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A meta-analysis of the effectiveness of social media influencers: Mechanisms and moderation

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Abstract

The use of social media influencers as persuasive marketing agents has become ubiquitous. However, a comprehensive understanding of their effectiveness, mechanisms, and moderation is still lacking. To address this gap, we conducted a meta-analysis of 71 papers, yielding 135 experimental studies and 571 effect sizes related to the impact of social media influencers compared to other forms of brand endorsements. Our results reveal that social media influencers significantly impact both consumer engagement and purchase intention, and they are relatively more effective than brand posts, virtual influencers, and celebrities. A meta-analytic structural equation model analyzing the influencing mechanisms suggests that social media influencers enhance consumer responses indirectly through their credibility and attractiveness. A meta-regression analysis further shows that various factors—including characteristics of the influencers, message, products, social media platforms, and followers, as well as their interaction with influencer size—moderate the effectiveness of social media influencers. Notably, our results indicate that influencer size can address some inconsistencies in previous research. For instance, small and medium-sized influencers are more effective in driving engagement, while larger influencers have greater impact on purchase intention. Our research provides novel, rich, and nuanced insights that can help managers with decisions such as: (a) when to choose influencers over alternatives, and (b) how to optimize their use.

Keywords Social media influencers · Celebrity endorsement · Virtual influencers · Meta-analysis

Social media influencers typically are individuals who have amassed a following on social media platforms by creating content in niche areas such as specific product categories, lifestyle, or ideas (Djafarova & Trofimenko, 2019). Social

media influencer marketing involves a company retaining such influencers to promote its products/brands to their followers (Leung et al., 2022). This strategy has gained popularity in recent years primarily because consumers are believed to be more likely to trust recommendations from individuals they follow on social media as opposed to traditional advertising (Campbell & Farrell, 2020) which is sometimes viewed with suspicion (Jain & Posavac, 2004). Consequently, a broad spectrum of marketers has invoked social media influencer marketing, with attendant costs expected to rise from \$1.7 billion in 2016 to \$24 billion by the end of 2024 (Beichert et al., 2024).

Despite the growing popularity of this form of marketing, four significant knowledge gaps persist. First, social media influencers can influence a wide range of consumer responses, from cognitive and affective to observable behaviors such as customer engagement and purchase intention (Vrontis et al., 2021). However, many studies using social media behavioral data have focused primarily on engagement as the dependent measure (Cascio Rizzo et al., 2023; Leung et al., 2022a; Wies et al., 2023). Even

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findings regarding the link between social media influencers and customer engagement appear to be in conflict. For example, Leung et al. (2022) suggest that social media influencers with a higher number of followers are more effective in positively influencing engagement while Cascio Rizzo et al. (2023) and Wies et al. (2023) show that smaller social media influencers are more engaging.

Second, using social media influencers is one of several marketing approaches, and firms can employ virtual influencers and/or traditional celebrities instead in product promotion (Leung et al., 2022). Despite the theoretical as well as practical importance of this issue, we lack generalizable insights into how social media influencers compare with other endorsement options.

Third, various theories try to explain the mechanisms underlying social media influencer effects. One approach emphasizes the direct impact of social media influencers on consumer response, highlighting their ability to shape attitudes and behaviors directly (Liu & Lee, 2022). Other theories adopt a process-oriented view and try and uncover the mechanisms by which social media influencers impact responses. For instance, it has been opined that the perceived credibility and attractiveness of social media influencers help in enhancing attitudes and purchase intention (Schouten et al., 2020). Additionally, the hierarchy of effects model (Lavidge & Steiner, 1961) has helped theorize how social media influencers' perceived credibility and attractiveness, as conveyed through advertising and brand attitude, can influence engagement and purchase intention. Empirical support for various partial models exists but a yet-to-be-developed-and-tested model that integrates these theories and mechanisms might provide greater explanatory power in describing how social media influencers impact consumer responses.

Fourth, previous research has attempted to address the varying impact of social media influencers by investigating moderators such as their characteristics (e.g., size), message characteristics (e.g., types of message appeal), type of promoted product and associated benefits, and followers' characteristics (e.g., age and gender). The results, however, remain ambiguous. To illustrate, specific to influencer characteristics, some research has indicated a positive impact of social media influencers' number of followers on purchase intention (Giuffredi-Kähr et al., 2022; Leung et al., 2022a), while other studies have found the opposite (Park et al., 2021). In addition, certain areas, such as the role of social media influencer age in moderating consumer responses, has not received attention in previous research.

Social media influencers' impact has been investigated in previous meta-analyses (Ao et al., 2023; Han & Balabanis, 2024) and a conceptual paper (Leung et al., 2022). A review paper and meta-analyses dealing with celebrity

endorsement (Elmi, 2022; Knoll & Matthes, 2017; Packer et al., 2022; Schimmelpfennig & Hunt, 2020) provide relevant information regarding the influence of endorsers as well (see Web Appendix A for an overview of these papers). However, there are some key differences between our and earlier meta-analyses and review papers. In addition to addressing the gaps identified in earlier research, we outline these differences below, representing some of our novel contributions.

First, our meta-analysis comprising of a sample of 135 experimental studies allows us to examine the impact of social media influencers' characteristics as well as their interaction with other factors on a wide range of consumer responses. We find that social media influencers have a significant positive impact on credibility, ad and brand attitudes, engagement, and purchase intention. These findings enable a more nuanced understanding of influencer marketing's effectiveness, particularly in driving engagement and purchase intention, which are crucial marketing objectives.

Second, following Knoll and Matthes' (2017) evaluation of the comparative effectiveness of traditional celebrities with other forms of endorsement, this is the first meta-analysis to provide a comprehensive overview of social media influencers' comparative effectiveness—against not only celebrities but also virtual influencers, brand posts on social media, and no endorsement—on customer engagement and purchase intention. The analysis indicates that social media influencers are more effective than social media brand posts and no endorsement for both, engagement and purchase intention. They are also more effective than virtual influencers in triggering purchase intention, and more effective than celebrities in driving engagement. Compared to celebrities (Knoll & Matthes, 2017), which are more effective only vis-à-vis no endorsement, influencers are more effective than other endorsers, particularly in driving engagement and purchase intention. While social media influencers are only one of several product promotional options available to firms, our findings provide valuable scientific insights into when they should be prioritized over other options.

A significant distinguishing and novel feature of our analysis is evidence of mediation providing deeper insights into the mechanisms underlying the outcomes associated with social media influencers. This model provides empirical support for Schimmelpfennig and Hunt (2020)'s literature review of mediation in celebrity endorsement and Leung, Gu, Li, et al.'s (2022) conceptual paper outlining propositions in influencer marketing. Using a meta-analytic structural equation modeling approach, we test three independent models as well as an integrated model that combines various mechanisms and theories explaining how social media influencers drive customer responses. We find that social media influencers indirectly enhance engagement

and purchase intention through their credibility and attractiveness, followed by advertising and brand attitude. These findings underscore the pivotal role of social media influencers' credibility and attractiveness as the primary mediators impacting and shaping more distal consumer outcomes.

Last but not least, earlier meta-analyses on endorsements by celebrities and social media influencers have examined moderators such as endorser gender, size, product benefits and familiarity, and type of social media platforms. Our meta-analysis, using a communication process perspective, includes more variables including characteristics of social media influencers, message, products, and followers. Notably, some variables—such as social media influencer age, message abstractness, endorsement type, product type, and followers' age—have not been previously studied in literature (see Web Appendix B). More importantly, we invoke social media influencer size (large vs. small and medium) and its interaction with other characteristics of social media influencers, message, products, platforms, and followers to try and address incongruities in prior research.

Our findings highlight significant differences between larger and smaller social media influencers. While larger size is positively associated with fame, it often leads to a loss of credibility, emphasizing the importance of aligning influencer size with the type of consumer response, message, and product characteristics. In particular, larger influencers drive purchase intention through their extensive reach and benefit from evidence-based messages, such as rational and usage-based endorsements, which enhance their credibility, particularly for familiar and search products. In contrast, smaller influencers excel at engagement by leveraging personal connections and thrive on abstract and recommendation-based messages that feel more authentic. These findings point to the conditional effectiveness of social media influencers and can assist firms in identifying settings that maximize such effectiveness.

Influencer marketing

Social media influencers build content-driven following on platforms such as Instagram, TikTok, YouTube, LinkedIn, or their own website to shape consumer perceptions, attitudes, and behaviors. They achieve these goals by consistently creating relatable, engaging content and directly interacting with their audiences, which helps build trust and authenticity (Leung et al., 2022). Such influencers are seen as social media opinion leaders who integrate personal experiences with product/service endorsements to maintain credibility and relatability, often weaving promotions into their narratives (Goldenberg et al., 2024; Hughes et al., 2019).

Social media influencer marketing leverages influencers' reach and credibility, incentivizing them to showcase offerings in a way that feels authentic and aligns with their personal brand (Leung et al., 2022a; Pan & Misra, 2021). This strategy capitalizes on the trust that influencers have built with their audience, making endorsements more persuasive than traditional advertisements. As consumers grow increasingly skeptical of advertising, influencer marketing has become a cornerstone of modern digital strategies, driving awareness, engagement, and purchase intention across industries (Beichert et al., 2024; Hughes et al., 2019).

The landscape of influencer marketing has changed significantly, transitioning from traditional influencers and celebrities to social media influencers and, more recently, virtual influencers (see Table 1). Traditional influencers rely on expertise and personal networks to influence niche communities. They are similar to social media influencers, with the exception that their network is limited to immediate family and friends. The internet, especially social media, enables these individuals to develop their own content and reach wider audiences within their areas of expertise, allowing them to potentially become social media influencers.

Celebrities, unlike social media influencers, leverage their fame from fields such as acting, sports, entertainment,

Table 1 Evolution of influencer marketing

	Traditional Influencers	Celebrities	Social media Influencers	Virtual Influencers
Definition	Opinion leaders who can influence direct network product decision	Well-known individuals popular in specific domains, outside of social media	Individuals building connection through content creation in specific areas of expertise on social media platforms	Computer-generated characters interacting with audiences on social media platforms
Source of Influence	Expertise and trust within niche communities	Fame and aspirational appeal in specific domains	Authenticity and credibility in niche areas of expertise	Novelty, customization, and AI-driven adaptability.
Variations	Differences in expertise levels or the scope of influence	Field specific (e.g., acting vs. sports)	Differences in size (i.e., number of followers)	Anthropomorphic continuum (from human-like to cartoon like)
Insights	Influential among communities with lack of scalability	Build strong brand recognition but risk reducing impact due to over-commercialization or unrelated endorsements	Influence a wide range of consumer responses, but risk skepticism over sponsorships	Cost-effective and novel, but challenged in establishing trust and authenticity
Illustrative Research	Feick and Price (1987); Chan and Misra (1990)	Erdogan (1999); Knoll and Matthes (2017)	Hughes et al. (2019); Leung et al. (2022) Zhou et al. (2023)	Sands et al. (2022); Zhou et al. (2023)

or other industries. Their aspirational qualities make them attractive to brands seeking endorsements. However, some of the challenges with celebrity endorsements are over-commercialization and unrelated endorsements. For example, David Beckham has endorsed products ranging from food and beverages to watches, perfumes, and even coffee machines. Such an approach can compromise the endorsed entity's credibility, as these endorsements may be unrelated to the endorser's field of expertise. In contrast, social media influencers typically endorse products aligned with their niche, maintaining stronger audience trust.

Virtual influencers are computer-generated personas designed by content creators to interact with audiences. Like social media influencers, they are active across various social media platforms. However, they may be more cost-effective and innovative, with the potential to leverage AI for enhanced audience engagement. For example, @LilMiquela, a virtual influencer, endorsed an electric BMW. Despite their advantages, virtual influencers lack human connection and authenticity, which may limit their impact.

Literature review

We now provide an overview of prior research, focusing on three key areas: (a) social media influencer effectiveness, including effects as compared to other forms of endorsements; (b) mediation explored through a direct effects model, a model based on social influence theory, or the hierarchy of effects model; and (c) moderator analysis, including social media influencer characteristics, message and product types, as well as the influence of different social media platforms and follower demographics (see Web Appendix B for an overview).

Extant research has explored social media influencers' ability to engage audiences and drive purchase intention. Despite some conflicting findings, primary studies reveal that social media influencers are often effective in promoting products and brands, leveraging their credibility and attractiveness to positively influence consumer responses (Cascio Rizzo et al., 2024). Research also indicates that other endorsers, such as celebrities, are not always effective in triggering all types of consumer responses. For instance, Knoll and Matthes (2017) found that celebrity endorsements do not significantly impact consumer attitudes or behavioral intentions.

As discussed earlier, the presence of multiple actors in influencer marketing has led researchers to compare the effectiveness of social media influencers not only against brand-owned social media posts or non-endorsement strategies but also against celebrities and, more recently, virtual influencers. Prior research suggests that influencer effectiveness varies depending on the outcome and the type of

endorsement. For instance, while some studies support the idea that social media influencers are more effective than celebrities in engaging consumers with endorsed products (Zhu et al., 2022), this advantage is less pronounced when it comes to purchase behavior (Jain & Posavac, 2004). The discrepancy may stem from the ability of social media influencers to build close, long-term relationships with their followers, particularly when promoting expertise-aligned products. Celebrities lack this relational asset, though their widespread fame may yet rival an influencer's expertise in driving consumer purchases.

Similarly, compared to virtual influencers, social media influencers tend to be more effective in influencing purchase intention (Zhou et al., 2023), but this advantage is less evident for consumer engagement (Cascio Rizzo et al., 2023). The credibility of social media influencers likely contributes to their superior performance in encouraging purchases. However, virtual influencers, like social media influencers, develop following through content creation—often with greater creativity—possibly allowing them to be equally effective in fostering engagement with endorsed products.

In contrast to celebrities and virtual influencers, there is compelling evidence that social media influencers outperform brand-generated social media posts (Singh et al., 2020) and non-endorsement strategies. Advertising literature documents consumer skepticism towards brand-owned or initiated advertising, suggesting that more credible strategies, such as leveraging social media influencers, may be more effective (Leung et al., 2022).

The mechanisms underlying social media influencer effectiveness are explored through several theoretical models. A direct effects model highlights how social media influencers drive consumer responses without mediating variables (Leung et al., 2022a, b). Social influence theory further explains that social media influencers' perceived attractiveness and credibility mediate their impact, reinforcing consumer attitudes and behaviors (Schouten et al., 2020). The hierarchy of effects model additionally suggests that ad attitude and brand attitude mediate the impact of social media influencers characteristics (e.g., credibility, attractiveness) on behaviors like engagement and purchase intention (Ozdemir et al., 2023; Qu & Baek, 2024). These mechanisms underscore how social media influencers' credibility and attractiveness as their main sources of persuasion may drive downstream consumer responses. Despite these useful findings, these partial models cannot fully explicate mediation leading to the possibility of testing other combinatorial models.

Research also identifies various moderators including characteristics of the influencer, message, product, platform, and followers. A key feature of social media influencers is their size based on their number of followers. Despite

evidence that smaller influencers are more engaging than larger ones (Cascio Rizzo et al., 2024), there is not enough support for other responses such as purchase intention. Additionally, findings conflict regarding the effectiveness of message and product types. For instance, while some research highlights the superiority of emotional appeals over rational appeals (Ozdemir et al., 2023), other studies report contradictory results (Zhu et al., 2022). Similarly, there is no clear consensus on whether social media influencers are more effective in promoting hedonic versus utilitarian products (Belanche et al., 2024; Cho et al., 2024), new versus familiar products (Wies et al., 2023; Zhu et al., 2022), or search versus experience products (Hill et al., 2020; Xie et al., 2022).

In addition to the abovementioned ambiguities, several moderators remain underexplored. In particular, characteristics like influencers' and followers' age and gender have received little attention, with limited findings indicating that social media influencers may be more effective with female audiences (Han & Balabanis, 2024). Similarly, message-related factors such as abstractness or endorsement type (e.g., usage-based versus recommendation-based) are yet to be systematically studied. Moreover, platform-specific nuances such as differences in social media influencer effectiveness on TikTok vs. Instagram, have not been addressed adequately (Han & Balabanis, 2024). These gaps highlight the need to examine novel and insufficiently addressed moderators for a more comprehensive understanding of social media influencer effectiveness across diverse contexts.

Conceptual background

We now delve into the conceptual background, structuring it to help address the main contributions of the investigation as delineated above, including: (1) evaluating the effectiveness of social media influencers, (2) explaining the mechanisms by which social media influencers drive consumer responses, and (3) identifying boundary conditions of social media influencer effectiveness.

Social media influencers effectiveness

To assess the effectiveness of social media influencers, we categorize consumer responses into credibility, attractiveness, ad attitude, brand attitude, engagement, and purchase intention (Table 2). The percentages in Table 2 refer to the ratio of studies in our dataset that provide effects specific to a response variable observed most frequently. While other outcome variables, such as ad and brand recall, recognition, and attention, have been studied earlier (e.g., Eisend and Tarrahi (2016); Rosengren et al. (2020)), these have been explored in only two experimental studies and thus were not considered in this meta-analysis.

A review of prior research highlights several recurring issues, such as fragmented measurement approaches, narrow behavioral outcomes, limited platform diversity, and challenges in replicating real-world dynamics and relationships.

One of the most notable limitations in prior research is the inconsistency in measurement scales of critical constructs (see Web Appendix C for a detailed review of these inconsistencies). For instance, credibility, a fundamental construct in social media influencer scholarship, has been measured as a standalone concept as well as through varied proxies such as expertise (Lee et al., 2021), authenticity (Kapitan

Table 2 Operationalizations of consumer responses to social media influencers

Consumer Responses	Similar measurements	Current paper definition
Cognitive		
Credibility (54%) ^a	Credibility (Lee & Ham, 2023), expertise (Lee et al., 2021), authenticity (Kapitan et al., 2021), trust, trustworthiness (Jin et al., 2019)	Perceptions of endorser trustworthiness and expertise
Attractiveness (17%)	Attractiveness (Choi et al., 2023), physical (Mirowska & Arsenyan, 2023), and social attractiveness/likeability (van Reijmersdal et al., 2024)	Perceived features of pleasing and appealing quality of endorser
Affective		
Ad Attitude (22%)	Message (Holiday et al., 2021), ad (Franke et al., 2022) and post (Pöyry et al., 2019) likeability/attitude	Evaluation of the ad and the message advertised by the endorser
Brand Attitude (33%)	Brand (Jin et al., 2019) and/or product (Schouten et al., 2020) likeability /attitude	Evaluation of the product/brand advertised by the endorser
Conative		
Engagement (30%)	WOM (Sands et al., 2022), social media post likes (Chung et al., 2023), likes and comments (Cascio Rizzo et al., 2024), sharing (Lee et al., 2021), number of reposts (Leung et al., 2022)	Activities of getting/being involved with a product/brand endorsed by the endorser
Purchase intention (64%)	Purchase intention (Piehler et al., 2022), willingness to buy, booking intention (Zhang et al., 2023)	Likelihood of acquiring the endorsed product/brand

Note: ^a The percentages indicate the ratio of studies on a specific customer response vis-à-vis all studies (135) in our dataset. The percentage values do not add up to 100, as a study can investigate more than one dependent variable

et al., 2021), trust and trustworthiness (Jin et al., 2019), or through a combination of expertise, trustworthiness, and attractiveness (Lee & Ham, 2023). Similarly, engagement has been assessed using social media post likes (Chung et al., 2023), likes and comments (Cascio Rizzo et al., 2024), sharing (Lee et al., 2021), number of reposts (Leung et al., 2022), and WOM (Sands et al., 2022). Constructs like brand attitude and ad attitude also show variation in their operational definitions—measured variously at the message, post, or ad level using different items and scales.

These inconsistencies pose a significant challenge for theory development, synthesis, and generalisation. They reduce construct validity, hinder comparability across studies, and complicate meta-analytic aggregation. While our

meta-analysis addresses this issue by grouping conceptually related measures under broader constructs, this approach is a necessary compromise rather than a sustainable solution. As outlined in the limitation and future research direction section and Table 3, future research should prioritise the development of conceptually grounded and empirically validated measurement scales that allow for consistent operationalisation of key constructs—particularly credibility, engagement, and attitudinal responses—across platforms and influencer types. Standardisation in measurement would facilitate cumulative theory building, improve comparability, and enhance reproducibility.

Another limitation in the current literature is the reliance on behavioral likelihood constructs such as purchase

Table 3 Future research direction in social media influencer marketing

Research Area	Related Questions
Measurement quality	• What are the most reliable and valid multi-dimensional scales for measuring key constructs such as influencer credibility, engagement, brand attitude, and attitude toward the ad? How can these scales ensure consistency across different platforms and influencer types? • To what extent do different measurement approaches influence the comparability and cumulative knowledge across studies?
Social media influencer and behavior	• How effective are social media influencers in driving consumer behaviours such as purchase, and willingness to pay? • What are the differences in the effectiveness between large and smaller social media influencers in shaping such behaviours? • How can future research incorporate observable behavioural outcomes—such as transactional data, click-throughs, and conversion rates—to assess the behavioural impact of social media influencers?
Influencer marketing vs. broadcast advertising	• How does the effectiveness of social media influencer marketing compare with traditional broadcast advertising in shaping consumer attitudes and behaviours? How can future research move beyond comparisons limited to other social media-based sources (e.g., brand posts, celebrities, virtual influencers) to include traditional media as a benchmark?
Message persuasiveness	• How do variations in message strength (e.g., clarity, argument quality, benefit salience, and product differentiation) influence the effectiveness of influencer-endorsed content?
Long-term effects	• What are the long-term impacts of social media influencer marketing on consumer responses? • How can brands sustain the effectiveness of influencer marketing campaigns over the long term?
External validity	• What are the effects of prior exposure and familiarity with social media influencers on consumer responses in experimental settings? • How can methods such as field experiments be embedded into experimental designs to enhance external validity?
Platform-specific influencer strategies	• How does the effectiveness of social media influencers vary across different social media platforms (beyond Instagram)?
Cultural sensitivity and global social media influencer campaigns	• How do different cultures respond to social media influencer marketing campaigns? • Should social media influencers tailor their messaging and product strategies to different cultural contexts?
Crisis management and social media influencer communication	• How can social media influencers assist brands in mitigating reputational damage during transgressional crises (e.g., product recalls/failure, data breaches, social/moral transgressions)? • What messaging strategies are most effective in maintaining consumer trust during a product-harm crisis? • How do followers respond to social media influencers' apologies or crisis communications on behalf of the transgressing brand, and how does this affect brand perception?
Social media influencers, social marketing, and brand activism	• How effective are social media influencers in promoting social causes and driving pro-social behavior change through social marketing campaigns? • What role can social media influencers play in advancing public health, environmental sustainability, and other causes? • How effective are social media influencers as brand activists? • How can brands and non-profits strategically collaborate with social media influencers to enhance awareness and engagement in social marketing initiatives?
Virtual and AI-based influencers	• What are the unique advantages of virtual influencers and/or AI-based influencers over human influencers in product/brand endorsement? • What message, product, and platform strategies do virtual influencers and/or AI-based influencers need to adopt to enhance their effectiveness? • How might collaborations between human influencers and AI-based influencers affect consumer responses?

intention (Piehler et al., 2022) or willingness to buy (Zhang et al., 2023). This reliance on intention-based outcomes overstates the effectiveness of social media influencers, as several factors intervene between intention and actual purchase, including situational constraints, competing alternatives, and evolving preferences. Moreover, most studies assess outcomes immediately after exposure, overlooking the long-term effects such as brand loyalty, repeat purchases, and customer lifetime value, which may lead to an underestimation of its temporal impact.

Experiments in this domain also struggle to replicate the complexity and dynamics of social media influencer marketing. Many studies use hypothetical social media influencers as stimuli and recruit respondents with no prior interaction or engagement with these entities—or even with social media influencers in general. However, in reality, social media influencers, through their perceived authenticity, connect with their followers over time, which significantly shapes consumer behavior. The lack of ecological validity in such designs often limits the practical relevance of findings.

In addition, much of the existing research disproportionately focuses on Instagram, constraining the applicability of findings to other platforms such as YouTube, TikTok, or Facebook, where audience engagement patterns and content dynamics vary. Notably, these platforms employ different algorithms to determine content reach and visibility, which can significantly impact the effectiveness of influencer campaigns. These knowledge gaps offer opportunities for inquiry and we address them in the future research section.

Mediation

Figure 1 represents a comprehensive model of the effects of social media influencers as compared to other forms of endorsement. This model integrates different approaches and partial models, including the direct effects of social media influencers, indirect effects according to social influence theory (Kelman, 1961), and the effects predicated by the hierarchy of effects model (Smith et al., 2008). Social influence theory will predict that through their credibility and attractiveness, influencers play a crucial role in influencing the norms, opinions, attitudes, and behavior of their followers (Cialdini & Goldstein, 2004). Additionally, based on the hierarchy of effects, consumers are expected to initially evaluate the credibility and attractiveness of social media influencers in promoting a product or brand, leading to the formation of ad and brand attitudes. These attitudes, in turn, influence engagement and purchase intention (Barry, 2002), aligning with the affect transfer model (MacKenzie et al., 1986). For a more detailed description of the partial models and their theoretical rationales, refer to Web Appendix D.

Moderator analysis

While there is a wide range of potential moderators in our conceptual model (Fig. 2), we rely on the communication process framework (Shannon, 1948) to guide moderator selection. This framework offers a more comprehensive assessment of conditional effectiveness of social media influencer marketing which includes considerations pertaining to the sender (social media influencer), message (content and promoted product/brand), channel (social media platform), and receiver (followers). Although our selection

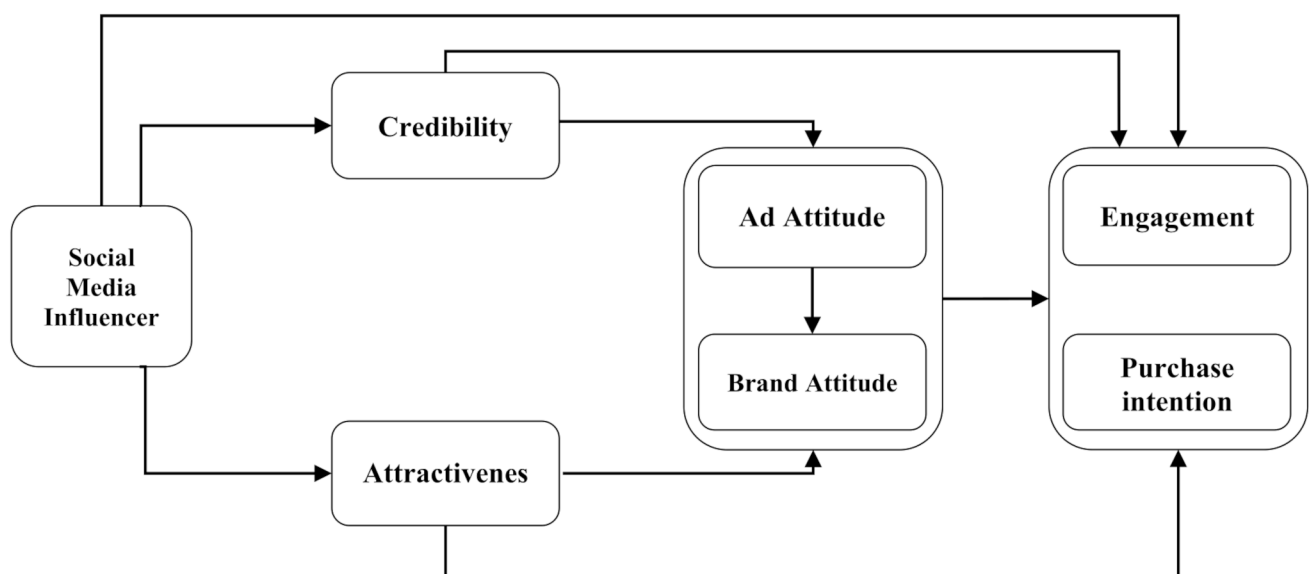


Fig. 1 Integrative model of social media influencer effectiveness

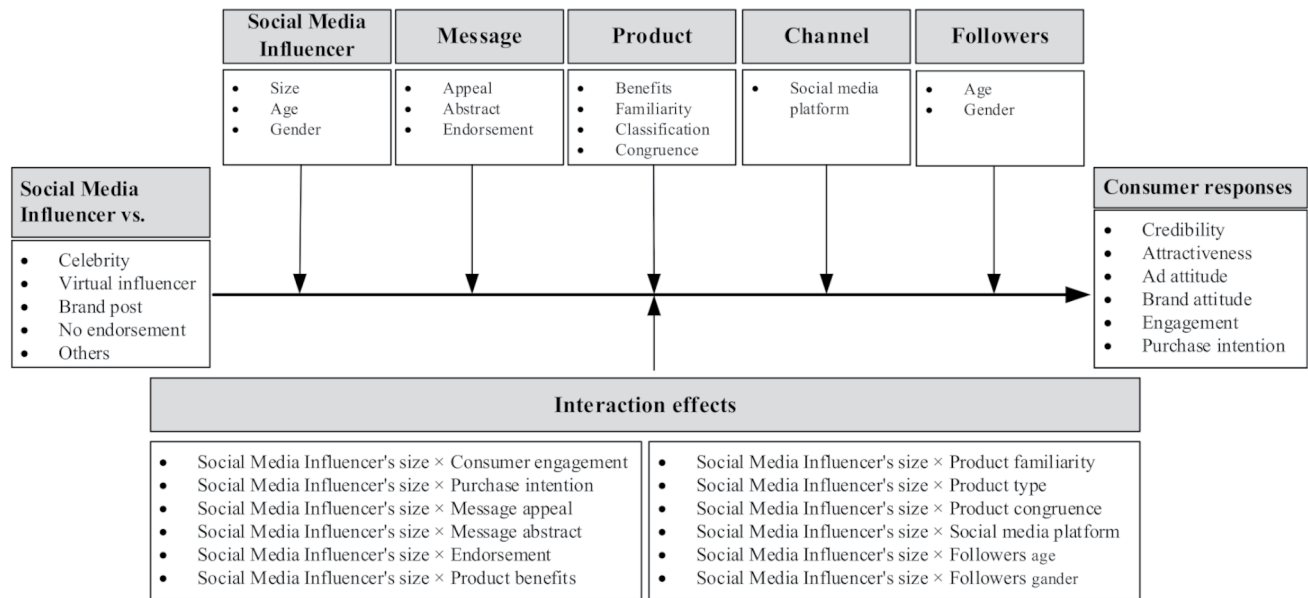


Fig. 2 Moderation model of social media influencer effectiveness

of moderator variables is constrained by the availability of data in previous empirical research, we ensured that all critical communication factors are incorporated into our model. This approach allows for a more holistic understanding of the moderating factors that influence the impact of social media influencers on consumer responses (Ahmadi & Ieamson, 2022).

As discussed previously, there are conflicting findings specific to moderators pertaining to social media influencer, message, product, channel and followers' characteristics. We selected influencer size as a focal variable to resolve contradictory findings in previous empirical research and meta-analyses and propose several interaction effects between size and other moderators. Social media influencer size refers to the number of their followers on social media (Giuffredi-Kähr et al., 2022) and we categorized size into 'large' with more than 1 million followers, and 'small' and 'medium' with less than 1 million followers. In this regard, previous research indicates that size can play an important moderating role in social media influencer effectiveness. For instance, Wies et al. (2023) found that a larger number of followers implies broader reach but also cues a weaker influencer-consumer relationship, reducing the likelihood of follower engagement. Additionally, Cascio Rizzo et al. (2023) found that high-arousal language increases engagement with smaller influencers but decreases engagement with larger influencers.

A key resource of social media influencers is their credibility, which stems from their perceived expertise in a specific area and influences followers' trust in the influencers' experience and recommendations. While follower growth

enables social media influencers to reach larger audiences, it simultaneously makes it more difficult for larger social media influencers, compared to smaller social media influencers, to maintain close interactions with followers and demonstrate consistent expertise in a specific domain (Cascio Rizzo et al., 2023; Wies et al., 2023). Furthermore, as larger social media influencers attract more brand collaborations, their endorsements may be perceived as driven more by a profit motive, diminishing their credibility relative to smaller social media influencers.

To address this issue, large social media influencers need to adopt specific strategies regarding messaging, product endorsement, social media platform choice, and follower interaction to regain their expertise and credibility, while smaller social media influencers should be aware of the downsides of growth in followers and take steps to safeguard their credibility. Specifically, in terms of messaging, larger social media influencers should focus on rational, concrete, evidence-based messages to showcase their expertise and credibility, whereas smaller social media influencers should use emotional, abstract messaging and recommendations to minimize negative reactions from followers, lest their endorsements are judged as overly profit motivated. Similarly, for product and platform strategies, larger social media influencers endorsing utilitarian, established, and search products can highlight their expertise, particularly on Instagram, where they can better showcase their knowledge of the endorsed products. Furthermore, larger social media influencers may be more effective with a wider audience, including mixed-gender groups, as such targeting gives

them more opportunities to demonstrate their credibility to a broader range of consumers.

Lastly, while larger social media influencers are weaker in engaging their followers (Cascio Rizzo, Villarroel Ordenes, et al., 2023), they are stronger in triggering purchase intentions. This is so because an increase in social media influencer size may signal greater popularity, status, and reputation (Han & Balabanis, 2024), leading to a higher level of persuasion and stronger influence on purchase intention compared to smaller social media influencers.

Method

Data collection

We identified all published and unpublished papers related to social media influencer effects by searching popular databases (Business Source Complete, Scopus, SpringerLink, Emerald, JSTOR, Sage, ProQuest Digital Dissertations, SSRN, and Google Scholar), using search terms including “social media influencer” or “influencer marketing” or “social media influencer marketing” or “online influencer marketing” or “online influencer” or “digital influencer” or “influencer endorsement” or “influencer advertising” or “instafamous”, in the title, abstract, and keywords of these databases. Additionally, we conducted a snowball search by checking the reference lists of studies we identified, especially those with high citations on Google Scholar, and integrated them into our database. The search process was completed in July of 2024 and yielded 2,075 papers.

Several inclusion criteria were applied to develop the final database. We removed all non-quantitative studies, including qualitative review papers, as well as research based on methods such as surveys, and focused on experimental studies that tested causal relationships. For an experimental study to be included, the investigation required comparing the experimental “social media influencer” endorsement condition with a control condition that could be a message featuring a celebrity, virtual influencer, brand post on social media, or no endorsement. Consequently, we eliminated studies comparing different types of “social media influencer” influencers, such as small versus large, as these experiments lacked guidance about the general effectiveness of “social media influencer” influencers. They did provide insights about the comparative effects of different types of “social media influencer” influencers, an aspect we address in our meta-analyses by moderator variables. Finally, papers were included in the database only if the information provided was sufficient to compute an effect size. This process led to 71 papers, yielding 135 independent experimental

studies with an aggregate sample size of 44,210 consumers (see Web Appendix F for the list of studies).

Data coding

A comprehensive coding manual was developed and implemented to ensure the accuracy and quality of the coding process (see Web Appendix E). This manual provided instructions for coding each moderator in the model, and the data coded for each study are described in Web Appendix F. Using this manual and to enhance the reliability of the coding process, one of the authors and an independent coder (who was not part of the research team and was unaware of the study objectives) coded the moderators separately. In this regard, moderators that required inference for coding (all except influencer size and social media platform, influencer gender, followers’ age, and gender) were based on available information and coded by the two coders and discrepancies were resolved through discussion. Details of the agreement rate (AR) for all moderators coded by two coders are presented in Web Appendix F.

Effect size preparation and integration

Effect sizes were transformed into correlations which were adjusted for measurement errors in the dependent variables. When reliability data was unavailable in a paper or when a single-item measure was used, we utilized the mean reliability for that construct across all studies. Additionally, a random-effects model and variance weights were used to integrate effect sizes. To evaluate the homogeneity of effect sizes, we employed the Q-statistic which assesses whether the observed heterogeneity is greater than that expected by chance alone (Higgins & Thompson, 2002).

To mitigate the impact of publication bias, we employed several techniques. We calculated Rosenthal’s fail-safe N (1991) to determine the number of zero-effect studies required to reduce a significant effect to non-significant (Rosenberg, 2005). The results of this analysis (Table 4) indicate that a substantial number of zero-effect studies are required to render the overall influencer effects non-significant. Also, contour-enhanced funnel plots indicate the presence of some missing values in the plot for the effect sizes referring to attractiveness, which could be an indicator of publication bias for this variable. However, the results of Egger’s test indicated symmetry of all funnel plots, suggesting that publication bias was not severe (see Web Appendix G).

Employing the criterion of standardized residuals greater than 3 indicated three outliers in the effect sizes for the relationship between influencer and credibility, one for attractiveness and brand attitude, and two for engagement

Table 4 Average effect of social media influencers on consumer responses

Relationship	K	N	r_{rcvw}	S.E.	LCI	UCI	Q	FSN
Social Media Influencer → Credibility	73	17,209	0.23**	0.04	0.15	0.31	1384**	7,856
Social Media Influencer → Attractiveness	23	5,541	0.10	0.08	-0.06	0.25	550**	845
Social Media Influencer → Ad Attitude	30	7,250	0.15**	0.04	0.06	0.26	345**	689
Social Media Influencer → Brand Attitude	45	12,626	0.13**	0.04	0.04	0.21	721**	721
Social Media Influencer → Engagement	40	12,318	0.14**	0.06	0.03	0.25	992**	416
Social Media Influencer → Purchase Intention	86	307,700	0.11**	0.04	0.03	0.18	2235**	4,986

Note: K: number of studies; N: cumulative sample size; r_{rcvw} : Reliability corrected, and variance weighted integrated correlation; S.E. = Standard error; LCI: 95%-lower confidence interval; UCI: 95%-upper confidence interval; Q=Q statistic; FSN=fail-safe N,

** $p < .01$, * $p < .05$

Table 5 Pooled correlation matrix

		Social Media Influencer	Credibility	Attractiveness	Ad Attitude	Brand Attitude	Engagement
Credibility	r	0.23					
	k	73					
	N	17,209					
Attractiveness	r	0.10	0.55				
	K	23	16				
	N	5,541	4,684				
Ad Attitude	r	0.15	0.54	0.60			
	k	30	19	8			
	N	7,250	5,635	1,564			
Brand Attitude	r	0.13	0.53	0.40	0.54		
	k	45	21	7	11		
	N	12,626	265	1,250	2,102		
Engagement	r	0.14	0.44	0.46	0.49	0.59	
	k	40	23	10	8	6	
	N	12,318	6,541	1,520	1,265	1,269	
Purchase Intention	r	0.11	0.51	0.43	0.53	0.53	0.65
	k	86	67	28	16	19	15
	N	307,700	15,621	7,254	2,158	3,125	3,069

Note: k: number of correlations; N: cumulative sample size; harmonic mean: 1,895

and purchase intention. To assess whether these outliers were consequential, we conducted the analysis both, with and without them to determine whether they influenced the strength, direction, or significance of the relationships. The results indicated that outliers were not a significant concern (see Web Appendix H) and were thus retained.

Meta-analytic structural equation model

The pooled correlation matrix (Table 5) was used as the input for meta-analytic structural equation modeling (MASEM) in R software (Cheung, 2014) to test the proposed model. Each construct was assessed by using a single indicator in the structural model. The error variances for these indicators were set to zero because we had already accounted for measurement errors during the integration of the effect sizes. Furthermore, we employed the harmonic mean of 1,895 as the sample size for our MASEM. We used several goodness-of-fit indices, including the Root Mean Square Residual (RMSEA), Comparative Fit Index (CFI),

and Adjusted Goodness-of-Fit index (AGFI), to assess the fit of the models with the data.

Moderator analysis

Our moderator model includes all reliability-corrected correlations as effect sizes across the six dependent variables (the plot depicting the frequency distribution of the effect sizes is available in Web Appendix I). As most studies reported effect sizes for multiple consumer response variables, we used Hierarchical Linear Modeling (HLM) to examine the role of moderators, the interaction between social media influencer size and other moderators, as well as the interaction between endorsers (social media influencer, celebrity, virtual influencer, brand post on social media, no endorsement) and consumer responses (engagement and purchase intention) (formula details are provided in Web Appendix J). The result of correlations between the moderators (see Web Appendix K) and variance inflation factors

(VIFs) (Table 6) indicate that multicollinearity was not a significant concern.

Results

Table 4 presents the average correlations between social media influencers and consumer response, showing that social media influencers have positive and statistically significant effects on all responses, except for attractiveness. While attractiveness is considered a key source of a social media influencer's persuasiveness, the results suggest that influencers are perceived as equally attractive as other endorsers, such as celebrities or virtual influencers ruling out attractiveness as a unique source of influence for social media influencers. In contrast, credibility emerges as the strongest consumer response, highlighting it as a distinctive and exclusive dimension for social media influencers. Furthermore, the Q-statistic test results indicate the presence of heterogeneity. We conducted a robustness check by excluding studies involving virtual influencers (see Web Appendix L). The findings are largely consistent with the ones in Table 4, but the effect on brand attitudes drops below the significance threshold.

Table 7 presents the integration results separately for the four control groups—celebrity, virtual influencer, brand posts on social media, and no endorsement—examining their effects on engagement and purchase intention. The results indicate that social media influencers are more effective than celebrities in driving engagement but equally effective in influencing purchase intention. Building on previous findings regarding the overall impact of social media influencers, we posit that their credibility plays a crucial role in engaging consumers with endorsed products, while celebrity fame enhances persuasion, making celebrities as effective as social media influencers in driving purchase intention.

Additionally, social media influencers outperform virtual influencers in driving purchase intention but not engagement. These findings suggest that social media influencers' authenticity gives them an advantage in encouraging purchases, whereas both, virtual and social media influencers are equally effective in engaging consumers. Furthermore, social media influencers are more effective than both, brand posts on social media and no endorsement strategies in terms of both, engagement and purchase intention. These findings support our prediction that social media influencers serve as a more credible source compared to brand-owned or brand-initiated advertisements, where consumer skepticism remains a significant barrier to effectiveness.

MASEM

Figure 3 depicts the results of our integrative model through MASEM, in which social media influencers impact engagement and purchase intention only indirectly and through credibility and attractiveness, and subsequently through ad and brand attitude (the results of analyzing partial models are provided in Web Appendix D).

Table 8 provides the results of the direct, indirect, and total effects based on the integrative model. As shown, social media influencers' credibility and attractiveness fully mediate their impact on consumer responses including ad attitude, brand attitude, engagement, and purchase intention. These findings are consistent with the average effect results (Table 4) that reflect the total effect. Moreover, the total effect finding suggests that attractiveness and brand attitude have the highest effect on engagement, while credibility exhibits the highest total effect on purchase intention.

Moderator analysis

Table 6 presents the results of the analysis of the relationship between social media influencers and moderators on consumer responses. Both, influencer size and age have a negative impact on this relationship. Regarding message characteristics, a more abstract message is more effective than a less abstract one and a recommendation-based endorsement is superior to a usage-based one. Further, the impact of social media influencers is higher for new and experience goods than for familiar and search products. These moderating effects are further qualified by their interactions with social media influencer size, as described below.

The results of interaction tests (Table 6) indicate a positive and significant interaction between social media influencer size and purchase intention, while the interaction with engagement is also significant but negative. Larger influencers are more consequential for purchase intention, and smaller influencers are more suitable for engagement (see Fig. 4). Table 6 further suggests a positive interaction effect between influencer size and message abstractness (high vs. low) and type of endorsement (usage-based vs. recommendation-based). Figure 4 reveals that larger social media influencers are better matched with less abstract messages and usage-based endorsements, and smaller influencers with more abstract messages and recommendation-based endorsements. The results also highlight a negative and significant interaction between influencer size and product familiarity (new vs. familiar): larger social media influencers are more suited for familiar products. Furthermore, the interaction between influencer size and product type (search

Table 6 Multilevel meta-regression analysis results

Moderators	B	SE	VIF
Intercept	0.131	0.129	
<i>Social media influencer characteristics</i>			
Social media influencer size: Large (vs. smaller)	-0.366*	0.160	3.201
Social media influencer age	-0.010*	0.047	3.401
Social media influencer gender: Female (vs. others)	0.057	0.097	2.698
<i>Message characteristics</i>			
Appeal: Emotional (vs. rational)	0.089	0.101	2.985
Abstractness: Low (vs. high)	-0.182*	0.091	3.165
Endorsement: Usage-based (vs. recommendation-based)	-0.178*	0.090	3.698
<i>Product/brand characteristics</i>			
Benefits: Hedonic (vs. utilitarian)	0.170	0.126	3.087
Familiarity: New (vs. familiar)	0.195*	0.081	3.365
Classification: Experience (vs. search)	0.219*	0.110	3.365
Social media influencer-product congruence: High (vs. low)	0.096	0.068	2.098
<i>Channel characteristics</i>			
Platform: Instagram (vs. others)	0.063	0.042	2.988
<i>Follower characteristic</i>			
Followers age	0.109	0.102	2.368
Followers gender: Female (vs. Mixed)	-0.163	0.110	2.698
<i>Influencer size and other moderators</i>			
Social media influencer size × Purchase intention	0.211**	0.067	3.365
Social media influencer size × Engagement	-0.136*	0.067	3.245
Social media influencer size × Age	0.165	0.109	3.321
Social media influencer size × Gender	0.106	0.187	2.298
Social media influencer size × Message appeal	-0.169	0.121	3.354
Social media influencer size × Message abstractness	0.198*	0.098	2.985
Social media influencer size × Endorsement	0.201*	0.101	3.245
Social media influencer size × Product benefits	-0.169	0.126	2.256
Social media influencer size × Product familiarity	-0.248*	0.121	3.041
Social media influencer size × Product classification	-0.191*	0.095	2.987
Social media influencer size × Influencer-product congruence	0.096	0.089	3.398
Social media influencer size × Platform	0.203	0.141	3.698
Social media influencer size × Follower age	0.096	0.131	1.963
Social media influencer size × Follower gender	-0.021	0.095	2.036
<i>Control group</i>			
Others (base)			
Influencer	0.138*	0.062	3.363
Celebrity	-0.080	0.063	3.024
VI	-0.181	0.099	3.021
Brand post	-0.212*	0.086	2.985
<i>Consumer responses</i>			
Credibility (base)			
Attractiveness	-0.195**	0.078	1.586
Ad attitude	-0.079	0.121	1.569
Brand attitude	-0.169	0.120	1.425
Engagement	-0.180	0.162	1.456
Purchase intention	-0.237*	0.115	1.652
<i>Endorsers and consumer responses</i>			
Social media influencer × Purchase intention	0.120*	0.057	2.658
Social media influencer × Engagement	0.115*	0.055	3.324
Celebrity × Purchase intention	0.086	0.068	2.365
Celebrity × Engagement	-0.081	0.101	2.145
VI × Purchase intention	-0.201*	0.086	2.314
VI × Engagement	0.222	0.080	3.165
Brand post × Purchase intention	-0.092*	0.045	2.598

Table 6 (continued)

Moderators	B	SE	VIF
Brand post × Engagement	−0.078*	0.039	2.698
No endorsement × Purchase intention	−0.161**	0.040	2.598
No endorsement × Engagement	−0.145**	0.042	2.698
Level 1: Within group variance (no. of effect sizes)	0.372 (254)		
Level 2: Between group variance (no. of studies)	0.198 (108)		
Interclass Correlation Coefficient (ICC)	0.515		
Pseudo R-square	0.655		
chi-square	96.16** (df=58)		

** $p < .01$, * $p < .05$

Table 7 Comparative effect of social media influencer

Social Media Influencer vs.	Engagement				Purchase Intention			
	<i>K</i>	r_{rcvw}	LCI	UCI	<i>K</i>	r_{rcvw}	LCI	UCI
Celebrity	8	0.24**	0.02	0.48	27	<0.01	−0.16	0.14
Virtual Influencer	23	0.06	−0.05	0.17	41	0.15**	0.07	0.24
Brand post^a	4	0.11*	0.04	0.27	9	0.09*	0.05	0.24
No endorsement	5	0.31**	0.20	0.41	6	0.26**	0.13	0.35

Note: *K*: number of studies; r_{rcvw} : Reliability corrected, and variance weighted integrated correlation; LCI: 95%- lower confidence interval; UCI: 95%-upper confidence interval.

^a brand posts on social media

“Other” control groups (comprising one customer review, and one layperson) have not been included in this analysis. As a result, the sum of the studies for different groups in this table does not match the total number of studies in Table 4 for each dependent variable

** $p < .01$, * $p < .05$

vs. experience) is positive and significant revealing that larger influencers are a better fit for search products.

The interactions between endorser types and the two main dependent variables (engagement and purchase intention) indicate that the influence of social media influencers is comparatively stronger than their control groups, including celebrities, virtual influencers, brand posts, and no-endorsement. These findings validate the comparative effects of social media influencers on consumer responses as presented in Table 7. Web Appendix M provides the interaction effect graphs for significant relationships between each endorsement type and consumer responses.

Discussion

Theoretical implications

There is general agreement that social media influencer marketing has utility (Brennan, 2019). However, views contrast regarding social media influencers’ effectiveness as compared to other forms of endorsement, and if, how, and when their endorsement leads to positive outcomes. Our investigation finds that social media influencers significantly and positively influence consumer responses including credibility, ad and brand attitude, engagement, and purchase intention.

Previous studies are not in agreement regarding the effect of social media influencers size, with smaller influencers often being found to be more effective than larger ones (Cascio Rizzo et al., 2023; Wies et al., 2023). However, our results offer a more nuanced view, indicating that while smaller social media influencers are more effective in engaging their followers, larger social media influencers are more effective in triggering purchase intentions.

There is also a lack of consensus regarding the comparative effectiveness of social media influencers vis-à-vis companies’ own social media pages, virtual influencers, or celebrities (Wies et al., 2023). Our meta-analysis finds that social media influencers are significantly more effective than no-endorsement option or brand posts on both, engagement and purchase intention. Moreover, social media influencers outperform virtual influencers in driving purchase intentions and celebrities in triggering engagement. While previous research highlights social media influencers’ ability to engage their followers as well as drive purchase (Cascio Rizzo et al., 2023; Wies et al., 2023), our findings suggest that their relative superiority in engagement and purchase intention depends on the comparison group.

The results of the meta-analysis structural equation modeling provide support for an integrative model. Social media influencers only indirectly, through attractiveness and especially credibility, enhance engagement and purchase intention, which serve as their two main persuasion anchors.

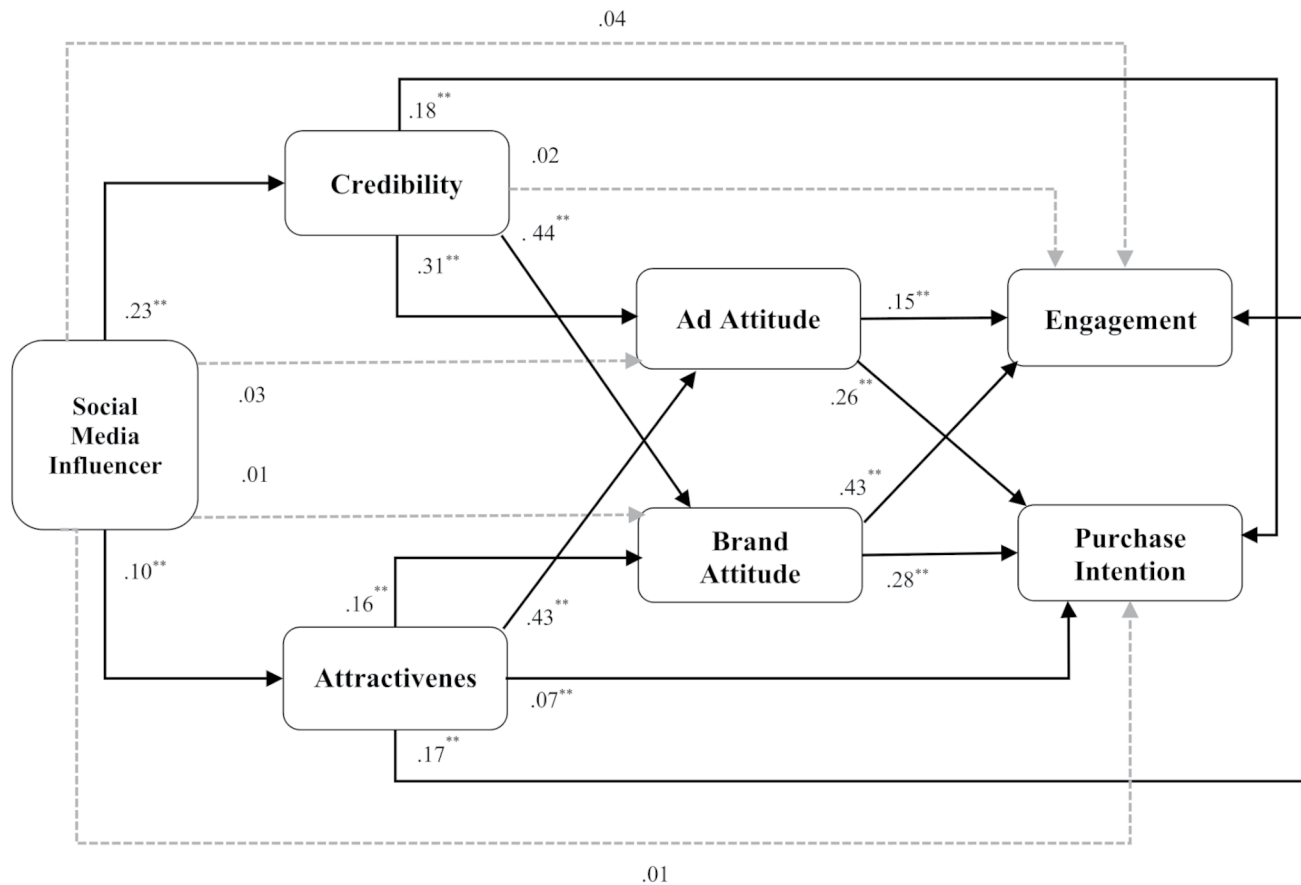


Fig. 3 Integrative model of social media influencer effectiveness
Note: Dotted lines indicate non-significant paths

** $p < .01$, * $p < .05$

Table 8 Direct and indirect effect of social media influencer in full model

	Path		Direct effect	Indirect effect	Total effect
Social Media Influencer	→	Engagement	0.04	0.10**	0.14**
Credibility	→	Engagement	0.02	0.23**	0.25**
Attractiveness	→	Engagement	0.17**	0.14**	0.30**
Ad Attitude	→	Engagement	0.15**	—	0.15**
Brand Attitude	→	Engagement	0.43**	—	0.43**
Social Media Influencer	→	Purchase intention	−0.01	0.12**	0.11**
Credibility	→	Purchase intention	0.18**	0.20**	0.38**
Attractiveness	→	Purchase intention	0.07*	0.16**	0.23**
Ad Attitude	→	Purchase intention	0.26**	—	0.26**
Brand Attitude	→	Purchase intention	0.28**	—	0.28**

** $p < .01$, * $p < .05$

More importantly, while previous research also identifies credibility and attractiveness as the two primary sources of an influencer's persuasiveness, our findings indicate distinct effects on consumer responses. Specifically, credibility facilitates purchase intention, whereas attractiveness primarily drives engagement with the endorsed product.

Our analysis reveals that several factors including the interaction between social media influencer size and other moderators, especially message and product characteristics,

play an important role in the effectiveness of social media influencers. Influencers' age negatively influences consumer response, indicating that aging reduces the effectiveness of social media influencers. Larger influencers align well with less abstract and usage-based messages and perform better when endorsing familiar, search-based products. Smaller influencers fit better with high abstract and general endorsement-based messages. These notable differences may be partly due to greater ambiguity surrounding larger

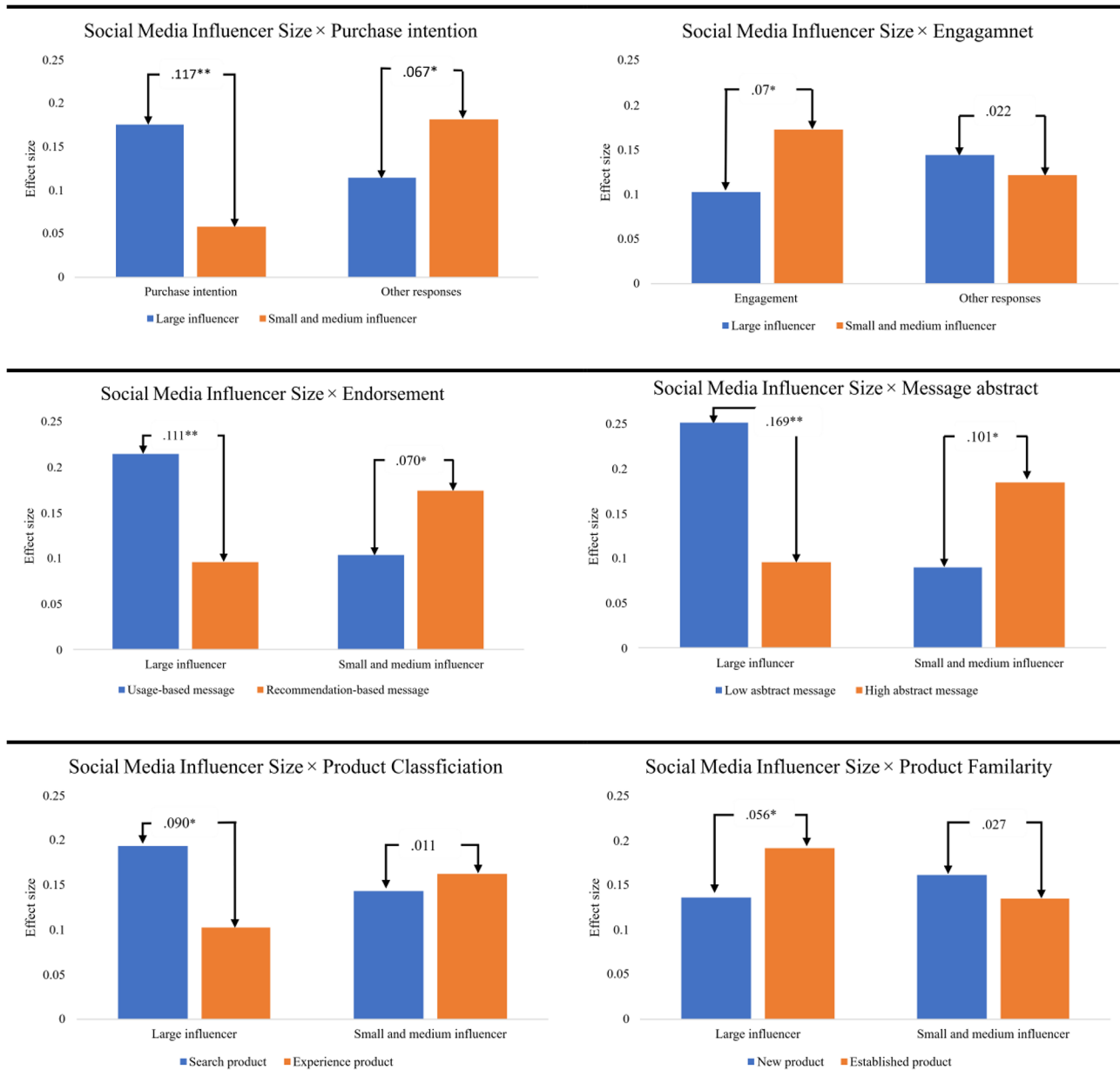


Fig. 4 Interaction effect graphs for significant hypothesis

** $p < .01$, * $p < .05$

influencers' core expertise and increased skepticism toward their endorsement due to perceptions of profit pursuit (Wies et al., 2023).

Managerial implications

Our findings offer valuable insights for marketing managers as illustrated in Fig. 5 which we elaborate upon subsequently.

Define your social media influencer marketing objectives before selecting the right influencer Marketing managers must establish a clear and measurable goal

before selecting the type of influencer (celebrity, social media influencer, or virtual influencer). The effectiveness of each influencer type varies depending on whether the goal is to increase engagement or drive purchase intention. For engagement, both, social media and virtual influencers can be strong options. Virtual influencers offer efficiency, adaptability, and brand-controlled messaging, making them an attractive choice for brands that want highly curated, consistent content. However, managers must evaluate whether virtual influencers align with the brand identity, product category, and target segment expectations. For purchase



Fig. 5 Overview of managerial implications

intention, celebrity and social media influencers are superior. Celebrities can drive stronger brand credibility and aspiration-based purchases, especially for high-status or luxury products. Social media influencers offer a cost-effective alternative, particularly when they have niche expertise and established trust within their communities.

Align influencer size with marketing objectives Social media influencer size should be strategically selected based on the campaign's primary objective. For purchase conversion, larger influencers are more persuasive due to their broad reach, strong brand associations, and perceived authority. They work well for widely known or mass-market products where awareness and credibility drive conversions. For brand engagement, smaller influencers tend to be more effective, as they evoke greater audience trust, stronger interaction rates, and greater perceived authenticity. They are particularly useful for niche brands, new product launches, and brands seeking long-term consumer relationships rather than one-time conversions.

Consider audience age when selecting social media influencers Social media influencer marketing effectiveness is not uniform across all age groups, and understanding generational preferences is critical to customize strategies

based on the age distribution of their target audience(s). The younger generation, such as Gen Z and Millennials, are the most receptive to social media influencers, especially those who align with their values, aesthetics, and digital consumption habits. These consumers engage heavily on platforms like TikTok, Instagram, and YouTube, making influencer collaborations highly effective for these demographics. However, older generations, such as Gen X and Baby Boomers, tend to be more skeptical of social media influencer endorsements and are less likely to engage with influencer content in the same way as younger consumers. Other forms of endorsements should be the search canvas for these generations.

Adapt message strategy based on influencer size The effectiveness of social media influencers' endorsements depends on both their size and the type of messaging. For larger influencers, a more concrete and evidence-based message enhances credibility. A well-supported, logical endorsement strategy—backed by facts, demonstrations, or testimonials—resonates better with their audience. In contrast, for smaller social media influencers, more abstract and recommendation-driven messages work better. Their audience responds more positively to broad, narrative-driven

endorsements that provide a general impression of the product's value rather than detailed specifications or hard-sell tactics. Overly detailed or “pushy” messaging from smaller influencers may backfire.

Match product strategy with influencer type and size Marketing managers must align social media influencer selection with product characteristics, particularly in terms of product type and brand familiarity. For search products—those that consumers can evaluate before purchase (Jain et al., 2000; Jain & Posavac, 2001)—larger social media influencers tend to be more effective. These influencers can provide detailed information, comparisons, and credibility-building content that aids decision-making. For experience products—those that can be fully evaluated only after use—smaller social media influencers are more effective, as they can leverage personal narratives and lifestyle integration to recommend these kinds of products more persuasively. Additionally, for well-known brands and established products, larger social media influencers help reinforce credibility and scale messaging, making them useful for mass-market promotions. However, for newer or niche brands, smaller social media influencers may be more effective.

Limitation and future research direction

Our meta-analysis is constrained by the currently available empirical research. While some additional variables have been mentioned in existing scholarship, there were insufficient data points to include them meaningfully in our analysis. Moreover, prior research exhibits certain limitations and issues, as discussed in the literature review. To address these gaps, Table 3 outlines key areas for future research along with relevant research questions that can help advance the field.

Measurement standardization

A key challenge for future research is the development of reliable and valid scales for measuring critical constructs such as influencer credibility, engagement, brand attitude, and attitude toward the ad. Current studies often use inconsistent operational definitions hindering comparability and limiting the ability to build cumulative knowledge. Future work should prioritize conceptual clarity and develop standardized measurement frameworks that can be applied across different platforms and influencer types. Doing so would facilitate more robust comparisons, meta-analytic synthesis, and theoretical advancement in influencer marketing research.

Influencers and sales

Much of the existing literature centres on intention-based outcomes—such as purchase intention or willingness to buy. Future research should move beyond such proxies and incorporate observable behavioural indicators, including transactional data, click-through rates, redemption metrics, and conversion rates which offer assessment of influencers' behavioral impact. Furthermore, comparative analyses examining how different types of influencers (e.g., large vs. small) influence behaviours—such as purchasing, or paying a price premium—can yield valuable insights. Such evidence would help marketers make more informed decisions about influencer selection and campaign design based on performance-driven metrics.

Influencer marketing versus traditional advertising

While social media has emerged as a key component of modern marketing, influencer marketing research tends to compare influencers only to other social media-based sources, such as celebrities, virtual influencers, or brand-generated posts. However, such a comparison overlooks broader strategic decisions marketers face, particularly when allocating resources between influencer marketing and advertising in traditional media (e.g., TV, radio). Future research should address this gap by examining the persuasive effectiveness of social media influencers vis-à-vis more traditional forms of advertising. Such comparisons would provide a more meaningful benchmark for assessing the relative performance of influencer marketing and offer insights into when, how, and why brands should favor influencer partnerships over conventional media channels.

Message persuasiveness

Although message-level characteristics such as emotionality or abstraction have been frequently examined, little is known about how the strength and persuasiveness of the product message itself shape consumer responses. Influencer marketing research has yet to adequately address how features such as argument quality, clarity of claims, benefit salience, and product differentiation impact the effectiveness of endorsements. These elements, central to advertising effectiveness, warrant greater attention in the context of influencer campaigns. Future studies should explore how persuasive message content interacts with influencer characteristics to influence brand attitudes, purchase intentions, and willingness to pay, offering more nuanced guidance for message strategy design.

Long-term effects of social media influencer marketing

Most research on social media influencer marketing has focused on short-term outcomes like immediate engagement and brand awareness. However, brands often pursue sustained, long-term effects of social media influencer campaigns. Do/can social media influencers foster lasting brand loyalty, or does their impact wane over time? Investigating whether the long-term impact of social media influencers follows a specific pattern will help brands manage ongoing campaigns. Brands need to understand how to maintain the impact of social media influencers beyond the initial buzz, ensuring that their marketing efforts yield lasting benefits. Furthermore, the speculation that influencers' impact is mostly short-term could spur research to explore ways and means to prolong this impact temporally.

Enhancing external validity

Future research should supplement the current experimental and survey research with field studies incorporating which can enhance external validity by simulating real-world engagement scenarios, providing more generalizable and actionable insights.

Platform-specific influencer strategies

Social media influencer marketing effectiveness is intertwined with the characteristics of each social media platform. In the current meta-analysis and based on available data, we operationalized social media platforms as Instagram versus other social media platforms such as TikTok and YouTube. The next step is to dive more deeply into micro-level differences between these and various other social media platforms. Such inquiries can provide specific insights regarding social media influencers' platform-specific strategies in light of differences across platforms (e.g., algorithmic variations) that influence persuasion.

Cultural sensitivity and global influencer campaigns

Social media influencer marketing is now global making cultural sensitivity an important consideration in campaign success. Brands and influencers must consider cultural nuances in values, communication styles, thinking, and behavior to engage audiences across different markets. Such an understanding may lead to the need to adapt messages and strategies to align with local cultures' sensibilities, ensuring that influencers as well as their content is relevant and authentic across cultural contexts.

Crisis management and influencer communication

When brands are perceived to have transgressed resulting in a crisis (Jain & Jain, 2024), they may turn to social media influencers to manage potential reputational damage (Singh et al., 2020). However, the effectiveness of this strategy is under-researched. Social media influencers may play a pivotal role in shaping public perception during product recalls or data breaches, making it crucial to understand their role in managing brand transgressions. Moreover, examining crisis scenarios' influence on the dynamics between influencers and their followers can shed light on how crisis communications impact overall brand perception and recovery.

Influencers and social marketing

Owing to their relationship with their followers, social media influencers are increasingly assuming advocacy for social causes, particularly those relevant to the younger generations (White et al., 2019). Research into how effectively social media influencers leverage their influence to promote these causes and inspire pro-social behavior is central to understanding their impact within the domain of social marketing and corporate activism. Given that authenticity is key to social media influencers' success, examining how their personal values align with the causes they associate themselves with will provide important insights into fostering trust with their audience. Moreover, exploring social media influencers' collaborations with non-profits to enhance engagement can contribute to the development of more impactful social marketing strategies.

Virtual and AI-Based influencers

Virtual influencers (computer generated character) and the more recent AI-driven virtual influencers (AI enabled characters) represent a new frontier in marketing, offering brands novel ways to engage with consumers. While our meta-analysis suggests that virtual influencers are comparable to social media influencers in fostering engagement, a more granular comparison between different types of virtual influencers such as those varying in the extent to which they appear human (e.g., more human: @lilmiquela; less human: @noonoouri) as well as characters (@nobodysausage) offers an exciting avenue for investigation. Finally, collaborative endorsements between human influencers and AI-based influencers need to be explicated as they may serve as a potential future persuasion strategy.

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Availability of supporting data The list of all studies included in the meta-analysis is available in the Web Appendix.

Declarations

Ethical approval Not applicable.

Competing interest The authors declare that they have no conflict of interest.

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