



Influencer marketing effectiveness: A meta-analytic review

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Received: 22 September 2023 / Accepted: 4 September 2024
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Abstract

Influencer marketing significantly impacts consumer behavior and decision-making. However, identifying the drivers of influencer marketing effectiveness and conditions that enhance their impact remains challenging. This meta-analysis, which synthesizes 1,531 effect sizes from 251 papers, assesses influencer marketing effectiveness by examining its antecedents, mediators, and moderators. Building on the persuasion knowledge model to develop and test a framework, we identify post, follower, and influencer characteristics as key antecedents impacting both non-transactional (i.e., attitude, behavioral engagement, and purchase intention) and transactional (i.e., purchase behavior and sales) marketing outcomes. For non-transactional outcomes, follower characteristics (social identity) have the strongest effects on consumer attitudes and behavioral engagement, while post characteristics (informational value and hedonic value) exert stronger effects on purchase intention. For transactional outcomes, influencer characteristics (influencer communication) have the strongest effects on purchase behavior. These antecedents also affect marketing outcomes indirectly through persuasion knowledge and source credibility. Moderation results indicate that direct and indirect effects of antecedents depend on social media types (i.e., nature of connection and usage) and product types (i.e., information availability and status-signaling capability). These results consolidate and advance the literature and offer insights into enhancing the effectiveness of influencer marketing.

Keywords Influencer marketing · Persuasion knowledge model · Source credibility · Purchase behavior · Sales

Introduction

Social media influencers are regular Internet-leading content creators who actively generate potentially useful content for marketers (van Reijmersdal et al., 2020). Influencers stand out through content creation and direct interaction with their audience, which enhances perceptions of them being authentic, knowledgeable, and appealing—known as

source credibility (Ohanian, 1991). Influencer marketing is a strategy for enlisting influencers to promote products and facilitate consumer purchase decision-making (Leung et al., 2022).¹ According to the Influencer Marketing Benchmark Report (2024), spending on influencer marketing surged to \$24 billion in 2024, highlighting it as a crucial advertising strategy. However, marketers struggle to use it effectively, especially in selecting appropriate influencers to achieve different non-transactional (e.g., behavioral engagement) and transactional (e.g., sales) outcomes (Beichert et al., 2023; Leung et al., 2022). It is challenging to maintain influencers' credibility while promoting products because followers increasingly perceive influencers' recommendations as mere marketing tactics, known as persuasion knowledge (Friestad & Wright, 1994). Additionally, distinct consumer preferences and platform characteristics complicate the promotion of diverse product types (Liu et al., 2020) across social media platforms (Hughes et al., 2019). These challenges

Francesca Sotgiu served as Area Editor for this article.

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¹ An influencer marketing strategy emphasizes reaching specific consumer groups with messages perceived as genuine and credible (Audrezet et al., 2020), compared with the broader strategy of celebrity endorsements, which focuses on fame and recognition to appeal to a wider consumer audience (Leung et al., 2022).

underline the need for deeper understanding of the effectiveness of influencer marketing.

The rising popularity of influencer marketing has stimulated related academic research. However, factors contributing to its effectiveness remain unclear. While some studies emphasize the positive effect of the informational value of influencer posts (Ki & Kim, 2019) and the negative impact of overt sponsorship disclosure (Kim & Kim, 2021) on consumer attitude and purchase intention, other findings suggest the opposite (Chen et al., 2023; Hughes et al., 2019). Research shows that consumer knowledge (follower characteristics) can impede behavioral engagement with influencer posts, as informed consumers may perceive advertisements from well-known brands as overly commercial (Wies et al., 2023). However, contrasting findings suggest that consumer knowledge can influence consumer behavior positively (Kay et al., 2020). Additionally, studies report mixed results on the effects of influencer indegree (an influencer's follower count) on marketing outcomes (Hughes et al., 2019; Kay et al., 2020; Park et al., 2021). These contradictory findings call for a comprehensive understanding of the drivers of influencer marketing effectiveness.

The discrepancies in the literature may arise from the challenges that influencers face in balancing their credibility with commercial opportunities (Audrezet et al., 2020; Chen et al., 2023). Persuasion knowledge theory can explain these behaviors, as consumer skepticism regarding influencers' motives—viewing them as profit-driven rather than genuine—threatens influencer credibility. This skepticism, a manifestation of persuasion knowledge (Friestad & Wright, 1994), adversely impacts the credibility of influencer recommendations (Kim & Kim, 2021). Although research has explored the mediating roles of persuasion knowledge and source credibility (e.g., Belanche et al., 2021; De Veirman & Hudders, 2020) (see Table 1), it remains necessary to examine how various antecedents influence these concepts and collectively affect influencer marketing outcomes.

Finally, studies have yet to offer clear insights into how social media and product types impact influencer marketing effectiveness. Although research provides preliminary insights into the impacts of social media platforms (Instagram vs. YouTube) and product types (hedonic vs. utilitarian) (e.g., Han & Balabanis, 2023), it overlooks the diversity within these categories. Thus, detailed guidance on strategic allocation of influencer marketing spending across different social media platforms and products is lacking.

Against this backdrop, we conduct a meta-analysis to examine holistically the empirical research and address the following questions: What are the antecedents of influencer marketing effectiveness? What are the mediators between these antecedents and marketing outcomes? What moderators influence these relationships? Building on the persuasion knowledge model (PKM; Friestad & Wright, 1994),

we develop a conceptual framework for influencer marketing effectiveness. First, we examine the impacts of various characteristics of posts (e.g., informational value), followers (e.g., consumer materialism), and influencers (e.g., influencer indegree) on different transactional and non-transactional marketing outcomes. We then explore the mediating effects of persuasion knowledge and source credibility between antecedents and these marketing outcomes, deepening insights into consumers' cognitive processes during interactions with influencer recommendations. Furthermore, we assess whether social media types (profile-/content-based, utilitarian/hedonic) and product types (experience/search, functional/self-expressive) influence the relationships between antecedents and marketing outcomes. These analyses enhance the understanding of consumer responses to persuasion attempts across different social media platforms and product types. Meta-analyses are considered appropriate for such evaluations as they are more powerful than individual studies (Blut et al., 2016).

Persuasion knowledge model

Persuasion knowledge refers to consumer beliefs regarding the motives and tactics of persuasion agents (Friestad & Wright, 1994). The PKM describes how individuals utilize such beliefs to cope with persuasive attempts. Its application in marketing is growing, with research focusing on activation triggers and consequences of persuasion knowledge.

According to the PKM, the direction (e.g., awareness of manipulative intent) and depth (e.g., cognitive capability) of information processing influence the activation of persuasion knowledge (Friestad & Wright, 1994). In the advertising context, post, follower, and influencer characteristics impact this activation by revealing manipulative intent and affecting depth of cognitive processing. Followers with more cognitive resources are more likely to process persuasive messages deeply (Eisend & Tarrahi, 2022; van Reijmersdal et al., 2020); contextual factors such as post and influencer characteristics that signal hidden motives or manipulative intent can lead individuals to think more critically and skeptically about persuasive messages (Eisend & Tarrahi, 2022).

According to the PKM, persuasion knowledge influences perceived source credibility by enabling individuals to assess critically the underlying intentions and tactics of persuasion agents (e.g., influencers) (Friestad & Wright, 1994). When motives are perceived as self-serving or manipulative, influencers' perceived credibility diminishes (Audrezet et al., 2020). Persuasion knowledge may also influence marketing outcomes, although results are inconclusive. Most studies indicate a negative role of persuasion knowledge in consumer attitude (Kim & Kim, 2021), behavioral engagement, and purchase intention (Hwang & Zhang, 2018). However,

Table 1 Selective literature review of influencer marketing

Author(s) (Year)	Sample size	Method	Platform	Product	Antecedents	Outcomes	Testing Mediator?			Testing Moderator?
							PK	SC	PK & SC	
No persuasion knowledge and source credibility as the mediators										
Ao et al. (2023)	176 effect sizes from 62 studies	Meta-analysis	—	—	Influencer–brand fit, entertainment, and informative value	Engagement and purchase intention	N	N	N	N
Beichert et al. (2023)	1,881,533 purchases	Field data	Instagram	Fashion	Influencer indegree	Revenue and ROIs	N	N	N	N
Han and Balabanis (2023)	250 effect sizes from 53 studies	Meta-analysis	Instagram vs. YouTube	Hedonic vs. utilitarian products	Influencer–brand fit and informative value	Attitude, engagement, and purchase intention	N	N	N	Y
Hughes et al. (2019)	1237 posts	Field data and experiment	Facebook and Twitter	Travel, food, lifestyle, etc.	Hedonic value	Engagement	N	N	N	Y
Leung et al. (2022)	2412 influencers	Field data	Weibo	29 categories	Influencer marketing spend	Engagement	N	N	N	N
Liu et al. (2020)	363	Survey and experiment	—	Mobile phone	Influencer communication, actual and ideal self-congruence	Purchase intention	N	N	N	Y
Wies et al. (2023)	802 campaigns	Field data and experiment	Instagram	Beauty, fashion, jewelry, etc.	Influencer indegree	Engagement	N	N	N	N
Persuasion knowledge as the mediator										
Boerman (2020)	192	Experiment	Instagram	Dress	Sponsorship disclosure type	Engagement	Y	N	N	N
De Cicco et al. (2021)	195	Experiment	Instagram	Books	Influencer–product fit	Influencer attitude and engagement	Y	N	N	N
Kim and Kim (2021)	185 (Study 1); 229 (Study 2)	Experiment	Instagram, Facebook, etc.	Beverage, smoothie blender, air fryer, hair dryer, and vacuum cleaner	Sponsorship disclosure type and influencer–brand fit	Product attitude	Y	N	N	N
Source credibility as the mediator										
De Jans et al. (2018)	160	Experiment	YouTube	Juice	Sponsorship disclosure type	Purchase intention	N	Y	N	N
Munnukka et al. (2019)	203	Experiment	YouTube	Traveling	Audience participation	Brand attitude	N	Y	N	N
Zogaj et al. (2021)	197 (Study 1); 307 (Study 2)	Survey	Facebook, Twitter, and Instagram	Samsung products, etc.	Actual and ideal self-congruence	Purchase intention	N	Y	N	N

Table 1 (continued)

Author(s) (Year)	Sample size	Method	Platform	Product	Antecedents	Outcomes	Testing Mediator?			Testing Moderator?
							PK	SC	PK & SC	
Persuasion knowledge and source credibility as the mediators										
Belanche et al. (2021)	341	Survey	Instagram	—	Influencer-product fit	Engagement	Y	Y	Y	N
De Veirman and Hudders (2020)	355	Experiment	Instagram	Energy bars	Sponsorship disclosure type	Brand attitude	Y	Y	Y	N
This study	1,531 effect sizes from 251 studies	Meta-analysis	Nature of connection and usage	Information availability and status-signaling capability	Post, follower, and influencer characteristics	Non-transactional and transactional outcomes	Y	Y	Y	Y

PK persuasion knowledge; SC source credibility

some studies suggest positive (De Cicco et al., 2021) or non-significant (De Jans et al., 2018) effects. The effect of persuasion knowledge varies depending on the cues (e.g., channels and messages) provided to consumers during persuasion attempts (Eisend & Tarrahi, 2022). For example, consumers may evaluate persuasive attempts differently across social media platforms, depending on the attributes of each platform (Eisend & Tarrahi, 2022; Hughes et al., 2019). Consumers are more sensitive to persuasive attempts when the information on platforms does not align with their motivation for using those platforms (Kelly et al., 2010). Additionally, product types may moderate the persuasion processes (Eisend & Tarrahi, 2022); consumers are more skeptical about marketing messages for products that necessitate detailed product information before purchase (Huang et al., 2009; Steinhart et al., 2014).

To sum up, this meta-analysis utilizes the PKM to examine the drivers and mediators of influencer marketing effectiveness and the factors moderating these effects. Figure 1 depicts the conceptual framework, and the following section discusses our hypotheses.

Hypothesis development

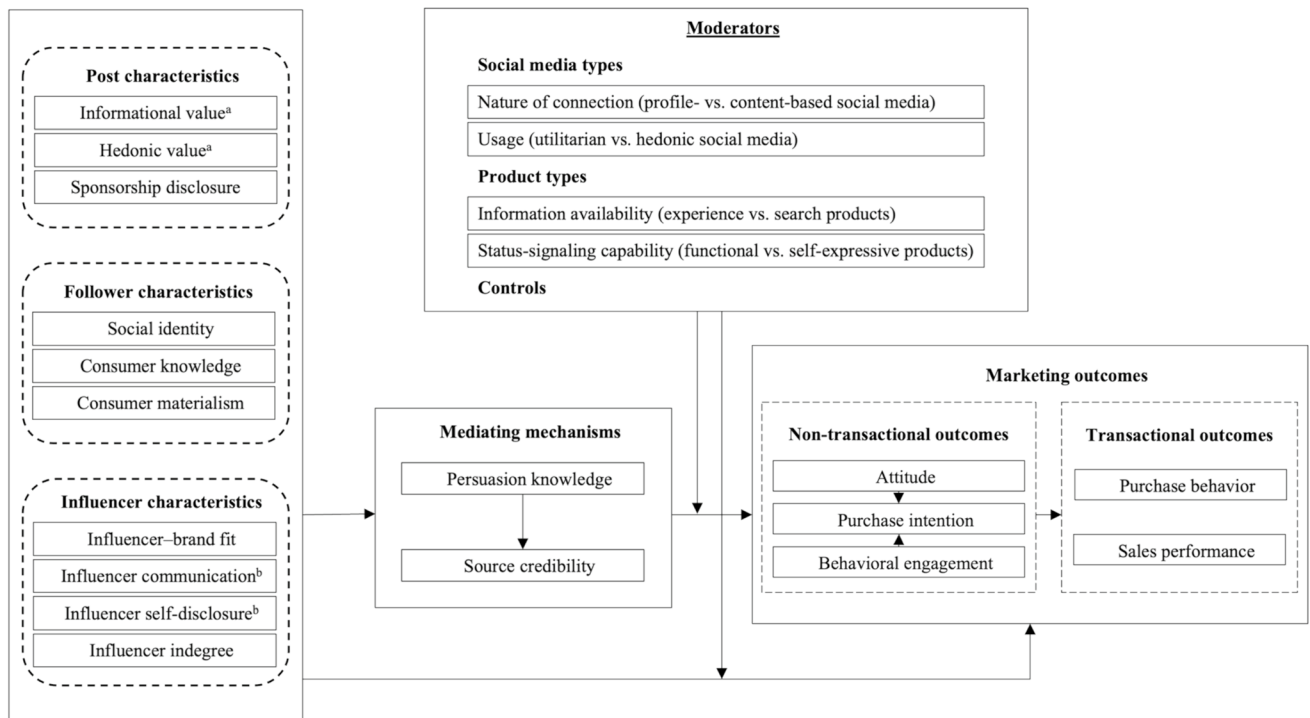
Like other meta-analyses (e.g., Blut et al., 2023), instead of deriving formal hypotheses for direct and indirect effects, we present the meta-analytical evidence and discuss how our results resolve discrepancies. However, we do formally derive hypotheses for moderators because of their novelty. Table 2 shows the hypothesized relationships.

Antecedents of influencer marketing effectiveness

Post characteristics According to the PKM and influencer marketing literature, influencer post characteristics can indicate manipulative intent, directly influencing marketing outcomes (De Veirman & Hudders, 2020; Kim et al., 2019). We examine the effects of three post characteristics on marketing outcomes: informational value, hedonic value, and sponsorship disclosure (Hughes et al., 2019; Leung et al., 2022).

Informational value refers to the informativeness of influencer posts (Hughes et al., 2019). Access to informative content helps consumers understand a product and facilitates decision-making. Therefore, posts rich in informational value enhance consumer behavioral engagement and purchase intention (Ki & Kim, 2019), leading to positive purchase behavior (Fakhreddin & Foroudi, 2021) and increased sales (Ren et al., 2023).

Hedonic value refers to the enjoyment consumers experience from influencer posts (Hughes et al., 2019). Hedonic



a. We combine informational value and hedonic value as content value (Hughes et al. 2019) in SEM. b. We also combine influencer communication and influencer self-disclosure as interaction strategies (Aw et al. 2022) in the same analysis.

Fig. 1 Conceptual model of influencer marketing effectiveness

posts tap into emotional and sensory experiences, offering enjoyment and pleasure (Park & Lin, 2020). They appeal to consumers emotionally and foster a connection with the product, enhancing consumer engagement with the brand (Hughes et al., 2019) and increasing purchase intention (Park & Lin, 2020) as well as purchase behavior (Croes & Bartels, 2021).

Sponsorship disclosure refers to the acknowledgment that a brand sponsors the post or shared content (Hwang & Jeong, 2016). Such disclosure promotes perceived transparency, enhancing the perceived honesty of influencers (Hwang & Jeong, 2016). It can improve consumer attitude and engagement (Hwang & Jeong, 2016), potentially increasing purchase behavior (Croes & Bartels, 2021) and sales (Beichert et al., 2023).

Follower characteristics According to the influencer marketing literature, follower characteristics shape how consumers process influencer recommendations, impacting the effectiveness of influencer marketing strategies (Kay et al., 2020; Lee et al., 2022). We examine the impacts of social identity, consumer knowledge, and consumer materialism on these processes (Croes & Bartels, 2021; Lee et al., 2022; Park et al., 2021).

Social identity refers to individuals' self-perceptions based on emotional and value significance of group memberships (Tajfel, 1974). For followers, social identity stems from a sense of belonging within influencer communities, fostering a psychological identity-based attachment and brand commitment (Croes & Bartels, 2021). This identification strongly predicts behavioral engagement and purchase behavior (Croes & Bartels, 2021).

Consumer knowledge reflects consumers' perceived familiarity and expertise in product- and brand-related information (Kay et al., 2020). Consumers with more knowledge can evaluate different options more effectively, facilitating informed decision-making (Kay et al., 2020). This enhanced understanding profoundly impacts their attitude toward the product, behavioral engagement, purchase intention, and, ultimately, purchase behavior and sales (Kay et al., 2020; Park et al., 2021).

Consumer materialism refers to the importance individuals assign to material possessions as a means of value representation, including success, centrality, and happiness (Lee et al., 2022). Materialists seek to compensate for psychological deficiencies through material acquisition, positively influencing consumer attitude (Lee et al., 2022) and purchase intention (Lou & Kim, 2019), leading to purchase behavior (Croes & Bartels, 2021).

Table 2 Expected relationships in influencer marketing

Variables	Expected Relationships	Direction	Representative Studies
Post Characteristics			
Informational value	Influencer posts with informational value have positive effects on non-transactional outcomes, including consumer attitude, behavioral engagement, and purchase intention, as well as transactional outcomes, including purchase behavior and sales performance.	+	Ki and Kim (2019); Ren et al. (2023)
Hedonic value	Influencer posts with hedonic value have positive effects on non-transactional outcomes, including consumer attitude, behavioral engagement, and purchase intention, as well as transactional outcomes, including purchase behavior and sales performance.	+	Croes and Bartels (2021); Hughes et al. (2019)
Sponsorship disclosure	Sponsorship disclosure of influencer posts positively influences non-transactional outcomes, including consumer attitude, behavioral engagement, and purchase intention, as well as transactional outcomes, including purchase behavior and sales performance.	+	Hwang and Jeong (2016)
Follower Characteristics			
Social identity	The more consumers identify with influencers, the more consumers will have higher non-transactional outcomes, including consumer attitude, behavioral engagement, and purchase intention, as well as transactional outcomes, including purchase behavior and sales performance.	+	Croes and Bartels (2021)
Consumer knowledge	Consumers with more knowledge are more likely to have higher non-transactional outcomes, including consumer attitude, behavioral engagement, and purchase intention, as well as transactional outcomes, including purchase behavior and sales performance.	+	Park et al. (2021); Sanosra and Susanti (2023)
Consumer materialism	Consumer materialism has positive effects on non-transactional outcomes, including consumer attitude, behavioral engagement, and purchase intention, as well as transactional outcomes, including purchase behavior and sales performance.	+	Lee et al. (2022); Lou and Kim (2019)
Influencer Characteristics			
Influencer–brand fit	Congruence between the influencer and brand has positive effects on non-transactional outcomes, including consumer attitude, behavioral engagement, and purchase intention, as well as transactional outcomes, including purchase behavior and sales performance.	+	Belanche et al. (2021); Torres et al. (2019)
Influencer communication	The more influencers interact with followers, the more consumers will have higher non-transactional outcomes, including consumer attitude, behavioral engagement, and purchase intention, as well as transactional outcomes, including purchase behavior and sales performance.	+	Ki et al. (2022); Ki and Kim (2019)
Influencer self-disclosure	Perceived influencer self-disclosure has positive effects on non-transactional outcomes, including consumer attitude, behavioral engagement, and purchase intention, as well as transactional outcomes, including purchase behavior and sales performance.	+	Aw et al. (2022); Chen et al. (2023)

Table 2 (continued)

Variables	Expected Relationships	Direction	Representative Studies
Influencer indegree	Influencer indegree has positive effects on non-transactional outcomes, including consumer attitude, behavioral engagement, and purchase intention, as well as transactional outcomes, including purchase behavior and sales performance.	+	Gu et al. (2024); Hashem (2021); Park et al. (2021)
Mediators			
Persuasion knowledge	Persuasion knowledge negatively mediates the positive effects of (a) post characteristics, (b) follower characteristics, and (c) influencer characteristics on non-transactional outcomes, including consumer attitude, behavioral engagement, and purchase intention, as well as transactional outcomes, including purchase behavior and sales performance. Persuasion knowledge negatively influences the perceived source credibility of influencers.	–	Belanche et al. (2021); De Veirman and Hudders (2020)
Source credibility	Perceived source credibility of influencers positively mediates the positive effects of (a) post characteristics, (b) follower characteristics, and (c) influencer characteristics on non-transactional outcomes, including consumer attitude, behavioral engagement, and purchase intention, as well as transactional outcomes, including purchase behavior and sales performance.	+	Belanche et al. (2021); De Veirman and Hudders (2020)

Influencer characteristics According to the influencer marketing literature, influencer characteristics can signal ulterior motives, directly influencing marketing outcomes (De Cicco et al., 2021). Some key influencer characteristics include influencer–brand fit, influencer communication, influencer self-disclosure, and influencer indegree (Belanche et al., 2021; Chen et al., 2023; Hughes et al., 2019).

Influencer–brand fit refers to the similarity between influencers and brands (Torres et al., 2019). This alignment facilitates efficient communication of the brand’s meanings and values to consumers (Park & Lin, 2020). When influencers share strong similarities with a brand, they are more likely to display positive attitudes and purchase intention (Torres et al., 2019). This congruence can lead to improved purchase behavior and increased sales (Beichert et al., 2023; Croes & Bartels, 2021).

Influencer communication refers to the degree to which consumers perceive influencers communicate and exchange information (Ki et al., 2022). This personalized interaction makes consumers feel valued and acknowledged, leading them to consider influencer recommendations more deeply (Ki & Kim, 2019). Higher perceived interactivity boosts consumers’ processing of influencers’ opinions (Ki & Kim, 2019), enhancing behavioral engagement and sales (Beichert et al., 2023).

Influencer self-disclosure refers to the extent to which influencers reveal personal information (Chung & Cho, 2017). With social media facilitating widespread and frequent personal content sharing (Leite & Baptista, 2022), self-disclosure promotes a deeper understanding of influencers’ inner state (Chung & Cho, 2017) and feelings of friendliness and connection (Leite & Baptista, 2022). Research highlights the crucial impact of self-disclosure on enhancing behavioral engagement and purchase intention (Aw et al., 2022; Chen et al., 2023), which contributes to increased sales (Beichert et al., 2023).

Influencer indegree refers to an influencer’s follower count (Wies et al., 2023). Influencers with a more extensive follower base enjoy greater popularity and visibility (Wies et al., 2023). This increases the likelihood of reaching broader audiences, thereby effectively influencing behavioral engagement (Hughes et al., 2019), purchasing behavior (Hashem, 2021), and sales (Gu et al., 2024).

Mediators of influencer marketing effectiveness

In line with the PKM and advertising literature, we examine the indirect effects of different antecedents on transactional and non-transactional marketing outcomes through the mediators of persuasion knowledge and source credibility (De Veirman & Hudders, 2020).

Persuasion knowledge The characteristics of posts, followers, and influencers can significantly affect persuasion knowledge and thus impact marketing outcomes (Eisend & Tarrahi, 2022; Kim & Kim, 2021). Post characteristics, including content value and sponsorship disclosure, can indicate manipulative intent behind the content, prompting more cautious engagement with the post and potentially altering consumer purchase decisions. Research shows that persuasion knowledge mediates the effect of content value and sponsorship disclosure on consumer responses (e.g., brand attitude and purchase intention) (De Veirman & Hudders, 2020; Kim et al., 2019).

Follower characteristics, including social identity, consumer knowledge, and materialism, shape how consumers process persuasive messages (Farivar & Wang, 2022; van Reijmersdal et al., 2020), affecting their evaluation of marketing strategies. For example, social identity can lead to in-group favoritism (Croes & Bartels, 2021), potentially making followers overlook critical evaluation of influencer recommendations and thus impacting marketing outcomes. Moreover, materialistic followers are more receptive to persuasive posts that resonate with their aspirations for success and happiness (Lee et al., 2022), reinforcing materialistic behaviors such as purchasing. Conversely, knowledgeable consumers are adept at recognizing persuasive tactics (Kay et al., 2020), enabling them to assess influencer endorsements critically and thus impact their behaviors.

Finally, influencer characteristics, such as influencer–brand fit, self-disclosure, communication, and indegree, are crucial in revealing or obscuring the marketing intent behind influencers' posts. These factors influence consumer responses to persuasive efforts and consumer behavior. Studies indicate that persuasion knowledge mediates the impact of influencer–brand fit on consumer attitude and purchase intention (De Cicco et al., 2021; Kim & Kim, 2021). Additionally, influencer self-disclosure and communication foster interaction, reducing consumer persuasion knowledge and thus enhancing purchase intention (Hwang & Zhang, 2018; Leite & Baptista, 2022). Conversely, an influencer's high indegree makes consumers more aware of possible commercial exploitation (Park et al., 2021).

Source credibility The PKM suggests that consumers evaluate influencer credibility by assessing whether underlying intentions and tactics are self-serving or manipulative (Friestad & Wright, 1994). They evaluate various characteristics, including the personal attributes of influencers (Aw et al., 2022; Leite & Baptista, 2022), the nature of their followers (Lee et al., 2022), and the content of their posts (De Cicco et al., 2021; Ki & Kim, 2019). The perceived credibility of influencers contributes to communication efficiency and openness to receiving persuasive messages (Ohanian, 1991), influencing consumer attitude (Torres et al., 2019),

behavioral engagement (Hughes et al., 2019), and purchase intention (Ki & Kim, 2019).

Influencers can enhance their credibility by delivering valuable content and disclosing sponsorships (post characteristics), which can elevate their posts' perceived quality and honesty, leading to enhanced marketing outcomes (De Cicco et al., 2021; Ki & Kim, 2019). Furthermore, follower characteristics influence perceived influencer credibility through various dimensions. Social identity can enhance influencer credibility by fostering a sense of community among followers who identify with influencers (Tajfel, 1974). Consumers with greater knowledge of a subject (consumer knowledge) are better equipped to evaluate influencer posts critically (Kay et al., 2020), impacting their judgment of influencer credibility. Consumer materialism influences perceptions of influencer credibility because materialistic followers are drawn to influencers who reflect their aspirations and material value through their endorsements and lifestyles (Lee et al., 2022).

Regarding influencer characteristics, influencer–brand fit enhances influencers' image and perceptions of their credibility (Park & Lin, 2020). Social interaction, exemplified by influencer communication and self-disclosure, nurtures the influencer–follower bond, making followers more inclined to accept influencer recommendations and enhancing influencer credibility (Ki & Kim, 2019). A broad social network (indegree) signals influencers' experience and expertise in their niche, implying successful engagement and retention of a wide consumer base, further consolidating their credibility (Park et al., 2021).

Moderators of influencer marketing effectiveness

Studies on PKM and advertising indicate that social media (Hughes et al., 2019) and product types (Park et al., 2021) can significantly affect consumers' responses to persuasion attempts and promotional activities (Eisend & Tarrahi, 2022). Therefore, we assess the moderating effects of these variables on marketing outcomes. Due to limited effect sizes for transactional outcomes, we focus here on non-transactional outcomes. Hypotheses 1 to 6 focus on social media types; Hypotheses 7 to 12 focus on product types.

In terms of social media types, consumers are more sensitive to influencer content on social media when it does not align with their motivations for using such platforms (Kelly et al., 2010). Ensuring persuasive attempts resonate with user motivations can enhance market effectiveness by reducing resistance to influencer recommendations. Social media can be distinguished by the nature of connection (profile- vs. content-based) (Zhu & Chen, 2015) (see Panel A in Table 3). Profile-based social media platforms (e.g., Facebook and LinkedIn) focus on individual identities and activities where consumers follow or

Table 3 Classification of social media and product types

Panel A: Social media types considered in the meta-analysis	
Usage (B)	<p>Utilitarian social media (3) These social media platforms are utilitarianly oriented and purposed (Reich & Pittman, 2020).</p> <p>Hedonic social media (4) These social media platforms are hedonically oriented and purposed (Reich & Pittman, 2020).</p>
Panel B: Product types considered in the meta-analysis	
Status-signaling capability (B)	<p>Self-expressive products (3) These products are commonly perceived to serve as manifestations of the identity of individuals, shaping their self-concepts (Steinhart et al. 2014).</p> <p>Functional products (4) These products are essential and utilitarian instruments that empower individuals to accomplish a specific and practical undertaking (Steinhart et al. 2014)</p>
Nature of connection (A)	
Content-based social media (1)	These social media platforms connect users based on shared interests in the content (Zhu & Chen, 2015). e.g., Bilibili, Little Red Book, Pinterest
Profile-based social media (2)	These social media platforms connect users around their personal and/or professional profiles (Zhu & Chen, 2015). e.g., LinkedIn, Twitter
	e.g., Facebook, WeChat, Weibo
	e.g., Snapchat, TikTok
	e.g., Snapchat, TikTok
Information availability (A)	
Search products (1)	These products' attributes are objective, can be easier to discover, compare, and evaluate objectively without having direct product integrations (Huang et al., 2009). e.g., Electronic products: Apple iPhone, Canon camera; Jewelry accessories: gold bracelets, diamond rings, jade pendant
Experience products (2)	These products' attributes are inherently subjective and are more readily discernible through personal behavioral interaction with the product (Huang et al., 2009). e.g., Fashion products: luxury bags, clothes; Automobiles: BMW, Mercedes
	e.g., Personal hygiene: toothpaste, shampoo; Medicine

connect with others to build networks centered around personal or professional profiles. Content-based social media platforms (e.g., YouTube and Pinterest) revolve around shared interests in particular content, leading to connections focused more on content than individual identities. Social media platforms also differ by usage, offering either practical or entertainment value (utilitarian vs. hedonic social media) (Reich & Pittman, 2020) (see Panel A in Table 3). Platforms cater to various user needs, from learning new skills or professional networking to seeking entertainment and leisure. For example, Snapchat and TikTok are known for their high hedonic value, whereas LinkedIn is perceived as more utilitarian (Lou et al., 2022).

Nature of connection (profile- vs. content-based social media) Profile-based platforms are mainly used for managing relationships with “friends,” focusing on personal connections. In contrast, content-based platforms center around “followers,” where consumers’ preferences for specific content drive interactions (Zhu & Chen, 2015). In influencer marketing, the interaction process is more follower- than friend-focused, such that followers are more engaged in influencer posts on content-based (vs. profile-based) social media. The PKM posits that the effectiveness of persuasive communication is influenced by consumers’ recognition and interpretation of the persuasion attempt (Friestad & Wright, 1994). The communication model highlights that messages (post characteristics), receivers (follower characteristics), and senders (influencer characteristics) can be disrupted by so-called noise—additional signals that interfere with the primary message (Foulger, 2004). In profile-based social media, influencer recommendations often act as noise, disrupting the primary user experience and making consumers more skeptical and less receptive to messages. Conversely, in content-based social media, the lower level of platform distraction leads to more effective marketing outcomes (Hughes et al., 2019).

H1 The positive effects of (a) post characteristics, (b) follower characteristics, and (c) influencer characteristics on marketing outcomes (attitude, behavioral engagement, purchase intention) are stronger on content-based than profile-based social media platforms.

In profile-based social media platforms, where interactions are often rooted in personal relationships (Zhu & Chen, 2015), consumers exhibit heightened sensitivity to persuasive attempts (Kelly et al., 2010). When consumers detect persuasive content amidst personal interactions, their persuasion knowledge leads to stronger negative reactions, as the marketing effort invades their personal space and is perceived as intrusive or manipulative (Eisend & Tarrahi, 2022), adversely affecting consumer behaviors. Conversely, content-based

social media platforms revolve around content linked to shared interests (Zhu & Chen, 2015). The inherent purpose of content-based platforms is to mitigate the negative impact of persuasion knowledge, as consumers are predisposed to discover and interact with content, even if it is promotional. Therefore, although persuasion knowledge still influences consumer reactions on content-based platforms, its negative effects on attitudes, engagement, and purchase intentions are likely to be attenuated compared to profile-based social media.

H2 The negative effects of persuasion knowledge on (a) attitude, (b) behavioral engagement, and (c) purchase intention are stronger on profile-based than content-based social media platforms.

The positive effects of source credibility on marketing outcomes vary across content-based and profile-based social media. On content-based social media, where connections and interactions are driven by shared interests, consumers rely on persuasion knowledge to evaluate the credibility of content creators because of the lack of personal connections, making source credibility crucial for influencer marketing success (Belanche et al., 2021). In contrast, profile-based social media builds connections based on existing personal relationships (Zhu & Chen, 2015), fostering familiarity and trust among individuals. This reduces reliance on persuasion knowledge, weakening the impact of perceived source credibility on consumer behaviors on profile-based (vs. content-based) social media.

H3 The positive effects of source credibility on (a) attitude, (b) behavioral engagement, and (c) purchase intention are stronger on content-based than profile-based social media platforms.

Usage (utilitarian vs. hedonic social media) Hedonic social media is primarily used to pursue enjoyment and pleasure, while utilitarian social media use is motivated by the need to search for and exchange information (Reich & Pittman, 2020). On utilitarian social media, consumers seek specific information, making them aware of potential persuasive attempts and prompting them to use persuasion knowledge to process marketing-related information, including characteristics of influencers, followers, and posts (Friestad & Wright, 1994; Reich & Pittman, 2020). In contrast, on hedonic social media, the focus on enjoyment may result in less engagement with content and critical evaluation of the intent behind marketing messages. Hence, the effects of posts, followers, and influencer characteristics on marketing outcomes are stronger on utilitarian than hedonic social media platforms.

H4 The positive effects of (a) post characteristics, (b) follower characteristics, and (c) influencer characteristics on marketing outcomes (attitude, behavioral

engagement, purchase intention) are stronger on utilitarian than hedonic social media platforms.

On hedonic (vs. utilitarian) social media, the effect of persuasion knowledge on marketing outcomes can vary with consumers' mindsets (Reich & Pittman, 2020). Hedonic social media platforms, designed for leisure and emotional gratification (Lou et al., 2022), put consumers in a leisure-oriented mindset, making them less prepared for the critical processing of persuasive attempts. Consequently, persuasive content feels like an unwanted disruption, leading to stronger adverse reactions. Conversely, utilitarian social media platforms, focused on professional development, learning, and practical information exchange (Lou et al., 2022), cultivate an environment where consumers expect and are prepared for persuasive attempts that align with their utilitarian goals. This goal-oriented mindset makes them less sensitive to persuasion. When persuasion knowledge is activated, the persuasive attempt contrasts more starkly on hedonic (vs. utilitarian) social media, resulting in a more pronounced negative reaction.

H5 The negative effects of persuasion knowledge on (a) attitude, (b) behavioral engagement, and (c) purchase intention are stronger on hedonic than utilitarian social media platforms.

Source credibility has a more positive influence on marketing outcomes on utilitarian (vs. hedonic) social media due to its focus on informational and professional value (Lou et al., 2022). On utilitarian social media, consumers have explicit objectives and rely on persuasion knowledge to discern credible sources that offer reliable, relevant information aligned with their goals. This recognition of source credibility leads to more favorable marketing outcomes. Conversely, on hedonic social media, which caters to consumers' desires for entertainment and relaxation, consumers may prioritize enjoyment over assessing the intentions behind the source (Lou et al., 2022). Consequently, although a credible source enhances content appreciation, its impact on marketing outcomes is less pronounced.

H6 The positive effects of source credibility on (a) attitude, (b) behavioral engagement, and (c) purchase intention are stronger on utilitarian than hedonic social media platforms.

In terms of product types, consumers are more skeptical of marketing messages for products that require detailed information and functionality before purchase (Huang et al., 2009; Steinhart et al., 2014). This skepticism stems from the need for rigorous evaluation of product attributes and performance, leading to critical assessment of the information reliability (Eisend & Tarrahi, 2022). Products can be categorized into search and experience products based on the accessibility of information about product quality (information availability) before purchase (Huang

et al., 2009) (see Panel B in Table 3). Search products (e.g., camera) can be more accessible to evaluate and compare without direct interaction with the product, while experience products (e.g., vacation packages) rely on personal interaction (Huang et al., 2009). Another influential product type is characterized by status-signaling capability (self-expressive vs. functional) (Steinhart et al., 2014) (see Panel B in Table 3). Functional products are essential goods that enable individuals to achieve practical tasks; self-expressive products reflect and define users' identity, with purchasing decisions driven by the product's ability to convey self-identities and social meanings (Steinhart et al., 2014).

Information availability (experience vs. search products) Influencer marketing impacts how consumers benefit from information availability of search and experience products. Research indicates that third-party recommendations (e.g., influencers) have a stronger effect on consumer search and purchase behavior for experience products (Huang et al., 2009; Park & Lee, 2009). According to the PKM (Friestad & Wright, 1994), influencer and post characteristics can signal manipulative intent behind the persuasive agent and message, affecting how consumers use their persuasion knowledge to process influencer recommendations. When influencers share product details and personal experiences, they reduce uncertainty regarding the product quality and performance. This is useful for experience (vs. search) products, where subjective attributes and personal endorsements influence consumer decision-making. Follower characteristics also shape the interpretation and evaluation of marketing messages (Eisend & Tarrahi, 2022). Consumer knowledge, including familiarity and expertise with product- and brand-related information, has advantages when product attributes are more subjective and less accessible from other sources. Experience (vs. search) products benefit from social identity effects because influencers' personal experiences make them more relatable and influential. Consumers with low levels of materialism also prioritize objective product information (Audrin et al., 2018). Consequently, experience (vs. search) products amplify the positive effect of consumer materialism on marketing outcomes.

H7 The positive effects of (a) post characteristics, (b) follower characteristics, and (c) influencer characteristics on marketing outcomes (attitude, behavioral engagement, purchase intention) are stronger for experience than search products.

The negative effect of persuasion knowledge is stronger for search (vs. experience) products because consumers rely more on pre-purchase information than on post-purchase experiences. For search products, the consumer decision-making process is heavily anchored in the pre-purchase phase, where detailed product information is scrutinized to make informed decisions (Huang et al., 2009). For experience products, the evaluation process primarily occurs post-purchase through

direct consumption (Huang et al., 2009). Hence, when consumers detect persuasion attempts, their skepticism toward the advertised benefits of search products increases. This skepticism stems from their reliance on detailed product information before purchase, but they understand that the value of experience products unfolds only through utilization. Thus, persuasion knowledge can more markedly influence consumer behaviors regarding search (vs. experience) products.

H8 The negative effects of persuasion knowledge on (a) attitude, (b) behavioral engagement, and (c) purchase intention are stronger for search than experience products.

The impact of source credibility on marketing outcomes is contingent on experience (vs. search) products. According to the PKM (Friestad & Wright, 1994), consumers leverage their persuasion knowledge to assess the credibility of endorsers, which directly influences their purchase decisions. For experience products, whose value and satisfaction are realized through utilization (Huang et al., 2009), influencer endorsements carry substantial weight because they serve as surrogates for the firsthand experience consumers cannot obtain before purchase (Park & Lee, 2009). For search products, however, consumers can independently verify attributes and quality before purchase. Thus, the perception of influencer credibility exerts a stronger influence on consumer behaviors regarding experience (vs. search) products.

H9 The positive effects of source credibility on (a) attitude, (b) behavioral engagement, and (c) purchase intention are stronger for experience than search products.

Status-signaling capability (functional vs. self-expressive products) The beneficial impact of self-expressive products in conveying their owners' identity (Berger & Heath, 2007) is heightened in influencer marketing contexts. According to the PKM (Friestad & Wright, 1994), consumers' understanding of persuasive intent, combined with their emotional and social engagement with influencers, leads to more immediate and significant marketing outcomes. Within the dynamic social environments fostered by influencer marketing, followers form interactive and supportive relationships with influencers and their communities, creating a microculture with shared norms (Farivar & Wang, 2022). The resulting sense of identification and perceived membership profoundly impact consumer behavior, with self-expressive products symbolizing individuals' social identity (Steinhart et al., 2014). Moreover, self-expressive products that cater to social status, including preferences, values, or beliefs, rely heavily on the emotional resonance and pleasure conveyed by influencers (Morgan & Townsend, 2022). Consequently, influencer marketing elements, including the characteristics of posts, followers, and

influencers, have a stronger impact on consumer behaviors for self-expressive (vs. functional) products.

H10 The positive effects of (a) post characteristics, (b) follower characteristics, and (c) influencer characteristics on marketing outcomes (attitude, behavioral engagement, purchase intention) are stronger for self-expressive than functional products.

The negative effects of persuasion knowledge are more pronounced for functional (vs. self-expressive) products because of the distinct intrinsic motivations behind consumer interactions. Consumers purchase functional products for their practicality in meeting specific needs (Steinhart et al., 2014) and thus are more critical when evaluating product specifications. Conversely, consumers purchase self-expressive products not just for their utility but also their ability to convey status or identity with a particular group (Steinhart et al., 2014). When choosing self-expressive products, consumers prioritize alignment with their self-concept and emotional satisfaction. This makes them more susceptible to peripheral cues such as endorsements by influencers they identify with (Hogg, 2018). When consumers detect persuasion attempts while evaluating functional (vs. self-expressive) products, they become more skeptical of the marketing messages during such information processing. This activates persuasion knowledge, which dampens marketing outcomes.

H11 The negative effects of persuasion knowledge on (a) attitude, (b) behavioral engagement, and (c) purchase intention are stronger for functional than self-expressive products.

Source credibility has a more significant influence on consumer behaviors toward self-expressive (vs. functional) products, as consumers rely on peripheral cues to make purchasing decisions when evaluating self-expressive consumption (Park et al., 2021). Self-expressive products serve as symbols of identity and personal values (Steinhart et al., 2014), making the credibility of the source crucial in reinforcing consumers' self-concept and social standing. The PKM indicates that consumers utilize persuasion knowledge to evaluate the credibility of a source, impacting their responses (Friestad & Wright, 1994). For self-expressive products, a credible source enhances influencer marketing effectiveness by aligning with consumers' identity and values. Research demonstrates that using a celebrity increases positive consumer responses to a self-expressive (vs. functional) product (Kim et al., 2017), leading to enhanced attitudes, behavioral engagement, and purchase intentions.

H12 The positive effects of source credibility on (a) attitude, (b) behavioral engagement, and (c) purchase intention are stronger for self-expressive than functional products.

Method

Data collection and coding

We collected data from EBSCO, ProQuest, CNKI, and Scopus, using search terms including “influencer*”, “blogger*”, and “vlog*” (Ye et al., 2021). We also identified relevant articles through Google Scholar and the reference lists of collected articles. Finally, we emailed requests for unpublished data sets, including reports, book chapters, working papers, and conference papers. The inclusion criteria were as follows. First, studies had to be empirical (not theoretical, qualitative studies, or book reviews). Second, papers needed to contain sufficient data (e.g., correlation coefficients, beta coefficients, F- or t-values) to calculate effect sizes among variables in the constructs. Third, we excluded research on traditional celebrity endorsement. Application of these criteria yielded 251 studies (Web Appendix N), including articles, conference papers, and dissertations.

Two coders extracted information, classified variables, and calculated effect sizes according to construct definitions (Web Appendix A), achieving over 93% agreement and resolving inconsistencies through discussions.² We extracted information about sample sizes, measurement reliability, and effect sizes related to antecedents, mediators, and marketing outcomes, as well as social media types and product types. The effect sizes in our meta-analysis were correlation coefficients chosen for their scale-independence and common reporting in most studies (Blut et al., 2023). When such coefficients were lacking, we transformed alternative statistics into correlation coefficients, such as standardized regression coefficients, F- or t-values, using the formula $r = .98\beta + .05\lambda$ with $\lambda = 1$ when $\beta > 0$ and $\lambda = 0$ when $\beta < 0$ (Blut et al., 2023). We averaged multiple effect sizes from the same sample to avoid giving any sample excessive weight in subsequent analyses (Palmatier et al., 2006). Thus, we obtained 1,531 effect sizes from 279 independent samples across 251 articles, representing 2,009,314 individuals from 27 countries. These samples included 240 journal publications and 39 conference proceedings and dissertations.

Integration of effect sizes

We employed a random-effects model to integrate effect sizes (Grewal et al., 2018). First, to correct effect sizes for measurement error, we divided each correlation by the product of the square root of the respective reliabilities of the constructs (Hunter & Schmidt, 2004), substituting it

with average reliability for missing data. Second, we transformed the reliability-adjusted effect sizes into Fisher-z coefficients (Borenstein et al., 2009) before weighting them by the inverse variance for sampling error (Hedges & Vevea, 1998). Third, we reconverted Fisher-z to correlation coefficients (Borenstein et al., 2009) and reported 95% confidence intervals (Blut et al., 2016). Fourth, we assessed effect size variance using the Q statistic (Hunter & Schmidt, 2004) and I² statistic tests, with significant Q test and I² values over 75% indicating substantial heterogeneity in effect sizes (Grewal et al., 2018). Fifth, to assess potential publication bias, we calculated the fail-safe Ns (FSNs) (Rosenthal, 1979), indicating the number of null-result studies needed to affect the significance level ($p = .05$). FSNs should be larger than $5*k + 10$, where k is the number of studies (Rosenthal, 1979). To adjust for publication bias, we employed funnel plots where effect sizes were plotted against sample sizes to identify asymmetry. We then applied the trim-and-fill method, allowing for deletion (trimming) and potential addition (filling) of effect sizes to assess the symmetry of funnel plots (Duval & Tweedie, 2000).

Structural equation modeling

We tested the mediating effects using structural equation modeling (SEM), including variables for which correlations with all other variables could be identified and using a correlation matrix as the input for Mplus 8. To address the small sample size, we combined informational and hedonic value as post content value (Hughes et al., 2019), and influencer communication and self-disclosure as interaction strategies (Aw et al., 2022). Finally, we included post content value, social identity, consumer knowledge, influencer–brand fit, interaction strategies, and influencer indegree in the SEM. We excluded sponsorship disclosure and consumer materialism because of the inadequate number of effect sizes.³

Moderator analysis

We tested the moderation effects using sub-group analysis (Grewal et al., 2018). We coded four moderators: nature of connection (1 = content-based social media, 0 = profile-based social media), usage (1 = utilitarian social media, 0 = hedonic social media), information availability (1 = experience products, 0 = search products), and status-signaling capability (1 = self-expressive products, 0 = functional products).

² Two coders discussed the specific item, referring to the source paper to clarify the definition. If the discrepancy persisted, a third coder was consulted.

³ We had fewer than three effect sizes among sponsorship disclosure, consumer materialism, and other variables.

Results

Effect size integration

Direct effect Table 4 indicates significant effect sizes for post, follower, and influencer characteristics. Regarding *post characteristics*, both informational value and hedonic value had stronger effects on purchase intention ($rcw_{\text{informational-intention}} = .55$, $rcw_{\text{hedonic-intention}} = .65$) than consumer attitude ($rcw_{\text{informational-attitude}} = .40$, $rcw_{\text{hedonic-attitude}} = .42$) and behavioral engagement ($rcw_{\text{informational-engagement}} = .43$, $rcw_{\text{hedonic-engagement}} = .36$). Informational value positively influenced purchase behaviors ($rcw_{\text{informational-behavior}} = .36$), while hedonic value showed no significant impacts. Moreover, hedonic value positively impacted sales ($rcw_{\text{hedonic-sales}} = .86$) but informational value had no effect. We observed no significant effects for sponsorship disclosure.

For *follower characteristics*, social identity ($rcw_{\text{identity-attitude}} = .53$, $rcw_{\text{identity-engagement}} = .52$, $rcw_{\text{identity-intention}} = .54$, $rcw_{\text{identity-behavior}} = .42$) showed stronger influences on marketing outcomes than consumer knowledge ($rcw_{\text{knowledge-attitude}} = .34$, $rcw_{\text{knowledge-engagement}} = .29$, $rcw_{\text{knowledge-intention}} = .36$) and consumer materialism ($rcw_{\text{materialism-attitude}} = .29$, $rcw_{\text{materialism-engagement}} = .23$, $rcw_{\text{materialism-intention}} = .39$, $rcw_{\text{materialism-behavior}} = .34$). Only consumer knowledge had significant effects on sales ($rcw_{\text{knowledge-sales}} = .45$).

When examining *influencer characteristics*, regarding non-transactional outcomes, we found that influencer-brand fit, influencer self-disclosure, and influencer indegree were more important for consumer attitude ($rcw_{\text{fit-attitude}} = .45$, $rcw_{\text{self-attitude}} = .47$, $rcw_{\text{indegree-attitude}} = .15$) and purchase intention ($rcw_{\text{fit-intention}} = .45$, $rcw_{\text{self-intention}} = .47$) than behavioral engagement ($rcw_{\text{fit-engagement}} = .20$, $rcw_{\text{self-engagement}} = .19$). However, influencer communication was more important for behavioral engagement ($rcw_{\text{communication-engagement}} = .47$) than consumer attitude ($rcw_{\text{communication-attitude}} = .42$) and purchase intention ($rcw_{\text{communication-intention}} = .43$). Regarding transactional outcomes, influencer communication had the strongest effects on purchase behavior ($rcw_{\text{communication-behavior}} = .51$, $rcw_{\text{fit-behavior}} = .40$, $rcw_{\text{indegree-behavior}} = .21$). However, there were no significant effects of influencer characteristics on sales.

All effect size integration results were robust to publication bias; the FSNs exceeded the suggested threshold (Rosenthal, 1979), and the funnel plots showed no publication bias (Web Appendix B). The Q and I^2 test results indicated the presence of moderation in all instances (Table 4). The effect size integration results for marketing outcomes aligned with the results of effect size integration without

outliers (Web Appendix C). We observed only one sample size outlier that impacted the relationship between influencer indegree and behavioral engagement, influencer indegree and sales performance, as well as behavioral engagement and sales performance. After we removed this outlier, the effect sizes remained significant.

Mediators We uncovered significant effects on persuasion knowledge and source credibility (Table 5). Of the 20 antecedent-mediator relationships, 16 (80%) were significant, indicating the mediating roles of persuasion knowledge and source credibility. We tested the proposed mediating effects in the SEM, and the effect size integration results for the mediators remained robust after removing outliers (Web Appendix D).

SEM

We tested the meta-analytic framework and mediating effects via SEM, inputting the correlation matrix (Web Appendix E) into Mplus 8. The proposed model displayed good fit ($\chi^2/8 = 159$, $p = .00$; CFI = .95; RMSEA = .15; SRMR = .05) (Fig. 2). Given the lack of effect sizes for transactional outcomes, we explored only non-transactional outcomes in the SEM.

Persuasion knowledge The results suggest that persuasion knowledge was an important mediator. Social identity ($\gamma = -.29$, $p < .01$) and influencer-brand fit ($\gamma = -.20$, $p < .01$) related negatively to persuasion knowledge. Conversely, consumer knowledge ($\gamma = .33$, $p < .01$), interaction strategies ($\gamma = .20$, $p < .01$), and influencer indegree ($\gamma = .22$, $p < .01$) related positively to persuasion knowledge. Post content value had no effect. Consumers with greater persuasion knowledge typically viewed the source as less credible ($\beta = -.15$, $p < .01$), exhibited more negative attitudes ($\beta = -.12$, $p < .01$), and showed lower behavioral engagement ($\beta = -.15$, $p < .01$), although persuasion knowledge did not significantly impact purchase intention.

Source credibility Post content value ($\gamma = .32$, $p < .01$), social identity ($\gamma = .08$, $p < .05$), consumer knowledge ($\gamma = .19$, $p < .01$), influencer-brand fit ($\gamma = .06$, $p < .05$), interaction strategies ($\gamma = .37$, $p < .01$), and influencer indegree ($\gamma = .05$, $p < .05$) positively impacted source credibility. Source credibility significantly affected consumer attitude ($\beta = .19$, $p < .01$) and behavioral engagement ($\beta = .17$, $p < .01$), but not purchase intention.

To assess mediation effects, we first analyzed the ratio of indirect effects to total effects (Web Appendix F), finding significant indirect effects and high ratios for most antecedents.

Table 4 Results of effect size integration for marketing outcomes

Relationship	k	N	rcw	CI ₉₅₋	CI ₉₅₊	Q	I ²	FSN
Post Characteristics								
Informational value → Attitude	23	7983	.40**	.26	.53	793**	98	13270
Informational value → Behavioral engagement	20	10103	.43**	.27	.56	1224**	99	9787
Informational value → Purchase intention	27	8950	.55**	.44	.64	1006**	98	31707
Informational value → Purchase behavior	6	2057	.36**	.20	.50	60**	94	547
Informational value → Sales performance	2	450	.87	-.84	1.00	739	100	—
Hedonic value → Attitude	9	2747	.42**	.31	.51	64**	90	1775
Hedonic value → Behavioral engagement	8	5388	.36**	.13	.55	434**	99	1099
Hedonic value → Purchase intention	9	3365	.65**	.52	.76	291**	97	6304
Hedonic value → Purchase behavior	3	1290	.42	-.22	.81	305**	99	—
Hedonic value → Sales performance	1 ^a	385	.86**	.83	.88	—	—	—
Sponsorship disclosure → Attitude	35	11048	-.01	-.09	.07	482**	94	—
Sponsorship disclosure → Behavioral engagement	23	8082	.01	-.05	.06	104**	78	—
Sponsorship disclosure → Purchase intention	30	6745	.06	-.04	.16	412**	94	—
Sponsorship disclosure → Purchase behavior	—	—	—	—	—	—	—	—
Sponsorship disclosure → Sales performance	—	—	—	—	—	—	—	—
Follower Characteristics								
Social identity → Attitude	34	11814	.53**	.44	.60	1184**	97	47806
Social identity → Behavioral engagement	27	11587	.52**	.43	.61	1549**	98	37395
Social identity → Purchase intention	38	13650	.54**	.46	.62	1556**	98	60951
Social identity → Purchase behavior	3	1138	.42**	.28	.55	16**	87	247
Social identity → Sales performance	1 ^a	200	.08	-.06	.22	—	—	—
Consumer knowledge → Attitude	26	7931	.34**	.23	.44	897**	96	10786
Consumer knowledge → Behavioral engagement	22	10688	.29**	.10	.46	2093**	99	5507
Consumer knowledge → Purchase intention	27	8052	.36**	.27	.45	613**	95	13345
Consumer knowledge → Purchase behavior	5	1038	.50	-.16	.85	796**	99	—
Consumer knowledge → Sales performance	1 ^a	108	.45**	.29	.59	—	—	—
Consumer materialism → Attitude	11	4132	.29*	.06	.49	346**	98	1495
Consumer materialism → Behavioral engagement	7	2898	.23**	.17	.30	19**	68	395
Consumer materialism → Purchase intention	7	1923	.39**	.17	.57	144**	96	713
Consumer materialism → Purchase behavior	2	696	.34 ⁺	-.02	.62	25**	96	59
Consumer materialism → Sales performance	—	—	—	—	—	—	—	—
Influencer characteristics								
Influencer-brand fit → Attitude	24	8233	.45**	.33	.56	991**	98	16129
Influencer-brand fit → Behavioral engagement	10	6662	.20*	.02	.35	363**	98	414
Influencer-brand fit → Purchase intention	18	6660	.45**	.31	.57	764**	98	7953
Influencer-brand fit → Purchase behavior	2	825	.40**	.15	.61	16**	94	113
Influencer-brand fit → Sales performance	2	3043	-.00	-.07	.06	—	—	—
Influencer communication → Attitude	14	5350	.42**	.25	.58	696**	98	5364
Influencer communication → Behavioral engagement	7	4855	.47**	.29	.61	209**	97	1734
Influencer communication → Purchase intention	11	4408	.43**	.24	.59	563**	98	3345
Influencer communication → Purchase behavior	13	4394	.51**	.33	.65	590**	98	6121
Influencer communication → Sales performance	3	3243	.11	-.11	.31	27**	93	—
Influencer self-disclosure → Attitude	8	3253	.47**	.30	.61	251**	97	2549
Influencer self-disclosure → Behavioral engagement	7	2377	.19*	.03	.34	91**	94	164
Influencer self-disclosure → Purchase intention	7	2379	.47**	.24	.65	234**	98	1451
Influencer self-disclosure → Purchase behavior	—	—	—	—	—	—	—	—
Influencer self-disclosure → Sales performance	—	—	—	—	—	—	—	—
Influencer indegree → Attitude	14	6097	.15*	.01	.29	313**	97	666
Influencer indegree → Behavioral engagement	18	1863836 ^b	.07	-.11	.25	875**	100	—

Table 4 (continued)

Relationship	k	N	rcw	CI ₉₅₋	CI ₉₅₊	Q	I ²	FSN
Influencer indegree → Purchase intention	7	1574	-.28	-.68	.25	444*	99	—
Influencer indegree → Purchase behavior	3	1700	.21*	.00	.40	26**	90	109
Influencer indegree → Sales performance	5	1896097 ^b	.10	-.06	.24	331**	100	—
Mediators								
Persuasion knowledge → Attitude	22	7664	-.15 ⁺	-.32	.02	1630**	98	1587
Persuasion knowledge → Behavioral engagement	22	7753	-.20 ⁺	-.39	.01	2178**	99	2519
Persuasion knowledge → Purchase intention	16	5138	-.17	-.36	.03	944**	98	—
Persuasion knowledge → Purchase behavior	—	—	—	—	—	—	—	—
Persuasion knowledge → Sales performance	—	—	—	—	—	—	—	—
Source credibility → Attitude	89	29576	.55**	.51	.60	2965**	97	356678
Source credibility → Behavioral engagement	62	26156	.49**	.42	.55	3157**	98	143208
Source credibility → Purchase intention	86	39132	.51**	.47	.56	3023**	97	296090
Source credibility → Purchase behavior	21	8162	.49**	.39	.58	720**	97	15342
Source credibility → Sales performance	1 ^a	417	.09 ⁺	-.01	.18	—	—	—
Non-transactional outcomes								
Attitude → Purchase intention	66	22347	.62**	.57	.66	16567**	96	264939
Attitude → Purchase behavior	7	2387	.51**	.18	.74	768**	99	2159
Attitude → Sales performance	1 ^a	417	-.01	-.11	.08	—	—	—
Behavioral engagement → Purchase intention	41	26110	.56**	.48	.62	4321**	98	90201
Behavioral engagement → Purchase behavior	14	5707	.75**	.43	.90	4753**	100	24720
Behavioral engagement → Sales performance	6	1896211 ^b	.21**	.07	.34	2205**	100	34701
Purchase intention → Purchase behavior	6	1922	.68**	.53	.80	149**	97	2646
Purchase intention → Sales performance	—	—	—	—	—	—	—	—

k number of effects sizes, *N* cumulative sample sizes, *rcw* inverse variance-weighted, reliability-adjusted average correlation, *CI* confidential interval, *Q* *Q* statistic, *I*² *I*² statistic, *FSN* fail-safe *N*. ***p* < .01, **p* < .05, ⁺*p* < .10. a. We report these effect sizes to ensure a comprehensive synthesis of evidence, which provides insights into the range of study outcomes and allows for a more accurate interpretation. b. We observe a large sample size outlier for the effect sizes of “influencer indegree → behavioral engagement”, “influencer indegree → sales performance” and “behavioral engagement → sales performance”. After removing this effect size, the significant results remain unchanged. However, the impact of behavioral engagement on sales performance shifted from being statistically significant at the 0.01 level to the 0.05 level

The direction of direct and indirect effects aligned for most antecedents, while the positive direct effects of consumer knowledge and influencer indegree on attitude and behavioral engagement were offset by negative indirect effects. Second, we tested potential reverse causality and serial mechanism between persuasion knowledge and source credibility. We compared the hypothesized model (Model 1) (Fig. 2) with three alternative models. Model 2 (Web Appendix G) exhibited comparable fit but rendered the influencer indegree–source credibility relationship non-significant. Models 3 and 4 (Web Appendixes H and I) exhibited worse model fit, which suggests that the hypothesized model performed best.⁴

⁴ In Model 2, persuasion knowledge and source credibility acted as parallel mediators, with source credibility influencing persuasion knowledge. In Model 3, they functioned as serial mediators, with persuasion knowledge influencing source credibility. Conversely, in Model 4, they also served as serial mediators, but with source credibility influencing persuasion knowledge.

Transactional outcomes We evaluated another model considering transactional and non-transactional outcomes (Web Appendix J), using the correlation matrix in Web Appendix K and excluding sales due to the lack of effect sizes. This model displayed satisfactory fit ($\chi^2/5 = 166, p = .00$; CFI = .95; RMSEA = .28; SRMR = .14). Positive indirect effects on purchase behavior included post content value ($\gamma = .39, p < .01$), social identity ($\gamma = .28, p < .01$), and consumer knowledge ($\gamma = .09, p < .05$). The impact of influencer indegree on source credibility became non-significant. Behavioral engagement ($\beta = .49, p < .01$) and purchase intention ($\beta = .83, p < .01$) significantly impacted purchase behavior.

Moderator analysis

We summarized the moderating effects of two social media types and two product types in terms of explaining when the effects of antecedents (post, follower, and influencer

Table 5 Results of effect size integration for mediators

Relationship	k	N	rcw	CI ₉₅₋	CI ₉₅₊	Q	I ²	FSN
Post Characteristics								
Informational value → Persuasion knowledge	3	773	-.32*	-.52	-.09	24**	91	101
Hedonic value → Persuasion knowledge	1 ^a	155	.22**	.06	.36	—	—	—
Sponsorship disclosure → Persuasion knowledge	33	8276	.36**	.20	.46	823**	98	9242
Informational value → Source credibility	30	11,770	.52**	.42	.61	1674**	98	35,329
Hedonic value → Source credibility	10	4762	.52**	.30	.69	851**	99	3493
Sponsorship disclosure → Source credibility	17	4437	.10	-.19	.39	1845**	99	—
Follower Characteristics								
Social identity → Persuasion knowledge	5	1982	-.15 ⁺	-.30	.01	35**	92	58
Consumer knowledge → Persuasion knowledge	7	2079	.12 ⁺	-.02	.26	77**	90	76
Consumer materialism → Persuasion knowledge	1 ^a	389	-.29**	-.37	-.19	—	—	—
Social identity → Source credibility	42	15,080	.48**	.41	.54	947**	96	60,970
Consumer knowledge → Source credibility	24	9197	.35**	.20	.47	1796**	98	9591
Consumer materialism → Source credibility	7	2875	.28**	.10	.44	119**	96	512
Influencer characteristics								
Influencer–brand fit → Persuasion knowledge	6	2262	-.17 ⁺	-.37	.05	183**	96	—
Influencer communication → Persuasion knowledge	2	645	-.09	-.30	.13	6*	83	—
Influencer self-disclosure → Persuasion knowledge	2	646	.20	-.65	.83	140**	99	—
Influencer indegree → Persuasion knowledge	3	999	.13*	.01	.24	6*	70	17
Influencer–brand fit → Source credibility	22	7506	.45**	.36	.53	498**	95	12,992
Influencer communication → Source credibility	20	6799	.45**	.35	.55	485**	96	10,958
Influencer self-disclosure → Source credibility	9	3079	.55**	.39	.68	216**	97	3880
Influencer indegree → Source credibility	11	4970	.05	-.26	.36	703**	99	—
Persuasion knowledge → Source credibility	22	7554	-.16 ⁺	-.35	.03	1702**	99	—

k number of effects sizes, *N* cumulative sample sizes, *rcw* inverse variance-weighted, reliability-adjusted average correlation, *CI* confidential interval, *Q* Q statistic, *I*² *I*² statistic, *FSN* fail-safe *N*. ***p* < .01, **p* < .05, +*p* < .10. a. We report these effect sizes to ensure a comprehensive synthesis of evidence, which provides insights into the range of study outcomes and allows for a more accurate interpretation

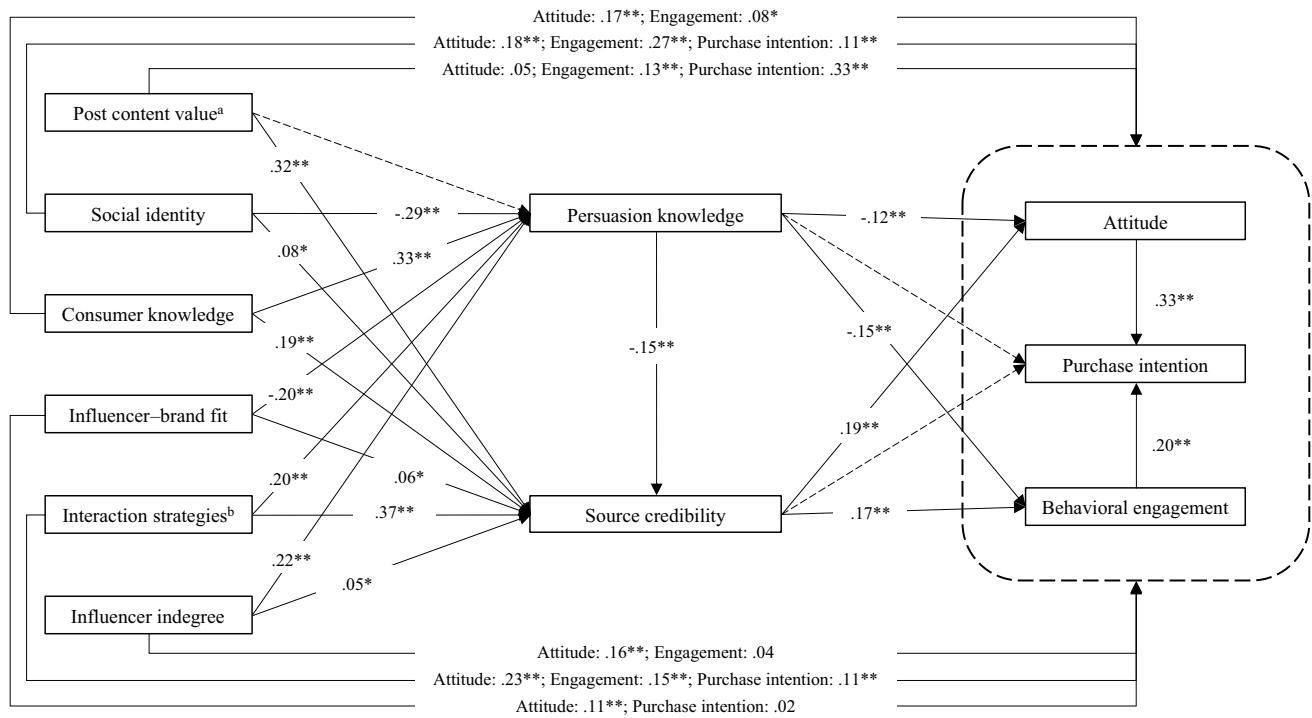
characteristics) and mediators (persuasion knowledge and source credibility) on marketing outcomes varied in importance (Table 6).

Nature of connection (content-based vs. profile-social media) This moderating effect was relevant to both the direct and indirect effects of antecedents. For post characteristics, as predicted, the effects of informational value ($r_1 = .66$, $r_0 = .42$, $p < .01$)⁵ on purchase intention, as well as hedonic value on attitude ($r_1 = .52$, $r_0 = .26$, $p < .1$) and engagement ($r_1 = .42$, $r_0 = .01$, $p < .01$), were stronger for content-based (vs. profile-based) social media. For influencer characteristics, influencer–brand fit had a greater positive effect on purchase intention ($r_1 = .71$, $r_0 = .36$, $p < .01$), while influencer interaction strategies enhanced consumer attitude ($r_1 = .84$, $r_0 = .42$, $p < .01$) and purchase intention ($r_1 = .73$, $r_0 = .20$, $p < .01$) more effectively on content-based than on profile-based

social media. Similarly, the effects of influencer indegree on consumer attitude ($r_1 = .42$, $r_0 = .10$, $p < .01$) and behavioral engagement ($r_1 = .42$, $r_0 = -.06$, $p < .05$) were more pronounced in content-based social media compared to profile-based social media, where the effects were weaker or even negative. For mediators, compared to profile-based social media, the effects of persuasion knowledge on consumer attitude ($r_1 = .17$, $r_0 = -.17$, $p < .05$), behavioral engagement ($r_1 = .00$, $r_0 = -.33$, $p < .05$), and purchase intention ($r_1 = .08$, $r_0 = -.25$, $p < .05$) were less negative or even positive in content-based social media. Contrary to H1b and H3, we found no effects on the impact of follower characteristics and source credibility on marketing outcomes.

Usage (utilitarian vs. hedonic social media) Like nature of connection, this moderator was more important for the effects of post and influencer characteristics and persuasion knowledge. Informational value ($r_1 = .66$, $r_0 = .44$, $p < .01$) and influencer–brand fit ($r_1 = .80$, $r_0 = .43$, $p < .01$) had greater positive effects on purchase intention for utilitarian than hedonic social media. Similarly, utilitarian social

⁵ r_1 and r_0 are inverse variance-weighted, reliability-adjusted average correlations.



Model fit: $\chi^2/8 = 159, p = .00$; CFI = .95; RMSEA = .15; SRMR = .05. a. Post content value contains informational value and hedonic value (Hughes et al. 2019). b. Interaction strategies contain influencer communication and influencer self-disclosure (Aw et al. 2022). ** $p < .01$, * $p < .05$.

Fig. 2 Results of structural equation model of non-transactional outcomes

media showed stronger effects of influencer indegree on attitude ($r_1 = .42, r_0 = .10, p < .01$) and behavioral engagement ($r_1 = .67, r_0 = -.02, p < .01$) compared to hedonic social media, where the effects were weaker or even negative. The effects of persuasion knowledge on consumer attitude ($r_1 = .17, r_0 = -.17, p < .05$), behavioral engagement ($r_1 = .00, r_0 = -.31, p < .01$), and purchase intention ($r_1 = .12, r_0 = -.24, p < .05$) were significantly weaker or even positive in utilitarian social media compared to the more negative effects observed in hedonic social media. Contrary to H4b and H6, we saw no differences in follower characteristics or source credibility.

Information availability (experience vs. search products) Experience products exhibited stronger moderating effects than search products on the impact of influencer characteristics on marketing outcomes, while the opposite was true for follower characteristics. Consistent with our predictions, the effects of informational value ($r_1 = .49, r_0 = -.24, p < .1$) and influencer-brand fit ($r_1 = .46, r_0 = -.24, p < .01$) on consumer attitude were more positive for experience than search products. Similarly, experience (vs. search) products showed positive effects of interaction strategies on consumer attitude ($r_1 = .52, r_0 = -.24, p < .01$) and purchase intention ($r_1 = .58, r_0 = -.15, p < .01$). The effect of persuasion

knowledge on purchase intention ($r_1 = .01, r_0 = -.17, p < .05$) was less negative for experience (vs. search) products. Contrary to predictions, the positive effects of sponsorship disclosure ($r_1 = -.02, r_0 = .23, p < .01$), social identity ($r_1 = .54, r_0 = .72, p < .01$), and consumer knowledge ($r_1 = .31, r_0 = .55, p < .1$) on marketing outcomes were weaker for experience (vs. search) products. Source credibility had stronger effects on behavioral engagement for search products (vs. experience) ($r_1 = .52, r_0 = .73, p < .05$).

Status-signaling capability (self-expressive vs. functional products) This moderating effect included direct effects of antecedents. As hypothesized, sponsorship disclosure had a more positive impact on attitudes toward self-expressive (vs. functional) products ($r_1 = .12, r_0 = -.08, p < .01$). Self-expressive products outperformed functional products regarding the positive impact of influencer-brand fit ($r_1 = .54, r_0 = .23, p < .01$) and influencer indegree ($r_1 = .18, r_0 = -.12, p < .05$) on consumer attitude. For functional products, informational value had a stronger correlation with attitude ($r_1 = .34, r_0 = .68, p < .01$) and behavioral engagement ($r_1 = .38, r_0 = .83, p < .01$) than self-expressive products, contradicting our hypotheses. The effects of follower characteristics, persuasion knowledge, and source credibility were non-significant, so we cannot support H10b, H11, and H12.

Table 6 Results of sub-group analysis

Relationship	Platform types				Product types				
		k	Nature of connection (1 = content-based, 0 = profile-based)	k	Usage (1 = utilitarian, 0 = hedonic)	k	Information availability (1 = experience, 0 = search)	k	Status-signaling capability (1 = self-expressive, 0 = functional)
Post Characteristics									
Informational value → Attitude	r ₁	4	.31	12	.05	11	.49 ⁺	11	.34**
	r ₀	11	.41	3	.46	2	-.24	1 ^a	.68
Informational value → Behavioral engagement	r ₁	6	.38	5	.35	11	—	7	.38**
	r ₀	8	.44	7	.54	0	—	3	.83
Informational value → Purchase intention	r ₁	6	.66**	5	.66**	13	.58	10	.59
	r ₀	13	.42	14	.44	3	.36	5	.44
Hedonic value → Attitude	r ₁	2	.52 ⁺	1	.51	4	.41	4	—
	r ₀	3	.26	4	.34	1	.26	0	—
Hedonic value → Behavioral engagement	r ₁	3	.42**	2	.40	3	—	2	—
	r ₀	2	.01	1	.46	0	—	0	—
Hedonic value → Purchase intention	r ₁	3	.69	2	.72	3	.61	2	.69
	r ₀	2	.68	3	.66	1	.46	1	.46
Sponsorship disclosure → Attitude	r ₁	8	.05	9	.04	23	.02	12	.12**
	r ₀	21	-.04	21	-.03	8	-.04	21	-.08
Sponsorship disclosure → Behavioral engagement	r ₁	3	.04	4	.00	19	-.02**	7	.00
	r ₀	19	-.01	18	.00	1 ^a	.23	13	-.01
Sponsorship disclosure → Purchase intention	r ₁	5	.28	6	.22	25	.04	16	.03
	r ₀	23	.00	22	.00	4	.07	13	.06
Follower Characteristics									
Social identity → Attitude	r ₁	7	.60	5	.52	20	.54**	12	.50
	r ₀	14	.48	18	.52	1 ^a	.72	7	.60
Social identity → Behavioral engagement	r ₁	10	.49	8	.49	17	—	9	.58
	r ₀	9	.61	12	.58	0	—	7	.52
Social identity → Purchase intention	r ₁	8	.60	6	.58	26	.58	17	.56
	r ₀	15	.57	18	.56	3	.37	11	.59
Consumer knowledge → Attitude	r ₁	6	.40	6	.40	19	.34	11	.37
	r ₀	15	.22	16	.23	3	.41	8	.34
Consumer knowledge → Behavioral engagement	r ₁	9	.32	9	.32	11	—	5	.35
	r ₀	11	.12	9	.14	0	—	4	.18
Consumer knowledge → Purchase intention	r ₁	6	.23	6	.23	18	.31 ⁺	10	.28
	r ₀	15	.30	15	.30	3	.55	9	.38
Influencer Characteristics									
Influencer-brand fit → Attitude	r ₁	1	.53	1	.53	20	.46**	13	.54**
	r ₀	17	.46	17	.46	1 ^a	-.24	8	.23
Influencer-brand fit → Behavioral engagement	r ₁	3	.27	2	.12	7	.14	5	.14
	r ₀	6	.17	7	.23	0	—	2	.40
Influencer-brand fit → Purchase intention	r ₁	3	.71**	1 ^a	.80**	15	—	9	.49
	r ₀	9	.36	11	.43	0	—	6	.29
Interaction strategies → Attitude	r ₁	1 ^a	.84**	0	—	10	.52**	8	.43
	r ₀	7	.42	8	—	1 ^a	-.24	2	.61
Interaction strategies → Behavioral engagement	r ₁	5	.44	5	.44	6	—	1	.21
	r ₀	6	.22	6	.22	0	—	4	.50
Interaction strategies → Purchase intention	r ₁	3	.73**	2	.63	9	.58**	6	.47
	r ₀	3	.20	4	.45	1 ^a	-.15	3	.73
Influencer indegree → Attitude	r ₁	1 ^a	.42**	1 ^a	.42**	9	—	5	.18*
	r ₀	12	.10	12	.10	0	—	4	-.12
Influencer indegree → Behavioral engagement	r ₁	3	.42*	1 ^a	.67**	6	—	5	-.16
	r ₀	12	-.06	12	-.02	0	—	1	.10

Table 6 (continued)

Relationship	Platform types				Product types				
		k	Nature of connection (1 = content-based, 0 = profile-based)	k	Usage (1 = utilitarian, 0 = hedonic)	k	Information availability (1 = experience, 0 = search)	k	Status-signaling capability (1 = self-expressive, 0 = functional)
Mediators									
Persuasion knowledge → Attitude	r_1	3	.17*	3	.17*	11	-.21	7	-.27
	r_0	15	-.17	15	-.17	4	-.14	8	-.11
Persuasion knowledge → Behavioral engagement	r_1	5	.00*	5	.00**	14	-.27	7	-.18
	r_0	14	-.33	15	-.31	2	-.06	9	-.30
Persuasion knowledge → Purchase intention	r_1	5	.08*	4	.12*	8	.01*	4	.05
	r_0	8	-.25	8	-.24	1 ^a	-.17	5	-.06
Source credibility → Attitude	r_1	20	.54	16	.56	56	.56	41	.58
	r_0	42	.56	49	.55	5	.60	16	.52
Source credibility → Behavioral engagement	r_1	23	.47	21	.52	36	.52*	24	.56
	r_0	27	.47	30	.49	3	.73	13	.49
Source credibility → Purchase intention	r_1	20	.53	16	.49	53	.52	39	.52
	r_0	37	.50	43	.51	6	.40	17	.48

^aIt is advisable to be careful when applying those results even though they are relatively robust when dropping outliers. We only include effect sizes containing certain platform and product information, so the number of effect sizes is different from that in Table 4 or Table 5. The table shows inverse variance-weighted, reliability-adjusted average correlation. ** $p < .01$, * $p < .05$, + $p < .10$

The results largely aligned with the meta-regression analysis that considered various control variables (Web Appendix L).⁶

General discussion

We conducted a meta-analysis integrating 1,531 effect sizes from 251 papers to offer a comprehensive understanding of influencer marketing effectiveness through the PKM. The results provide new insights into the impacts of post, follower, and influencer characteristics on different marketing outcomes, as well as the mediating roles of persuasion knowledge and source credibility. More importantly, the results highlight the moderating effects of social media types (nature of connection and usage) and product types (information availability and status-signaling capability) on the effects of antecedents and mediators on marketing outcomes. These results have implications for both research and practice.

What are the antecedents of influencer marketing effectiveness?

The results of the effect size integration suggest that, except for sponsorship disclosure, most of our proposed antecedents have positive effects on marketing outcomes. Among

these antecedents, the *informational* and *hedonic values* of posts have the largest effect sizes on purchase intention. By creating informational and hedonic content, influencers provide utilitarian information and enjoyable experiences. When consumers perceive content as valuable, they are less likely to activate persuasion knowledge, reducing skepticism and enhancing receptiveness to the post and thus improving marketing outcomes. This suggests that content value is more impactful in influencer endorsements than traditional celebrity endorsements. Unlike celebrities who rely on fame and appeal (Park et al., 2021), influencers achieve effectiveness by providing valuable content that resonates effectively with followers.

Moreover, follower *social identity* has relatively larger effect sizes on consumer attitude and behavioral engagement. This identification can result in less criticism of influencer persuasive messages, as consumers perceive them as recommendations from a credible peer rather than a persuasive attempt by a marketer. This suggests that fostering a sense of community and alignment with follower values can enhance influencer marketing effectiveness, in contrast to the broader and less personalized appeal of celebrities.

Furthermore, *influencer communication* exerts the most substantial effect on purchase behavior due to its unique blend of direct interaction and personal connection. This makes influencer endorsements feel more like friendly advice than a marketing pitch, reducing the activation of persuasion knowledge and enhancing influencer marketing effectiveness. This direct communication contrasts with celebrity endorsement, which relies more on star power than personal interaction.

⁶ We examined additional moderators (Web Appendix M), with data type showing minimal variance. The ranking of significant moderating effects was as follows: research design (7) > publication quality (5) = publication year (5) > age (4) = US vs. non-US (4) = publication types (4) > gender (2).

Regarding the non-significant effect of *sponsorship disclosure*, one possible explanation is consumers' gradual acceptance of sponsorship disclosures as a legitimate aspect of influencer marketing. As consumers become more familiar with such disclosures, they may perceive them as routine and not necessarily manipulative, reducing the activation of persuasion knowledge and allowing consumers to focus on the benefits of sponsored influencer posts, such as high-quality content (Chen et al., 2023). Additionally, the presence of some non-significant direct effects on sales suggests that whereas persuasion knowledge can be effectively managed to some extent, actual sales are influenced by broader factors beyond immediate persuasive communication, such as price, product quality, inflation, and unemployment rate (Kopalle et al., 2017).

What is the interplay between persuasion knowledge and source credibility?

The SEM results reveal that persuasion knowledge and source credibility play crucial mediating roles between antecedents and marketing outcomes. While persuasion knowledge negatively affects source credibility, the latter has stronger effects on marketing outcomes. This indicates that despite consumers' awareness of persuasive strategies, the perceived credibility of influencers ultimately shapes consumer behaviors. Thus, influencer endorsements can achieve positive outcomes by ensuring a strong sense of influencer credibility. Scholars should investigate strategies to enhance influencer credibility and mitigate the negative effects of persuasion knowledge.

What is the role of social media types?

Our results indicate that social media types (nature of connection and usage) moderate the impact of post and influencer characteristics, as well as persuasion knowledge, on consumer attitude, behavioral engagement, and purchase intention. Regarding the *nature of connection*, content-based (vs. profile-based) social media amplifies the positive impact of post (informational value and hedonic value) and influencer characteristics (influencer–brand fit, interaction strategies, and influencer indegree) and weakens the negative effect of persuasion knowledge on consumer attitude, behavioral engagement, and purchase intention. These results contribute to the PKM by underscoring consumer responses to persuasion attempts when the primary focus is on the value and quality of content rather than personal connection or familiarity with the influencer. When influencers provide valuable content, followers are less likely to view influencer posts merely as persuasive attempts and activate persuasion knowledge, which increases purchase likelihood. Furthermore, strong influencer–brand fit, effective interaction strategies, and high influencer indegree create an environment on content-based social media platforms where

persuasive intent is less obvious and makes the promotional content more like genuine recommendations.

Regarding *usage*, utilitarian (vs. hedonic) social media enhances the positive effect of informational value on purchase intention and the positive effect of influencer characteristics (influencer–brand fit and influencer indegree) on consumer attitude, behavioral engagement, and purchase intention. Additionally, it mitigates the negative effect of persuasion knowledge on consumer attitude, behavioral engagement, and purchase intention. These findings enrich the PKM by revealing how consumers react to persuasive attempts when their persuasion knowledge is active. On utilitarian social media (e.g., LinkedIn and Pinterest), consumers anticipate and are more prepared for persuasive attempts. When influencer posts are perceived as valuable and align with followers' utilitarian motives (informational value), more positive reception and reduced skepticism toward influencers can result. Furthermore, when influencers demonstrate strong influencer–brand fit and high indegree, this can substantially mitigate skepticism toward their posts, positively impacting purchase intention.

However, our findings show that social media type (nature of connection and usage) has non-significant moderating effects on the influence of follower characteristics and source credibility on marketing outcomes. Followers' intrinsic attributes are deeply rooted in their cognitive and social frameworks for assessing the persuasiveness of a message and remain stable across social media environments. Thus, although tailoring messages to the unique features of each platform is useful, it should not distract from the overarching strategy of leveraging follower characteristics. Furthermore, consumers value credible sources regardless of how they connect or use platforms. This indicates that once persuasion knowledge is activated, the fundamental evaluation of an influencer's credibility is a key factor in determining consumer responses. This finding highlights the importance of maintaining high source credibility across social media to ensure effective influencer marketing.

What is the role of product types?

Regarding product types, information availability (experience vs. search products) moderates the impact of post, follower, and influencer characteristics, persuasion knowledge, and source credibility on consumer attitude, behavioral engagement, and purchase intention. Meanwhile, status-signaling capability (self-expressive vs. functional products) moderates the effect of post and influencer characteristics on consumer attitude and behavioral engagement. For *information availability*, experience (vs. search) products intensify the positive effect of informational value on consumer attitude and the positive effect of influencer characteristics (influencer–brand fit and interaction strategies) on attitude and purchase intention.

It reduces the negative impact of persuasion knowledge on purchase intention. These insights broaden the PKM by revealing diverse consumer responses to persuasion attempts based on the varying levels of risk and information asymmetry of products. When assessing experience products, consumers rely more on detailed information influencers provide to alleviate uncertainty than when assessing search products. The effectiveness of delivering such information hinges on the informational value of influencer posts, how seamlessly influencers integrate the product into their content (influencer–brand fit), and their use of interactive strategies to provide personalized information and address consumers' inquiries.

Conversely, experience products diminish the positive effect of sponsorship disclosure on behavioral engagement, social identity on attitude, consumer knowledge on purchase intention, and source credibility on behavioral engagement compared to search products. In line with the PKM, consumers are less likely to activate their persuasion knowledge when prioritizing personal experience over detailed information in influencer endorsements. For experience products, the priority is obtaining specific information to mitigate the perceived risk and uncertainty associated with these products. Therefore, factors like social identity, consumer knowledge, and source credibility, which do not significantly aid influencers in providing the necessary detailed information to reduce consumer uncertainty, negatively impact marketing outcomes for experience (vs. search) products.

Regarding *status-signaling capability*, self-expressive (vs. functional) products enhance the beneficial effect of sponsorship disclosure, influencer–brand fit, and influencer indegree on consumer attitude. These findings enhance our understanding of the PKM by highlighting how consumers process persuasive attempts for products with varying status-signaling capabilities. When assessing self-expressive products, consumers use their persuasion knowledge to evaluate cues that signal symbolic value and social validation. Thus, transparency in persuasive intent (through sponsorship disclosure), a strong influencer–brand fit, and a high indegree help consumers discern whether influencer recommendations genuinely reflect the symbolic value of the product or enhance their social standing. Conversely, for self-expressive (vs. functional) products, the impact of informational content on consumer attitude and engagement is diminished as consumers use their persuasion knowledge to seek out social resonance over product functionality.

However, we find no difference in the effect of follower characteristics, persuasion knowledge, and source credibility between self-expressive and functional products. These findings suggest that followers' inherent traits consistently shape their reactions to persuasive attempts for such products. The fundamental evaluation of marketing messages by followers remains stable across both product types. Furthermore, the psychological mechanisms of persuasion knowledge and source credibility operate consistently, with the fundamental principles of skepticism and trust in marketing communications transcending the

status-signaling capability of the product. These results highlight the universal importance of followers' intrinsic attributes and source credibility in influencer marketing.

Managerial contributions

Our findings provide insights for marketers into selecting influencers, crafting content, and allocating investment in influencer marketing across various social media platforms and for different products (Table 7). First, marketers should prioritize evaluating the content value of posts to make consumers less skeptical when processing influencer messages. To enhance informational value, marketers should ensure the content is relevant and provides depth: tutorials, product demonstrations, and detailed reviews that offer genuine insights. For example, Marques Brownlee, a leading tech influencer, is renowned for his in-depth gadget reviews and unboxing videos on YouTube, making him a credible source for the latest tech products. To deliver hedonic value, brands can incorporate hedonic appeal elements that evoke emotions and stimulate consumers' interests and curiosity (Chiu et al., 2014), such as sensory stimulation, humor, and storytelling. For example, renowned fitness influencer Genghong Liu enhances his workout livestreams with upbeat music and cosplay, transforming exercise into an entertaining and engaging experience for his followers.

Second, brands can encourage influencers to foster a sense of community to enhance followers' identification with the influencer. Marketers should select influencers whose personal values and lifestyle align closely with the brand identity. This alignment helps to create a seamless influencer–consumer–brand connection and less activation of persuasion knowledge. Additionally, highlighting value-expressive elements in advertising can motivate consumers to make purchases consistent with their self-concept. For example, Li Jiaqi, the “King of Lipsticks” with 65 million followers on Taobao, hosts monthly online makeup parties to showcase trends and encourage followers to share their looks, boosting product visibility and fostering a tight-knit beauty community.

Third, marketers should help influencers build personal bonds with their followers by using interactive content, such as polls, quizzes, and live streaming. Personal responses to comments and messages, even simple acknowledgments, make followers feel valued. These strategies enhance follower loyalty and strengthen the influencer–follower–brand relationship by highlighting genuine connections rather than persuasive intent. For example, Nikkie de Jager, a famous beauty influencer on Instagram, engages her followers with question-and-answer sessions, polls, and personal stories, making them feel connected and valued.

Fourth, marketers should tailor influencer selection and content strategies based on social media types to reduce the activation of persuasion knowledge. Specifically, content-based and utilitarian social media platforms, such as Little

Table 7 Managerial implications

Issues	Key illustrative recommendations
<i>What content should be included in an influencer marketing post?</i>	Marketers should enhance influencer content by focusing on its informational and hedonic value. This approach ensures content is both insightful and engaging.
<i>Who are the best influencers?</i>	Marketers should select influencers whose characteristics align with the brand and who are willing to share personal information. However, our findings reveal that how influencers communicate with followers is more crucial. Marketers should help influencers foster personal connections by encouraging interactive content and responding to comments.
<i>How can marketers interact with their best followers?</i>	Marketers can encourage influencers to educate consumers and provide them with adequate information to enrich their knowledge base, as well as support influencers in crafting posts that emphasize materialistic visual cues. More importantly, marketers should encourage influencers to build a community, aligning influencer values with the brand to strengthen consumer connections.
<i>What are the best social media platforms?</i>	Marketers should align influencer choices and content strategies with the unique advantages of content-based and utilitarian social media platforms like Little Red Book and Pinterest. <ul style="list-style-type: none"> • Marketers should select influencers who are interactive, align well with the brand, and have wide reach to ensure effective and broad audience engagement. • For content-based platforms, the brand should prioritize creating engaging, high-quality content for entertainment and information. • For utilitarian platforms, marketers should focus more on informational content.
<i>Is influencer marketing more effective for certain product categories?</i>	Marketers should customize marketing to match product types. <ul style="list-style-type: none"> • For search products, marketers should focus on choosing influencers who align with the target audience's values and forming transparent and enduring partnerships. • Experience products need informative content with strong influencer–brand fit and engaging interaction strategies. • For self-expressive products, marketers should focus on transparent sponsorship disclosure and influencers with large followings and good brand fit. • Functional products benefit from demonstrations highlighting practical uses.

Red Book and Pinterest, may be more suitable for influencer marketing. Influencers chosen for these platforms should excel in dynamic interaction strategies, strong brand alignment, and broad reach. On content-based social media, posts should prioritize high-quality, engaging content that appeals to consumers seeking both entertainment and information. On utilitarian social media, the focus should be on providing valuable information to meet the utilitarian motives of the audience. For example, top Pinterest designer Joy Cho, with her aesthetically rich content and engaging interaction, stands out as a leading influencer in design and lifestyle.

Fifth, marketers should craft marketing strategies for distinct product types. For search products, they should select influencers who resonate with the target audience's values and establish transparent and lasting partnerships. For experience products, the strategy should amplify the informational content with strong influencer–brand fit and engaging interaction strategies. This approach helps mitigate skepticism by

providing the information needed to reduce uncertainty. For example, Airbnb partners with influencers such as Murad Osmann to highlight unique stays and experiences, emphasizing engaging content and a strong influencer–brand fit. Additionally, self-expressive products should feature transparent sponsorship disclosure to clarify persuasive intent and prioritize influencers with a large following and brand fit to reinforce social validation. Functional products also demand content that highlights practical benefits, addressing consumers' need for utilitarian information. For example, IKEA partners with interior design influencers such as Emily Henderson to highlight the practical benefits of their products.

Research agenda

Our meta-analysis has several limitations due to the limited number of studies that reported all potential effects across various contexts using diverse methodologies. We outline

several directions for further research, including examination of influencer marketing effectiveness, contextual differences, and methodological and data-related issues (Table 8).

First, there is a need for more in-depth research into influencer marketing effectiveness and the factors affecting consumer skepticism and receptiveness. Because of the insufficient number of effects available in prior research, the present study may not capture all pertinent antecedents and mediators. Scholars could investigate other important antecedents (e.g., customization) and mediators (e.g., perceived

risk) that influence the activation and application of persuasion knowledge. We also call for more research on transactional marketing outcomes (e.g., return on investment, sales, and shares), which are more useful for decision-makers (Hulland & Houston, 2021). Furthermore, future studies can explore the interplay among antecedents and moderators. For example, follower characteristics may determine the effect of post and influencer characteristics on marketing outcomes. By analyzing the interplay of social media and product types, we can examine their synergistic effects on

Table 8 Research agenda on influencer marketing

Issues	Exemplary research directions
Influencer marketing effectiveness	
Main effects	<ul style="list-style-type: none"> • Explore the effect of other important antecedents, such as customization, influencer originality, social influence, and campaign incentives. • Focus more on objective behavioral outcomes, such as return on investment, sales, and shares.
Mechanisms	<ul style="list-style-type: none"> • Explore the potential mechanisms, including trust in the platform, perceived risk, and social media dependency, on influencer marketing outcomes. • Examine when persuasion knowledge is stronger than source credibility, such as when marketers employ skeptical persuasive techniques in their messaging. • Investigate how to leverage the positive effects of persuasion knowledge, although our research examined the negative effects of persuasion knowledge.
Interactive effects	<ul style="list-style-type: none"> • Assess the interplay among antecedents: follower characteristics may alter the effect of post and influencer characteristics on marketing outcomes. • Analyze the synergistic effects of social media and product types in influencer marketing effectiveness. • Investigate the moderators of the effect of post, follower, and influencer characteristics on persuasion knowledge and source credibility.
Contextual differences	
Nature of connection (profile-based vs. content-based social media)	<ul style="list-style-type: none"> • Check for when the effect of follower characteristics and source credibility benefits from content-based social media, and contexts where influencer marketing effectiveness is enhanced on profile-based social media.
Usage (utilitarian vs. hedonic social media)	<ul style="list-style-type: none"> • Examine when the effect of follower characteristics and source credibility on marketing outcomes is increased on utilitarian social media, and when influencer marketing effectiveness is enhanced on hedonic social media.
Further social media types	<ul style="list-style-type: none"> • Test the moderating effects of new social media types (e.g., customized vs. broadcast, and single vs. multiple).
Further product types	<ul style="list-style-type: none"> • Examine new product types (e.g., conspicuous vs. non-conspicuous, high-involvement vs. low-involvement, and new vs. mature) as moderators.
Influencer types	<ul style="list-style-type: none"> • Explore how influencer types (virtual vs. real) moderate the effect of antecedents on influencer marketing effectiveness.
Content formats	<ul style="list-style-type: none"> • Assess the moderating effects of content formats (e.g., posts, stories, videos, and live) in influencer marketing.
Industry and firm types	<ul style="list-style-type: none"> • Evaluate industry characteristics (e.g., degree of competition) and firm types (e.g., startups vs. established firms) as the moderators.
Methodological and data-related issues	
Experimental research	<ul style="list-style-type: none"> • Adopt experimental designs to establish causal inferences regarding the impact of post, follower, and influencer characteristics on marketing outcomes.
Longitudinal research	<ul style="list-style-type: none"> • Employ panel data sets to evaluate the success of either short- or long-term influencer marketing strategy.
Qualitative research	<ul style="list-style-type: none"> • Use qualitative research to explain why and how to enhance the effect of post, follower, and influencer characteristics on marketing outcomes. • Use qualitative research to provide more insights into the unexpected outcomes of this meta-analysis.
Computational modeling	<ul style="list-style-type: none"> • Adopt computational models to gain dynamic insights into influencer marketing effectiveness.

influencer marketing effectiveness. Moreover, scholars can test moderators for the relationship between antecedents and mechanisms. Social media and product types may also moderate the effect of post, follower, and influencer characteristics on persuasion knowledge and source credibility.

Second, we advocate more research into the contextual factors under which consumers draw upon their persuasion knowledge in influencer marketing settings. Consumers use their persuasion knowledge differently according to context. While our results show that content-based and utilitarian social media can boost the effectiveness of influencer marketing, further investigation should examine the conditions under which profile-based and hedonic social media are more effective. Future research can also explore the effects of new characteristics of social media types (e.g., customized vs. broadcast, single vs. multiple) and product types (e.g., conspicuous vs. non-conspicuous, high- vs. low-involvement, and new vs. mature). Researchers could discuss other moderators, such as influencer types (virtual vs. real), content formats (e.g., posts, stories, videos, live), industry characteristics (e.g., degree of competition), and firm types (e.g., startups vs. established firms), as these may influence consumer expectations and suspicion.

Third, the influencer marketing literature would benefit from a wider range of methodologies. While most existing studies use cross-sectional data, which prohibits causal inference, researchers can expand on our study by employing experimental or longitudinal research to check further for causality. Longitudinal research using panel data would help compare the effectiveness of long-term strategies versus one-off campaigns, revealing the effects of prolonged exposure to persuasive tactics on the activation of persuasion knowledge. More qualitative approaches could also help explain unexpected findings. Additionally, future research could employ computational models to gain a deeper understanding of the dynamic process of adopting influencer marketing. This could involve quantifying the extent of influence from an influencer based on their influence system and scheduling influencer postings in dynamically updating schedules.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s11747-024-01052-7>.

Acknowledgements Not applicable.

Author contributions All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by the first and second authors. The first author drafted the initial manuscript, and all authors provided feedback on previous versions and revised parts of them. All authors reviewed and approved the final manuscript.

Funding No funding was received for conducting this study.

Data availability The list of studies included in the meta-analysis is available in the Web Appendix.

Declarations

Ethical approval Not applicable.

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

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