ORIGINAL RESEARCH ARTICLE

Empowering maternal health through digital platforms in China: Pregnant women's online reproductive health product consumption

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Abstract

This study examines the digital consumption of reproductive health products by women, linking it to sustainable development goals. The main objective was to develop and test an online purchase decision-making model for pregnant Chinese women on social media platforms. Data were collected through an online survey of 728 pregnant women with online shopping experience and was analysed using structural equation modelling. The findings revealed that factors such as perceived usefulness, perceived ease of use, and influencer attractiveness directly enhance online purchase intention. Furthermore, influencer attractiveness serves as an affective mechanism mediating the relationship between technological perceptions and purchase intention. Another key finding indicated that para-social relationships positively strengthen the link between attractiveness and purchase intention. We conclude that by extending the Technology Acceptance Model through integrating affective and relational components, this study provides practical insights for stakeholders to collaborate effectively with influencers and support pregnant women in making informed and responsible choices in reproductive health. *(Afr J Reprod Health 2026; 30 [3]: 59-76).*

Keywords: Social Media Influencers, Consumer Decision-Making, Pregnant Women, SDG12.

Résumé

Cette étude examine la consommation numérique de produits de santé reproductive par les femmes, en la liant aux objectifs de développement durable. L'objectif principal était de développer et de tester un modèle de décision d'achat en ligne pour les femmes enceintes chinoises sur les plateformes de médias sociaux. Les données ont été recueillies via une enquête en ligne auprès de 728 femmes enceintes ayant une expérience d'achat en ligne et analysées à l'aide d'une modélisation par équations structurelles. Les résultats ont révélé que des facteurs tels que l'utilité perçue, la facilité d'utilisation perçue et l'attrait de l'influenceur améliorent directement l'intention d'achat en ligne. De plus, l'attrait de l'influenceur sert de mécanisme affectif médiatisant la relation entre les perceptions technologiques et l'intention d'achat. Une autre conclusion clé a indiqué que les relations para-sociales renforcent positivement le lien entre l'attrait et l'intention d'achat. En conclusion, en étendant le Modèle d'Acceptation de la Technologie par l'intégration de composantes affectives et relationnelles, cette étude fournit des insights pratiques pour que les parties prenantes collaborent efficacement avec les influenceurs et aident les femmes enceintes à faire des choix éclairés et responsables en matière de santé reproductive. *(Afr J Reprod Health 2026; 30 [3]: 59-76).*

Mots-clés: : Influenceurs des Médias Sociaux, Prise de Décision du Consommateur, Femmes Enceintes, SDG12

Introduction

Maternal health is a critical global concern, with the World Health Organization (WHO) consistently emphasizing the importance of ensuring access to safe, affordable, and reliable reproductive health products for women during pregnancy.[1]In China, the rapid integration of digital platforms into everyday life has reshaped how pregnant women seek information, build trust, and make purchasing decisions related to supplements, maternal care items, and postnatal recovery products.[2] Unlike traditional health services, online reproductive health product consumption is often mediated by social media communities and influencers, whose recommendations can reduce uncertainty, provide emotional reassurance, and influence consumer confidence.[3] Studying this phenomenon is essential

not only for safeguarding maternal and child well-being, but also for understanding how digital empowerment supports broader global agendas, including SDG5 (Gender Equality) by enhancing women's autonomy in health decision-making, and SDG12 (Responsible Consumption and Production) by fostering responsible, health-oriented consumer practices.

Influencer marketing, defined by Agustian, Hidayat[4], refers to the use of social media influencers (SMIs) to enhance brand visibility and promote products and services. Over the past decade, this approach has grown rapidly, becoming one of the most influential tools in shaping digital consumer behavior. The Influencer Marketing Benchmark Report by Influencer Marketing Hub (2022) shows that the global market value expanded from $1.7 billion in 2016 to $13.8 billion in 2021, with projections of $16.4 billion in 2022. Its effectiveness is widely acknowledged: 91% of respondents affirmed influencer marketing's impact, 79% of marketers planned to increase their budgets, and businesses reported an average return of $5.78 for every dollar invested in 2019. These statistics demonstrate the transformative role of influencer marketing in influencing consumption choices across diverse sectors, including health-related products.

China presents a distinctive case, as social media platforms such as WeChat, Weibo, Douyin (TikTok China), and Xiaohongshu (RED) dominate online engagement, integrating short videos, livestreaming, and e-commerce in unprecedented ways. According to the 48th Statistical Report on the Development of the Internet in China, VLOG users reached 888 million, live broadcasting users amounted to 638 million, and 384 million participated in e-commerce live streams. Douyin's gross merchandise volume grew fifty-fold in January 2021 compared to the previous year, while the 2021 Talent Development Report projected the total economic output of vlog and livestreaming e-commerce to reach 2,553.5 billion yuan by 2023. These developments highlight the scale of China's influencer-driven economy and the critical role of digital platforms in consumer decision-making. While most industry analyses emphasize financial outcomes, less is known about how social media technology and para-social relationships affect pregnant women's decision-making in reproductive health product consumption. Previous studies largely focus on fashion or general lifestyle products[5,6], leaving a research gap in maternal health contexts. Understanding how SMIs shape attractiveness, trust, and purchase intention in this sector is vital, given that reproductive health products—such as prenatal supplements, maternal care items, and postnatal recovery products—are closely tied to maternal and child well-being.

Moreover, the relationship between influencer marketing and the Sustainable Development Goals (SDGs) remains underexplored. In the context of reproductive health, social media engagement can directly advance SDG5 (Gender Equality) by enhancing women's health autonomy and decision-making power[7,8], and SDG12 (Responsible Consumption and Production) by fostering informed, health-oriented, and sustainable consumer choices.[9]Aligning digital consumption with global development goals provides both theoretical and practical significance for academia, industry, and policy.Against this backdrop, this study aims to construct and empirically validate a model of pregnant women's online reproductive health product purchase decision-making in the context of social media and influencer marketing. Drawing upon both Chinese and international scholarship, the research seeks to deepen theoretical understanding and offer practical strategies for empowering maternal health through digital platforms.

Literature review

Technology acceptance model (TAM)

The Technology Acceptance Model (TAM), grounded in the theory of reasoned action, explains

how perceived usefulness (PU) and perceived ease of use (PEOU) shape users' attitudes, intentions, and actual adoption of digital technologies.[10, 11] In maternal-health contexts, TAM and related acceptance models have been applied to telemedicine, mobile health, and smart monitoring devices, showing that PEOU often enhances PU and, together, predicts intention to use digital health solutions among pregnant women[12-14].

Beyond its core constructs, online health shopping introduces determinants linked to trust and risk. Research integrating trust and perceived risk into TAM consistently demonstrates that trust reduces risk and strengthens the PU–intention pathway in e-commerce and digital health settings—factors that are particularly salient when pregnant consumers evaluate product safety and source credibility.[15, 16]

China's social-commerce ecosystem (e.g., Douyin livestreaming, Xiaohongshu community reviews) further emphasizes social interaction, interactivity, and entertainment as external variables feeding into TAM beliefs and attitudes. Empirical studies show that influencers' attractiveness, expertise, and credibility significantly shape purchase intentions, while platform interactivity enhances perceived value and user attitudes—mechanisms directly applicable to reproductive-health product decision-making[17, 18].

Crucially, para-social relationships (PSRs) help explain how pregnant consumers form enduring bonds with health influencers, increasing persuasion beyond information quality. Recent findings demonstrate that PSRs and influencer–product congruence jointly elevate consumer evaluations and purchase intentions, while broader influencer marketing literature highlights PSRs' positive effect on online behaviors[19, 20]. In the Chinese maternal-health context, Xiaohongshu has emerged as an active arena for prenatal and postpartum health narratives, providing fertile ground for PSR-mediated influence[21].

Finally, domain-specific evidence confirms that Chinese expectant mothers actively use social media to seek and share pregnancy-related information, underscoring the contextual importance of digital platforms in shaping reproductive-health decision-making[22]. In sum, our model retains TAM's PU and PEOU as fundamentals, and—given the maternal-health context—adds trust, perceived risk, influencer attractiveness / credibility, interactivity / social presence, and PSR as theoretically justified external variables that shape attitudes and purchase intentions for reproductive-health products in China's social-commerce environment. This also aligns with SDG5 (Gender Equality) by enhancing women's health autonomy and SDG12 (Responsible Consumption and Production) by promoting informed, safe, and responsible purchasing.

Research hypotheses development

Perceived usefulness (PU) refers to the extent to which individuals believe that using a particular technology enhances their task performance.[23]In the context of social media platforms, PU reflects the degree to which consumers perceive that these platforms facilitate efficient information retrieval, product evaluation, and purchase decision-making. [24, 25]When consumers consider that a platform contributes to reducing their search costs, improving decision quality, or providing relevant recommendations, their perception of the platform's usefulness increases. Higher levels of perceived usefulness strengthen consumers' intention to adopt and utilize digital technologies [26, 27]. Moreover, in online shopping contexts, PU has been identified as a critical predictor of online purchase intention, as consumers who perceive greater utility are more inclined to transform their evaluations into actual purchase decisions[28]. Therefore, it is hypothesized that:

H1: Pregnant women's perception of the usefulness of social media platforms will have a positive impact on their intention to purchase reproductive health products online.

Perceived ease of use (PEOU) is another fundamental construct of TAM, defined as the degree to which individuals believe that using a technology will be free of effort.[23] In online shopping environments, PEOU reflects the convenience and simplicity of platform navigation, the clarity of information, and the overall user-friendliness of the system. When platforms are perceived as easy to use, consumers are less likely to experience cognitive or technical barriers, which enhances their overall satisfaction with the online shopping process[29]. Furthermore, PEOU not only directly influences consumers' attitudes toward platform usage but also indirectly strengthens perceived usefulness, thereby amplifying its effect on purchase intentions[11]. PEOU significantly contributes to consumers' willingness to engage in online purchasing, particularly when supported by interactive and intuitive platform designs[30,31]. Accordingly, it is posited that:

H2: Pregnant women's perceived ease of use of social media platforms will positively influence their intention to purchase reproductive health products online.

When users feel that a platform helps them obtain more relevant, reliable, and entertaining content with minimal effort, their evaluation of influencers presented on the platform may also be enhanced[32,33]. Technological effectiveness often amplifies the positive evaluation of message senders[34,35]. Moreover, consumers perceptions of platform usefulness increase their trust in and identification with influencers, thereby reinforcing attractiveness[36]. Accordingly, this study hypothesizes:

H3: Pregnant women's perceived usefulness of social media platforms will positively influence their perceived attractiveness of influencers when considering reproductive health product information online.

In the social media environment, PEOU relates to the convenience of navigating platforms, accessing influencer content, and interacting with posts or live streams.[37] A higher level of ease of use reduces cognitive barriers and allows consumers to focus more on the qualities of influencers themselves, such as their aesthetics, charisma, and authenticity[38,39]. When digital platforms are easy to use, users experience greater enjoyment and hedonic value[36], which in turn enhances the perceived attractiveness of the influencer.Similarly, Yuan, Shah[40] emphasized that influencer personality and presentation style, when mediated by user-friendly technological contexts, can outweigh technical professionalism and become decisive factors for sustained consumer attention. Based on TAM, PEOU also contributes indirectly to PU, thereby reinforcing the pathway from system usability to influencer attractiveness. Hence, it is posited that:

H4: Pregnant women's perceived ease of use of social media platforms will positively affect their perceived attractiveness of influencers when evaluating reproductive health product information online.

Perceived attractiveness refers to the extent to which consumers evaluate the visual, personal, and social appeal of influencers, encompassing physical appearance, personality traits, and communication style [41, 42]. In the social media and live-streaming context, attractiveness serves not only as an aesthetic evaluation but also as an affective cue that shapes consumers' attitudes toward both the influencer and the promoted products. According to the halo effect, higher perceived attractiveness enhances consumers' recognition of the information conveyed, thereby increasing their willingness to accept product recommendations.[43,44] De Veirman, Cauberghe[45] showed that influencers with a higher level of perceived attractiveness, as reflected by followers' engagement and subjective evaluations, are more persuasive in shaping purchase decisions. Similarly, Meng, Duan[36] found that influencer attractiveness generates hedonic value perceptions, which positively influence purchase intentions. More recently, Li, Kang[46]

confirmed that visual appeal, charisma, and influencer attractiveness significantly impact consumers' impulse buying behavior in the cosmetics sector. These findings highlight that attractiveness acts as a strong predictor of online purchase intention by stimulating emotional engagement and reducing consumers' cognitive resistance.Therefore, in line with the TAM framework and prior empirical evidence, this study hypothesizes that:

H5: Pregnant women's perceived attractiveness of influencers will positively affect their intention to purchase reproductive health products online.

Influencer attractiveness is a crucial affective cue that can transform perceived functional benefits into positive consumer attitudes[47]. When users perceive that social media platform are highly useful, they are more likely to engage with influencer content, which in turn increases the perceived attractiveness of the influencer[48]. Attractiveness amplifies trust and hedonic value perceptions, thus acting as a key driver of purchase intention [36]. Moreover, Chen and Yang[49] confirmed in the live shopping context that influencer appeal significantly shapes consumer buying behavior by converting utilitarian benefits into emotional engagement. Therefore, we posit:

H6: Pregnant women's perceived usefulness of social media platforms is expected to influence their intention to purchase reproductive health products online indirectly through perceived attractiveness of influencers, highlighting a mediating mechanism consistent with the extended TAM.

In online shopping environments, higher PEOU reduces cognitive barriers, enabling users to focus more on the content presented by influencers[37]. This enhanced usability creates a favorable environment for consumers to perceive influencers as more attractive, since they can effortlessly engage with visual and interactive elements such as live streams, short videos, and product demonstrations.

PEOU not only directly predicts purchase intention but also indirectly enhances PU and strengthens consumers' evaluations of information sources[11]. In social media contexts, user-friendly design increases hedonic enjoyment, which in turn amplifies the perceived attractiveness of influencers[50]. Similarly, studies in live commerce highlight that smoother platform navigation increases consumers' engagement with influencers, making attractiveness a key intermediary factor[51]. Accordingly, this article proposes:

H7: Pregnant women's perceived ease of use of social media platforms is expected to influence their intention to purchase reproductive health products online indirectly through perceived attractiveness of influencers, underscoring its mediating role in the decision-making process.

Para-social relationship (PSR) is to describe the seemingly interpersonal, but essentially one-sided, relationship between media figures and audiences[52]. Although unidirectional in nature, PSR often evolves into a pseudo two-way interaction, creating feelings similar to real social connections. In marketing contexts, PSR has become an important theoretical lens to explain consumer–influencer interactions, as consumers' emotional attachment and perceived intimacy with influencers often translate into stronger attitudes toward endorsed products and brands.[53]

PSR significantly influences purchase-related outcomes. Ballantine and Martin[54] found that the more audiences perceive PSR with media personalities, the more likely they are to purchase products promoted by them. PSR reduces consumers' perceived risks, strengthens trust, and facilitates emotional engagement with influencers.[55] In particular, PSR acts as a psychological mechanism that amplifies the persuasive impact of influencers' attractiveness, since consumers are more inclined to interpret influencers' recommendations as authentic and personally relevant when they feel connected to them [56].In the study of live streaming e-commerce,

impulse buying has been highlighted as a critical consumer behavior. Hoo, Kumar[57] found that perceived entertainment, interactivity, and social influence significantly drive impulse purchases on Malaysian cosmetic live-shopping platforms. While both their study and the present research underscore the roles of interactivity and influencer attractiveness, Hoo, Kumar[57] emphasize impulse buying mechanisms, whereas this study focuses on planned purchase intentions, thereby offering complementary insights into consumer behavior across contexts.Therefore, in the framework of this study, it is hypothesized that

H8: Para-social relationships play a positive moderating role in the effect of perceived attractiveness of influencers on pregnant women's intention to purchase reproductive health products online.

Research model

This study proposes the following research model (Figure1)

Methods

This study employed an online survey method to collect data from pregnant women in China who had experience purchasing reproductive health products through social media platforms. Using a random sampling approach, a total of 728 valid responses were obtained between February and March 2025, covering a one-month data collection period.The questionnaire was divided into six sections. The first section included demographic information such as age, education, occupation, and monthly income. The second to sixth sections measured the key constructs of the study using a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). The constructs, measurement items, and sources are as follows:

Perceived Usefulness (PU): 3 items (PU1–PU3), adapted from Davis[23] and Gefen, Karahanna[26].
Perceived Ease of Use (PEOU): 3 items (PEU1–PEU3), based on Davis[23] and Venkatesh and Davis[11].
Perceived Attractiveness (ATR): 6 items (ATR1–ATR6), referencing Ohanian [41], De Veirman, Cauberghe [45], and Meng, Duan[36].
Online Purchase Intention (OPI): 3 items (OPI1–OPI3), adapted from Dodds, Monroe[58] and Wen[59].
Para-social Relations (PSR): 4 items (PSR1-PSR4), adapted from Labrecque[60].

All items were translated and refined to fit the context of social media influencer marketing in China, ensuring content validity. The questionnaire was pre-tested with 30 respondents to confirm clarity and reliability before formal distribution. The items are shown in Appendix A.The collected data were analyzed using a series of statistical techniques.

First, descriptive statistics were conducted to summarize demographic characteristics.

Second, reliability analysis (Cronbach's α and composite reliability) and validity tests (KMO, Bartlett's test, and AVE) were performed to assess measurement quality.

Third, confirmatory factor analysis (CFA) was conducted to validate the measurement model, followed by structural equation modeling (SEM) to test the hypothesized relationships among variables.

Finally, moderation analysis was applied to examine the moderating effects of para-social relationships (PSR) on the link between influencer attractiveness and online purchase intention. This multi-step analysis ensured both the robustness of the measurement instruments and the validity of the theoretical model, providing empirical evidence to support the study's hypotheses.

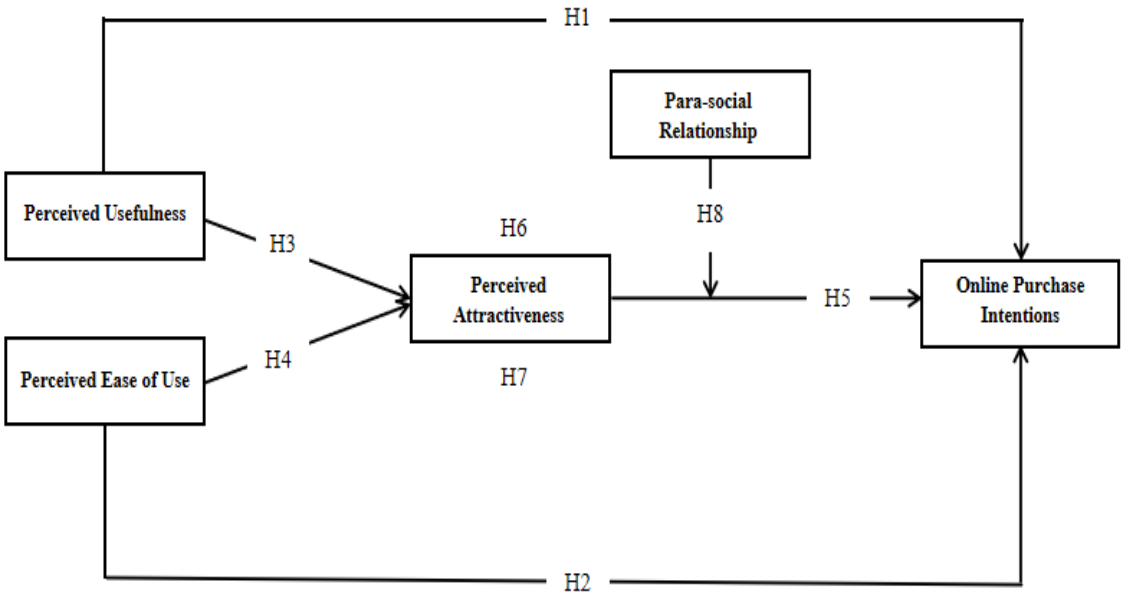

Fig 1: Conceptual model

Ethical considerations

This research received ethical approval from the institutional review board of Shinawatra University, on 10 January 2025 (Approval/Reference No.: SIU-EDU-IRB-2025-014). All procedures followed the principles of the Declaration of Helsinki and the CIOMS International Ethical Guidelines for Health-related Research. All participants were pregnant women aged 18 years or older residing in China who had previous experience purchasing reproductive-health products through social media platforms. Before participating, respondents were presented with an electronic information sheet describing the study's purpose, procedures, potential risks and benefits, confidentiality policy, and contact information for the ethics committee. Participation was entirely voluntary, and informed consent was obtained through an electronic opt-in form prior to survey initiation

Results

Descriptive analysis

A total of 728 valid samples were collected for this study, with 715 respondents being pregnant women, accounting for 98.2% of the participants, in accordance with the survey's focus on reproductive health product consumption.

The age distribution of the respondents primarily ranged from 20 to 35 years old, encompassing the majority of respondents (83%). The respondents predominantly held undergraduate degrees (42.3%), with the highest proportion being students (36.7%), followed by individuals employed in private enterprises and government positions, both comprising 21.4% of the sample. The income range of 2001-4000 yuan per month had the highest proportion of respondents at 31.9%, aligning with the increased participation rate of students in the survey.

Reliability and validity of the model

In order to ascertain the reliability of the research instrument, the Cronbach's Alpha reliability coefficient is employed to assess the extent of consistency among the variables in the questionnaire across each individual measurement item. It is widely acknowledged within the scholarly community that a Cronbach's Alpha coefficient exceeding 0.7 is indicative of favorable reliability for a given variable[61].

To confirm discriminant validity, the square root of the AVE (diagonal in bold) must be greater than the numbers in each row and column, which correspond to the correlations between factors[62]. The reliability is confirmed by the composite reliability being greater than 0.7 and the AVE being higher than 0.5.[63]

As observed in the aforementioned Table 1, the Cronbach's Alpha coefficients for each variable surpass the threshold of 0.7, suggesting favorable internal consistency reliability. Furthermore, the standardized factor loads of each measurement index within every variable, as depicted in the table, exceed 0.6. Additionally, the composition reliability (CR) exceeds 0.7, while the average variance extraction (AVE) surpasses 0.5, affirming the existence of sound convergent validity for each variable.

Model analysis

Figure 2 illustrates the structural equation model (SEM) constructed to test the hypothesized relationships among the study variables. The model includes Perceived Usefulness, Perceived Ease of Use, Perceived Attractiveness, and Online Purchase Intention. Each latent variable is measured through its respective observed indicators (e.g., PU1–PU3 for Perceived Usefulness, PEU1–PEU3 for Perceived Ease of Use, ATR1–ATR6 for Perceived Attractiveness, and OPI1–OPI3 for Online Purchase Intention). The path coefficients shown in the model represent the standardized regression weights between constructs. Both Perceived Usefulness and Perceived Ease of Use exert significant positive effects on Perceived Attractiveness and directly on Online Purchase Intention. Perceived Attractiveness, in turn, has a direct positive effect on Online Purchase Intention, confirming its mediating role. The factor loadings for each indicator exceed the recommended threshold of 0.70, indicating good measurement reliability.

Model fit

It can be seen from the Table 2 below that CMIN/DF is 1.623, which is less than 3, GFI, A GFI, NFI, TLI, IFI, and CFI are all above 0.9, RMR is 0.040, less than 0.08, and RMSEA is 0.029, less than 0.08, each fitting index is in line with the general research standards, so it can be considered that this model has a good fit [64].

Path coefficient

From the Table 3, it can be seen that perceived usefulness has a significant positive effect on attractiveness ($\beta = 0.429$, $p < 0.05$) , and the hypothesis is established; perceived ease of use has a significant impact on attractiveness ($\beta = 0.358$, $p < 0.05$) has a significant positive impact, the assumption is valid; perceived usefulness has a significant positive impact on online purchase intention ($\beta = 0.350$, $p < 0.05$) , the assumption is valid; perceived ease of use has a significant positive impact on online purchase intention ($\beta = 0.287$, $p < 0.05$) has a significant positive effect, the hypothesis holds; attractiveness has a significant positive effect on online purchase intention ($\beta = 0.386$, $p < 0.05$) , the hypothesis holds [65] .

Mediation analysis

This study uses Bootstrapping method to verify the mediation effect. Studies have shown that if the bootstrap confidence interval does not contain 0, the corresponding indirect, direct or total effect exists [66].

Table 1: Results of reliability and validity tests for construct

	PU	EU	ATT	Ps-R	OPI	Cronbach's Alpha	AVE	CR
Perceived Usefulness	0.713					0.754	0.509	0.756
Ease of Use	.251**	0.797				0.838	0.635	0.839
Attractiveness	.459**	.439**	0.812			0.920	0.660	0.921
Para-social Relations	.146**	.204**	.280**	0.833		0.919	0.694	0.919
Online Purchase Intention	.535**	.514**	.657**	.327**	0.853	0.888	0.728	0.889

Note: *The diagonal indicates the square root of the AVE (discriminant validity). The data in the lower triangle corresponds to the correlations between the factors. CR: composite reliability. AVE: average variance extracted.*

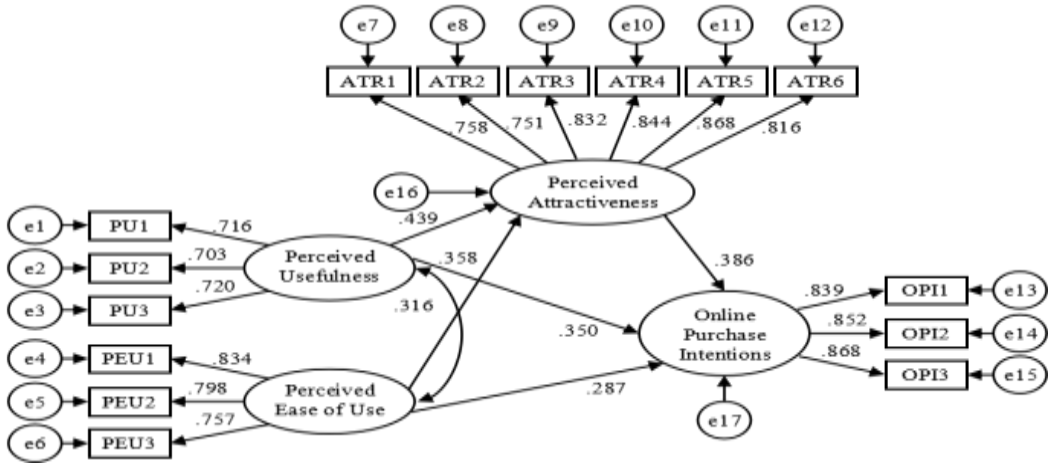

Figure 2: Structural Equation Model

Table 2: Structural equation model fit

Model Fit Metrics	**optimal standard value**	**Statistics**	**fit**
CMIN	——	136.341	——
DF	——	84	——
CMIN/DF	<3	1.623	good
RMR	<0.08	0.040	good
GFI	> 0.9	0.976	good
AGFI	> 0.9	0.966	good
N F	>0.9	0.979	good
IFI	>0.9	0.992	good
TLI	>0.9	0.990	good
CFI	>0.9	0.992	good
RMSEA	<0.08	0.029	good

Table 3: Path test

Path			Standardized Coefficient	Unstandardized Coefficient	SE	CR	P	Result
Online purchase intention	<---	perceived usefulness	0.350	0.371	0.045	8.193	***	Supported
Online purchase intention	<---	perceived ease of use	0.287	0.292	0.037	7.966	***	Supported
Perceived attractiveness	<---	Perceived usefulness	0.439	0.467	0.049	9.612	***	Supported
Perceived attractiveness	<---	Perceived ease of use	0.358	0.364	0.041	8.847	***	Supported
Online purchase intention	<---	Perceived attractiveness	0.386	0.385	0.042	9.067	***	Supported

Table 4: Mediation analysis

	Standardized effect size	Bias-Corrected 95% CI		Percentile 95% CI	
		Lower	Upper	Lower	Upper
Total effect					
Perceived usefulness→online purchase intention	0.519	0.423	0.611	0.423	0.611
Perceived Ease of Use→Online Purchase Intention	0.425	0.329	0.511	0.332	0.514
Indirect effect					
Perceived usefulness→attractiveness→online purchase intention	0.170	0.121	0.229	0.121	0.230
Perceived Ease of Use→Attractiveness→Online Purchase Intention	0.138	0.096	0.195	0.095	0.193
Direct effect					
Perceived usefulness→online purchase intention	0.350	0.235	0.454	0.234	0.453
Perceived Ease of Use→Online Purchase Intention	0.287	0.188	0.379	0.187	0.378

Table 5: Para-social Relations adjustment test between attractiveness and online purchase intention

	Online Purchase Intention		
	M1	M2	M3
Gender	0.129 **	0.086 **	0.089 **
Age	0.037	0.025	0.012
Educate	0.005	-0.045	-0.037
Profession	-0.030	0.003	-0.008
Average monthly income	0.012	0.013	0.010
Follow time	0.086 *	0.061*	0.058*
Attractiveness		0.612***	0.582***
Para-social relations		0.148***	0.181***
Attractiveness x para-social relations			0.210***
R^2	0.026	0.467	0.510
Adjusted R^2	0.026	0.020	0.042
F	3.207 **	78.826 ***	82.905 ***

*Note: *, p <0.05; **, p<0.01; ***, p<0.001*

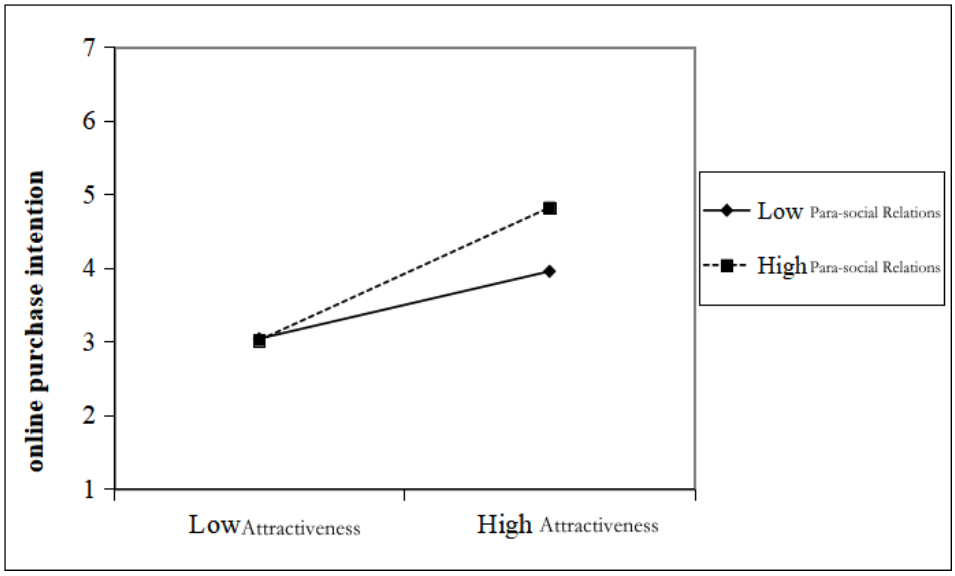

Figure 3: Online purchase intention

Table 6: Research hypothesis

	Research Hypothesis	Results
H1	Pregnant women's perceived usefulness of social media platforms directly affects their intention to purchase reproductive health products online.	Support
H2	Pregnant women's perceived ease of use of social media platforms directly affects their intention to purchase reproductive health products online.	Support
H3	Pregnant women's perceived usefulness of social media platforms directly affects their perceived attractiveness of influencers.	Support
H4	Pregnant women's perceived ease of use of social media platforms directly affects their perceived attractiveness of influencers.	Support
H5	Pregnant women's perceived attractiveness of influencers directly affects their intention to purchase reproductive health products online.	Support
H6	Perceived attractiveness of influencers mediates the relationship between pregnant women's perceived usefulness of social media platforms and their online purchase intention for reproductive health products.	Support
H7	Perceived attractiveness of influencers mediates the relationship between pregnant women's perceived ease of use of social media platforms and their online purchase intention for reproductive health products.	Support
H8	Para-social relationships positively moderate the effect of perceived attractiveness of influencers on pregnant women's intention to purchase reproductive health products online.	Support

2000 times in AMOS23.0, the level values of Bias-Corrected and Percentile at a 95% confidence level are obtained, as shown in Table 4. From Table 4, it can be seen that the total effect value of perceived usefulness→online purchase intention is 0.384, which does not contain 0 within the value range of

the Lower and Upper values of the 95% CI of Bias-Corrected and Percentile, indicating that the total effect exists.

The indirect effect value of perceived usefulness→attractiveness→online purchase intention is 0.074, which does not contain 0 within the value range of the Lower and Upper values of the Bias-Corrected and Percentile 95% CI, indicating that the indirect effect exists;

The effect value of is 0.162 (Perceived usefulness→online purchase intention), which does not contain 0 in the Lower and Upper value intervals of Bias-Corrected and Percentile 95% CI, indicating that the direct effect exists; therefore, attractiveness plays a role in the process of perceived usefulness affecting online purchase intention. The mediating role is assumed to be established.

The total effect value of online purchase intention is 0.309, which does not contain 0 within the value range of the Lower and Upper values of Bias-Corrected and Percentile 95% CI, indicating that the total effect exists;

The indirect effect value of online purchase intention is 0.057 (Perceived ease of use→Attraction), which does not contain 0 in the lower and upper value intervals of Bias-Corrected and Percentile 95% CI, indicating that the indirect effect exists. The direct effect value is 0.142 (Perceived ease of use→Online purchase intention), which does not contain 0 in the Lower and Upper value intervals of Bias-Corrected and

Percentile 95% CI, indicating that the direct effect exists; therefore, attractiveness plays a role in the process of perceived ease of use affecting online purchase intentions. The mediating role is assumed to be established.

Moderation analysis

Taking gender, age, education, occupation, average monthly income, and attention time as control variables, Attractiveness was specified as the independent variable, Para-social Relationships as the moderating variable, and Online Purchase Intention as the dependent variable. A moderation analysis was conducted accordingly, and the results are presented in Table 5.

From the table 5, it can be obtained from Model 3 that Attractiveness X Para-social Relations has a significant positive impact on Online Purchase Intention (β= 0.210, $p < 0.05$), indicating that Para-social Relations has a positive influence on Attractiveness on Online Purchase Intention The adjustment effect is assumed to be established.

All study hypotheses were tested and the results are as follows table 6:Through empirical research, we found Perceived usefulness and perceived ease of use in the process of using social media platforms, together with pregnant women's perceptions of influencer attractiveness, significantly affect their online purchase intentions for reproductive health products. At the same time, para-social relationships play a moderating role in this process. The stronger the perceived para-social relationship, the stronger the effect of influencer attractiveness on online purchase intention. Furthermore, perceptions of influencer attractiveness mediate the relationships between perceived usefulness and perceived ease of use and pregnant women's online purchase intention.

Discussion

Based on 728 valid responses from pregnant women in China, this study empirically tested the proposed model for online purchase intention (OPI) of reproductive health products within social media environments. Results indicate significant effects of perceived usefulness (PU), perceived ease of use (PEOU), and perceived attractiveness (ATR) on OPI, a positive moderating role of para-social relationships (PSR) in the ATR→OPI link, and significant mediation of ATR between PU/PEOU and OPI.

First, PU and PEOU significantly predict pregnant women's OPI, consistent with TAM's core predictions. This extends prior evidence that

TAM variables explain digital health uptake among perinatal populations (e.g., tele/ m-health and smart prenatal monitoring) to purchase decisions for reproductive-health products in social commerce settings (e.g., Douyin, Xiaohongshu)[10,11]; see also applications to pregnant women's digital health use in Wu, Cui[13] and Atinafu, Tilahun.[67] These findings align with earlier e-commerce TAM extensions emphasizing usefulness and usability for intention formation.

Second, influencer attractiveness exerts a robust, positive effect on OPI. This is compatible with source-credibility/attractiveness frameworks and newer influencer research showing that features such as visual appeal, expertise cues, and content quality increase health and supplement-related purchase intentions (e.g., healthy food or supplement endorsements and fitness-influencer campaigns).[19,68] Our data add that, in maternal-health contexts, attractiveness is not merely physical; persona/charisma and hedonic value attached to health KOLs/KOCs play a decisive role in translating platform use into purchase willingness.

Third, PSR moderates the ATR→OPI link: stronger PSR strengthens the persuasion effect of attractiveness on purchase intention. This result converges with marketing and psychology evidence that PSR enhances compliance with influencer recommendations and amplifies attitude–intention transfer; it also helps explain why health influencers with sustained narrative intimacy on Chinese platforms (e.g., Xiaohongshu maternal forums) drive more actionable outcomes among pregnant users.[18,21]

Fourth, ATR mediates the effects of PU and PEOU on OPI. Thus, platform-level beliefs (usefulness/ease) are not sufficient alone; they operate partly through affective/relational appraisals of the influencer. This bridges TAM with the influencer/PSR literature and is consistent with live-commerce findings in China showing that interactivity and streamer attributes convert functional value into purchase intention.[69,70] In maternal-health decision-making—where uncertainty and risk perceptions are salient—this indirect route via attractiveness helps clarify how digital affordances become behavior (i.e., purchase) through affective evaluation of endorsers.

Contextual relevance. Prior work shows that Chinese expectant mothers actively seek and share pregnancy-related information on social media [22, 71], underscoring why influencer-mediated mechanisms identified here are consequential for reproductive-health product consumption and maternal well-being.[72]

Theoretical Contributions

Taken together, these findings extend both the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB) in the context of maternal health consumption and influencer marketing. While TAM traditionally emphasizes cognitive evaluations such as perceived usefulness (PU) and perceived ease of use (PEOU), this study demonstrates that affective and relational constructs—specifically influencer attractiveness and para-social relationships (PSRs)—play critical mediating and moderating roles in shaping pregnant women's online purchase intentions for reproductive health products. By incorporating these affective dimensions, the model not only enhances the explanatory power of TPB, which highlights attitudes, subjective norms, and perceived behavioral control, but also underscores the central role of emotional trust, intimacy, and social connectedness in digital health consumption. The results therefore generate new knowledge by illustrating how consumer–influencer dynamics bridge the gap between platform usability and purchase behavior, offering a more holistic understanding of decision-making in high-stakes contexts such as maternal and reproductive health.

Practical implications

This study carries several important implications for practice. First, for social media platforms,

enhancing usability and perceived usefulness should remain a priority. Features such as clear product categorization, reliable search functions, and user-friendly payment systems can reduce pregnant women's cognitive burden and increase their confidence in making purchase decisions. Platforms may also integrate health verification tags, safety certifications, and algorithmic recommendations that prioritize reliable reproductive health products, thereby strengthening both perceived usefulness and trust.

Second, for maternal-health brands and e-commerce vendors, attractiveness should be redefined to extend beyond superficial appearance. Effective branding strategies include consistent professional style, medical or nutritional credibility, and transparency in product sourcing. Providing interactive content such as Q&A sessions, livestream demonstrations, and expert endorsements (e.g., obstetricians or nutritionists) can build authenticity and signal reliability, which are crucial for sensitive categories like prenatal supplements or postnatal recovery products.

Third, for influencers, cultivating attractiveness involves demonstrating empathy, relatability, and expertise in maternal health. Unlike in fashion contexts, pregnant women are particularly responsive to influencers who combine emotional support with informational authority. Consistent engagement, storytelling about personal maternal experiences, and interactive communication (e.g., replying to comments, offering personalized suggestions) strengthen para-social relationships. This, in turn, amplifies the effect of attractiveness on purchase intention and fosters longer-term consumer attachment.

Fourth, for consumers and maternal communities, the findings suggest that digital literacy and health education are essential. Pregnant women may benefit from guidelines on how to evaluate product credibility, verify influencer qualifications, and distinguish between trustworthy and misleading information. Online communities could serve as spaces not only for sharing experiences but also for peer review of influencers and vendors, creating a collective mechanism to reduce uncertainty and risk.

Finally, for regulators and industry stakeholders, the results underscore the urgency of addressing counterfeit reproductive health products and misleading marketing practices in China's competitive social commerce market. Policies that require product traceability, stricter advertising disclosure, and certification for influencers in maternal-health niches can help safeguard consumer well-being. Strengthening trust and relational bonds through governance and industry self-regulation may be the key to sustaining responsible consumption and long-term loyalty among pregnant consumers, aligning with the broader goals of SDG5 (Gender Equality) and SDG12 (Responsible Consumption and Production).

Conclusion

This study investigated the mechanisms underlying online purchase intention among pregnant women in China regarding reproductive health products in social media commerce. Drawing on the Technology Acceptance Model (TAM) and extending it with constructs of influencer attractiveness and para-social relationships (PSR), the findings demonstrate that perceived usefulness and perceived ease of use of social media platforms, together with influencer attractiveness, significantly influence purchase intentions. Moreover, PSR positively moderates the relationship between attractiveness and purchase intention, while attractiveness mediates the impact of perceived usefulness and ease of use on purchase intention. Collectively, these results highlight the dual role of technological affordances and social–emotional mechanisms in shaping digital maternal health consumption.Beyond theoretical validation, this research contributes to broader discussions on the Sustainable Development Goals (SDGs). Specifically, the findings underscore how pregnant

women's engagement in digital consumption relates to SDG5 (Gender Equality) by reflecting women's increasing digital empowerment and autonomy in health-related decision-making. At the same time, the focus on reproductive health products has implications for SDG12 (Responsible Consumption and Production). While social media can stimulate health-related consumption, influencer-driven marketing may also encourage more responsible product choices if platforms and influencers promote authenticity, safety, and evidence-based maternal health products. Thus, the study situates maternal digital consumption at the intersection of empowerment and sustainability, providing insights for both academic inquiry and practical strategies.Nevertheless, this research is subject to several limitations. Theoretically, the study relies primarily on TAM extensions, focusing on technological and relational variables while excluding other potential drivers such as subjective norms, perceived risk, and cultural values. Regarding variables, the model incorporates usefulness, ease of use, attractiveness, and PSR, but does not capture broader constructs such as influencer credibility beyond attractiveness, health literacy, or long-term consumer trust. Empirically, the study adopts a micro-level lens, focusing exclusively on pregnant women in China's reproductive health market. While this provides valuable insights into a highly relevant demographic, it limits the generalizability of findings to other populations, regions, or product categories.Future research should address these limitations by integrating additional theoretical perspectives such as consumer culture theory, affective commitment, or value co-creation to deepen understanding of digital health consumption. Variables such as sustainability awareness, perceived medical risk, or professional endorsement could be included to align more closely with maternal and child health priorities. Expanding research to include postpartum women, partners, or cross-cultural comparisons would enhance external validity. Furthermore, longitudinal designs and mixed-methods approaches could capture dynamic changes in para-social relationships and evolving consumer attitudes in influencer-driven maternal health markets.In conclusion, this study provides a theoretically enriched and empirically validated model that connects technology acceptance with influencer marketing, highlighting the centrality of pregnant women's digital experiences in shaping reproductive health consumption. By bridging theory and practice, it contributes to both academic discourse and industry strategies in the era of maternal social commerce, and aligns with global efforts to promote women's empowerment and sustainable health-related consumption.

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