferences in Nilai City, Malaysia.

66. Chan, Y. L., & Ramlan, R. (2024). Ranking Up the Social Media Factors on Purchasing Decision of Malaysian Generation Y Customers. *International Journal of Management, Finance and Accounting, 5*(1), 170-191.

67. Lim, Z. W., Yong, Y. C., Tan, C. H., & Chan, M. S. (2024). Impact of social media marketing on Gen Z's cosmetic brand awareness. *International Journal of Management, Finance and Accounting, 5*(1), 64-84.

68. Allington, D., Duffy, B., Wessely, S., Dhavan, N., & Rubin, J. (2021). Health-protective behaviour, social media usage and conspiracy belief during the COVID-19 public health emergency. Psychological medicine, 51(10), 1763-1769.

69. Bandura, A. (1997). Self-efficacy: The exercise of control. Macmillan.

70. Brodie, R. J., Ilic, A., Juric, B., & Hollebeek, L. (2013). Consumer engagement in a virtual brand community: An exploratory analysis. Journal of business research, 66(1), 105-114.

71. Goldsmith, R. E., & Hofacker, C. F. (1991). Measuring consumer innovativeness. Journal of the academy of marketing science, 19(3), 209-221.

72. Jo, H., & Bang, Y. (2024). RETRACTED ARTICLE: From storefront to screen: an in-depth analysis of the dynamics of online for offline retailing. Humanities and Social Sciences Communications, 11(1), 1-15.

73. Kim, J. J., Kim, S., Hailu, T. B., Ryu, H. B., & Han, H. (2024). Does central bank digital currency (CBDC) payment create the opportunity for the tourism industry? Journal of Hospitality & Tourism Research, 48(6), 1113-1129.

74. Lulandala, E. M. (2024). Antecedents of Attitude Toward Facebook Advertising: A study of Users in India and Tanzania.

75. Zeng, G., & Li, S. (2020). The effect of social media self-efficacy on health information seeking behaviors. Journal of Medical Internet Research, 22(2), e16955. https://doi.org/10.2196/16955