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The Moderating Role of Self-Esteem in the Relationship between Embarrassment and Purchase Intention for Intimate Hygiene Products: A Quantitative Study in the Ivorian Context

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Abstract

In many African cultural contexts, purchasing intimate hygiene products is laden with social meanings that can generate embarrassment. This study examines the association between embarrassment and the intention to purchase intimate hygiene products, and tests whether self-esteem moderates this association, in Côte d'Ivoire. A quantitative survey was conducted among 305 consumers living in Côte d'Ivoire. The scales were validated by exploratory factor analysis and Cronbach's alpha. Three regression models were estimated: embarrassment alone, a complete moderation model, and a model adjusted for sociocultural and sociodemographic controls. Embarrassment is positively associated with the outcome (β = 0.511; 95% CI [0.411, 0.605]). The outcome measures the self-reported willingness to buy despite discomfort. In the complete model, the Embarrassment × Self-esteem interaction is not significant (β = 0.037; 95% CI [−0.084, 0.152]; $p = 0.545$; $\Delta R^2 = 0.001$), and it remains non-significant after adjustment. H2 is therefore not supported. After adjustment, embarrassment and self-esteem are no longer significant, while shame and public self-consciousness are. Items of opposite wording correlate strongly and positively, so the direction of the scores cannot be fully confirmed. The findings are exploratory.

Keywords

Embarrassment, Self-Esteem, Purchase Intention, Intimate Hygiene Products, Moderation, Côte d'Ivoire

1. Introduction

Intimate hygiene products occupy a singular place in the world of consumption. Although they meet a fundamental physiological need, their purchase remains surrounded, in many African cultural contexts, by a strong sense of modesty and social taboo. In Côte d'Ivoire, the sociocultural norms governing the management of the body and intimacy give these products a particularly delicate status (Ouattara, 2003). This leads many consumers to develop avoidance or purchase-postponement strategies towards products perceived as socially exposing (Gbadamosi, 2012). It is in this context that embarrassment emerges as a central emotion for understanding the purchasing behavior of intimate hygiene products. Embarrassment is defined as an acute social emotion that arises when individuals perceive that their behavior, visible to others, transgresses social norms or exposes intimate aspects of themselves (Goffman, 1956; Tangney et al., 1996; Modigliani, 1971). When purchasing intimate hygiene products, this emotion can arise as soon as consumers perceive that their act signals private information to third parties present in the purchasing environment: other customers, the salesperson, the cashier. Several studies have shown that anticipated embarrassment is a significant barrier to purchasing this type of product (Dahl et al., 2001; Thoumrungroje, 2014; Coupland, 2005; Puntoni et al., 2011). While the existence of this barrier is well established in the Anglo-Saxon and Asian literature, the question of its modulation by individual psychological characteristics remains less explored. Yet an individual's response to purchase embarrassment is not uniform: it varies according to each person's own psychological resources (Kernis, 2003). Among these resources, self-esteem, defined by Rosenberg (1965) as the global and relatively stable evaluation that individuals make of their own worth, has been widely identified as an emotional regulator that buffers social pressures (Baumeister et al., 1996; Kernis, 2003; Greenberg et al., 1992). These questions remain almost unexplored in sub-Saharan Africa, and Côte d'Ivoire remains a setting rarely investigated by research on embarrassment in the purchase of intimate products, even though the specificity of its sociocultural norms makes it a uniquely rich analytical setting (Tiémélé et al., 2025a; Adaye, 2024). The present study addresses this gap. In this context, a central question arises:

To what extent does self-esteem moderate the relationship between the embarrassment felt when purchasing intimate hygiene products and purchase intention, in the Ivorian sociocultural context?

These questions form the guiding thread of this research. The main objective of this study is to analyze, in the Ivorian context, how self-esteem moderates the relationship between embarrassment when purchasing intimate hygiene products and purchase intention. More specifically, this research aims to:

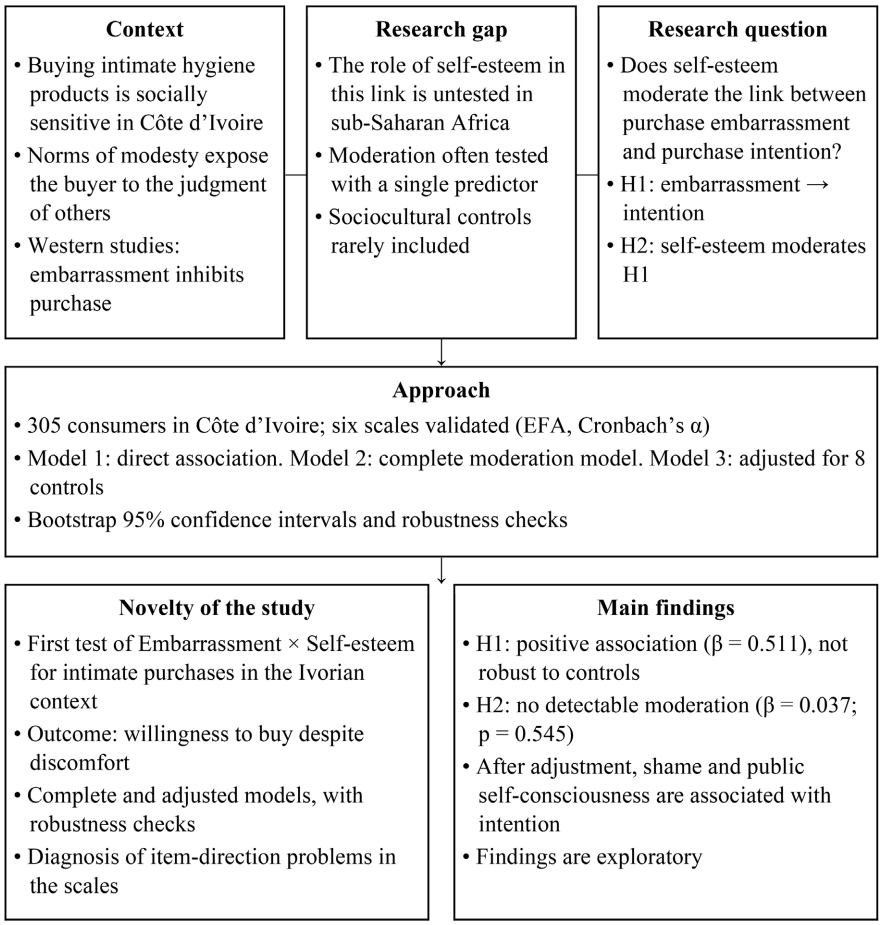
- Examine the direct effect of embarrassment on the intention to purchase intimate hygiene products in Côte d'Ivoire;
- Assess the moderating role of self-esteem in the relationship between embarrassment and purchase intention, controlling for the sociocultural and socio-

demographic characteristics of respondents.

To address these questions, a hypothetico-deductive quantitative approach was adopted. Data were collected through a self-administered questionnaire from consumers living in Côte d'Ivoire; the final sample comprises 305 respondents. Six measurement scales in the Appendix were used and validated through exploratory factor analysis (KMO, Bartlett, Cronbach's alpha). The analyses include a regression of purchase intention on embarrassment, a complete moderation model including embarrassment, self-esteem and their interaction, and a model adjusted for sociocultural and sociodemographic controls.

Figure 1 summarizes the research problem, the gap addressed, the approach and the novelty of the study. It also states the main findings, so that readers can see from the outset how the study answers its question.

The rest of the article is organized as follows. Section 1 presents the literature review. Section 2 describes the methodology used. Section 3 presents the results obtained. Section 4 discusses these results in light of the existing literature. The conclusion summarizes the main contributions of the study, its limitations and its implications for marketing research and practice.



Source: Author.

Figure 1. Research problem, approach and novelty of the study.

2. Literature Review

Understanding embarrassment when purchasing intimate hygiene products, and its interaction with self-esteem, draws on a theoretical and empirical body of work that this section organizes around three axes: the theoretical foundations of embarrassment in consumer behavior, the role of self-esteem as an emotional moderator, and the specificities of the Ivorian context.

2.1. Embarrassment in the Context of Purchasing Intimate Products

Embarrassment is a social emotion whose theoretical foundations were laid by Goffman (1956), for whom it occurs when individuals perceive that their "social self" is involuntarily exposed to the criticism of an audience. Unlike shame, which involves a globally negative evaluation of the person, embarrassment is a situational reaction in which individuals feel observed and judged unfavorably. Tangney et al. (1996) emphasize that it is closely linked to the real or imagined presence of others and that it is one of the most powerful social emotions in the regulation of public behavior.

In the field of consumer behavior, purchase embarrassment has been documented for many categories of sensitive products: medical products (Thoumrungroje, 2014), sexuality-related products (Dahl et al., 2001) and feminine hygiene products (Coupland, 2005). These studies show that anticipated embarrassment is a barrier to purchase intention. Alami & El Guennouni (2023) point out that consumer behavior is a discipline at the crossroads of economics and social psychology, in which emotions play a structuring role. Dahl et al. (2001) distinguish two forms of embarrassment: one related to the social visibility of the product and one related to direct consultation with a salesperson. In both cases, consumers anticipate a negative judgment and adopt avoidance strategies.

In the African and Ivorian context, the management of bodily intimacy is strongly governed by cultural codes that value modesty and discretion (Ouattara, 2003). Gbadamosi (2012) showed in the Nigerian context that African consumers develop a particular sensitivity to social judgments when purchasing products with intimate connotations, a sensitivity reinforced by the communal structure of African societies.

2.2. Self-Esteem as an Emotional Moderator

Self-esteem, conceptualized by Rosenberg (1965) as the global evaluation that individuals make of their own worth, is one of the most robust personality variables in social psychology. Its relative stability over time and its function of regulating emotions in the face of social pressures make it a theoretically relevant moderator. Individuals with high self-esteem maintain their decisions more easily in the face of potential negative judgments from others (Baumeister et al., 1996).

Kernis (2003) showed that individuals with high self-esteem are less affected by threats to their social image. In consumer behavior, Greenberg et al. (1992) estab-

lished that threats to self-esteem increase the likelihood of defensive purchasing behaviors, whereas individuals with high self-esteem are more resistant to social pressures. More recently, Megzari & Dahab (2025) confirmed that internal psychological variables, including self-esteem, play a structuring role in the dynamics of purchase decisions.

2.3. Specificities of the Ivorian Context

Côte d'Ivoire remains a setting little investigated by research on embarrassment in the purchase of intimate products. Its young and urban population faces a tension between traditional norms of modesty and public health imperatives. The work of Tiémélé et al. (2025a, 2025b) has shown that the behavior of Ivorian consumers follows local logics that cannot be directly inferred from Western models. Adaye (2024) confirms that the adoption of new consumption practices in Côte d'Ivoire is strongly conditioned by contextual factors specific to the local market. The study by Begbin et al. (2024), conducted within the same L.A.R.G.E laboratory, provides an important methodological benchmark: these authors demonstrated that moderation models are operational and relevant in the Ivorian context.

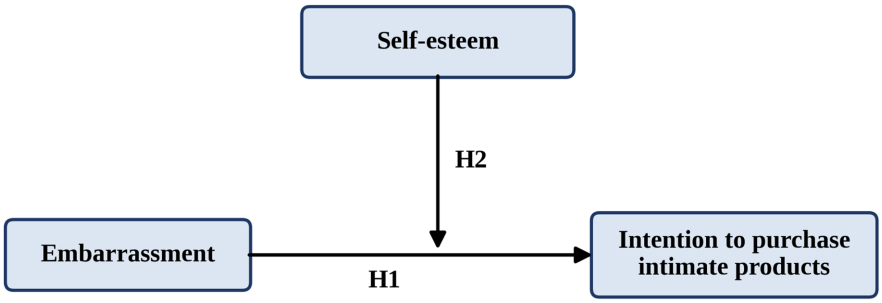
In light of this review, three research hypotheses are formulated:

- H1: The embarrassment felt when purchasing intimate hygiene products has a significant effect on purchase intention.
- H2: Self-esteem moderates the relationship between embarrassment and the intention to purchase intimate hygiene products.

The literature on embarrassment in the purchase of sensitive products provides the basis for H1. Dahl et al. (2001) showed that social presence when purchasing embarrassing products significantly reduces the likelihood of going through with the purchase, a result replicated in several contexts (Thoumrungroje, 2014; Puntoni et al., 2011). In the Ivorian context, the norms of modesty documented by Ouattara (2003) and Gbadamosi (2012) create an environment in which publicly buying an intimate hygiene product can discourage the purchase. H1 rests on these grounds.

The moderation hypothesis (H2) posits that the effect of embarrassment on purchase intention varies according to the level of self-esteem: individuals who view themselves positively would be less inhibited by discomfort and would maintain a firmer purchase intention, whereas individuals with low self-esteem would be more discouraged. This mechanism, consistent with the work of Kernis (2003), has never been tested in the Ivorian context, which justifies H2.

Our conceptual research model specifies the expected relationships between the selected theoretical constructs (**Figure 2**). To this end, the variable "Embarrassment" is considered the independent variable, while "purchase intention" is the dependent variable, and "Self-esteem" acts as the moderating variable. This model posits that embarrassment is associated with the intention to purchase intimate products, and that the strength of this association depends on self-esteem. The cross-sectional design allows associations to be tested, not causal effects.



Source: Author.

Figure 2. Conceptual model.

3. Methodology

This section specifies the operational choices that made it possible to collect and analyze the data needed to test the hypotheses. It successively reports on data collection, variable measurement and instrument validation, and finally the analytical methods used.

3.1. Data Collection and Sample

Data were collected through a self-administered questionnaire from consumers living in Côte d'Ivoire. The target population consists of individuals who have already purchased, or are likely to purchase, intimate hygiene products. Non-probability purposive sampling was used to ensure a diversity of sociodemographic profiles (Evrard et al., 2009). The questionnaire items refer only to "taboo products". The items name no product category and give no examples. The term was chosen so as not to steer responses, but it may prime stigma. Respondents may also have had in mind a broader set of stigmatized products than intimate hygiene products, as one item refers to sexual health (INTCOMPACH9). In this article, the products are referred to as intimate hygiene products, with this reservation. After removal of incomplete and invalid questionnaires, the final sample comprises 305 valid observations.

3.2. Variable Measurement and Instrument Validation

All scales are measured on a five-point Likert scale (1 = Strongly disagree; 5 = Strongly agree). Table 1 presents the full operationalization of the variables.

Table 1. Operationalization of the study variables.

Variable	Role	Type	Operationalization
EMBARRAS	Independent variable	Continuous	Mean score. Items measuring discomfort in front of the salesperson and other customers when purchasing taboo products.
ESTIME_DE_SOI	Moderator	Continuous	Mean score. Purchase-contextualized items: being at peace with oneself, self-satisfaction in public, resistance to others' judgment.

Continued

INTCOMPACH	Dependent variable	Continuous	Mean score. Items measuring the persistence of purchase intention despite anticipated shame, discomfort or embarrassment.
HONTE	Control	Continuous	Mean score. Items measuring the social shame felt when purchasing taboo products.
CONSCIENCESO	Control	Continuous	Mean score. Items measuring public self-consciousness related to the purchase.
CULTURE	Control	Continuous	Mean score. Items measuring the influence of religious beliefs and community norms.
SEXE	Control	Binary	1 = Male/2 = Female
TRANCHEAGE	Control	Ordinal	Respondent's age group
NIVEAUINST	Control	Ordinal	Education level (from primary to postgraduate)
SITUMATRI	Control	Ordinal	Marital status
RELIGION	Control	Ordinal	Declared religious affiliation

Source: Author, based on survey data.

3.3. Analytical Method

The analytical approach follows three successive phases: psychometric validation of the measurement instruments, descriptive analysis of the sample, and then regression analyses to test the hypotheses.

Phase 1: Exploratory factor analysis and validation of the measurement instruments.

The psychometric validation of the six scales was carried out in two steps. First, exploratory factor analysis (EFA) using principal components, whose adequacy was checked with the KMO test (>0.70, Kaiser, 1974) and Bartlett's test ($p < 0.05$); the number of factors was determined by the eigenvalue-greater-than-1 criterion. Second, internal consistency reliability using Cronbach's alpha coefficient (threshold > 0.70, Nunnally, 1978). Each construct is then measured by the mean of its items, as stated in Table 1. Mean scores are used in all analyses, including the correlation matrix and the regressions; factor scores are not used. Several items are worded in the opposite direction to the others (for example EMBARRAS3, EMBARRAS4 and EMBARRAS12 express ease, and ESTIME3 and ESTIME4 express low self-esteem). The stored data contain no trace of reverse coding, and these items correlate strongly and positively with the items of opposite wording. Items were therefore used as recorded. The implications for score direction are examined in Section 3.1.

Phase 2: Descriptive analysis.

Descriptive statistics were computed to describe the sociodemographic characteristics of the study sample. Frequencies and percentages were estimated for each

variable.

Phase 3: Regression analyses.

Three ordinary least squares models are estimated on the 305 respondents. Model 1 regresses purchase intention on embarrassment (H1). Model 2 is the complete moderation model: it includes embarrassment, self-esteem and their product (H2) (Aiken & West, 1991; Hayes, 2018). Model 3 adds the controls listed in Table 1: shame, public self-consciousness and culture, which share the experience of a stigmatized purchase, and sex, age group, education level, marital status and religion, which may shape exposure to norms of modesty. Sex, marital status and religion enter as dummy variables (reference categories: male, single, Christianity); age group and education level enter as ordinal codes. All scores are standardized, so the interaction term is a product of mean-centered variables and the coefficients are standardized. Standard errors are robust to heteroscedasticity (HC3), and 95% confidence intervals come from a percentile bootstrap with 5000 resamples. H2 is supported if the interaction coefficient of Model 2 is significant at $\alpha = 0.05$ and its interval excludes zero. Conditional effects of embarrassment are reported at low (−1 SD), average and high (+1 SD) self-esteem.

4. Results

This section presents the results of the analyses carried out to meet the objectives of the study, in the same order as announced in Section 2.3: psychometric validation of the measurement instruments (Phase 1), descriptive analysis of the sample (Phase 2), and then the regression analyses (Phase 3).

4.1. Validation of the Measurement Instruments

In line with the procedure described in Section 2.3 (Phase 1), the psychometric validation of the six scales was carried out in two steps: exploratory factor analysis (EFA) and internal consistency reliability (Cronbach's alpha). Table 2 presents the results of this validation.

Table 2. Validation results for the measurement instruments (N = 305).

Scale	Items	KMO	Bartlett χ^2	df	*p*	Eigenvalue (1st factor)	Variance %	Cronbach's α
EMBARRAS	13	0.951	5668.597	78	<0.001	10.478	80.60	0.980
ESTIME	5	0.801	1891.017	10	<0.001	4.273	85.45	0.957
INTCOMPACH	12	0.945	7030.398	66	<0.001	10.607	88.40	0.988
HONTE	8	0.939	3303.234	28	<0.001	6.749	84.36	0.973
CONSCIENCESO	5	0.886	2088.513	10	<0.001	4.468	89.36	0.970
CULTURE	10	0.945	5374.799	45	<0.001	8.809	88.09	0.985

Source: Author, based on survey data.

Table 3. Item loadings on the first factor (N = 305).

Scale	Item	Loading
EMBARRAS	EMBARRAS1	0.900
	EMBARRAS2	0.892
	EMBARRAS3	0.921
	EMBARRAS4	0.901
	EMBARRAS5	0.923
	EMBARRAS6	0.904
	EMBARRAS7	0.907
	EMBARRAS8	0.887
	EMBARRAS9	0.902
	EMBARRAS10	0.890
	EMBARRAS11	0.898
	EMBARRAS12	0.879
	EMBARRAS13	0.867
ESTIME	ESTIME1	0.955
	ESTIME2	0.919
	ESTIME3	0.917
	ESTIME4	0.905
	ESTIME5	0.925
INTCOMPACH	INTCOMPACH1	0.926
	INTCOMPACH2	0.933
	INTCOMPACH3	0.952
	INTCOMPACH4	0.937
	INTCOMPACH5	0.952
	INTCOMPACH6	0.953
	INTCOMPACH7	0.949
	INTCOMPACH8	0.949
	INTCOMPACH9	0.942
	INTCOMPACH10	0.927
	INTCOMPACH11	0.937
	INTCOMPACH12	0.926

Source: Author, based on survey data.

All KMO values exceed 0.70 and all Bartlett tests are significant ($p < 0.001$). For each of the six scales, a single factor has an eigenvalue above 1. The first factor explains from 80.6% (embarrassment) to 89.4% (public self-consciousness) of the variance, and Cronbach's alphas range from 0.957 to 0.988. **Table 3** gives the item loadings for the three main scales. These values are very high, and they must be read with caution. Items of opposite wording load on the same factor with similar strength. For example, the mean of the three items expressing embarrassment (EMBARRAS1, 9 and 13) correlates 0.90 with the mean of the eight items expressing ease. For self-esteem, positive and negative items correlate 0.85. If responses followed the wording, these correlations would be negative. Either the opposite items were reverse-coded before the data were stored, without documentation, or respondents did not distinguish the direction of the items. The direction of the embarrassment and self-esteem scores therefore cannot be fully confirmed.

The KMO values deserve a brief comment. Kaiser (1974) describes values above 0.90 as marvelous and values above 0.80 as meritorious. Four scales exceed 0.90 (embarrassment, purchase intention, shame and culture), and the two others exceed 0.80 (public self-consciousness and self-esteem). Bartlett's tests reject the hypothesis that the correlation matrices are identity matrices, so factor analysis is appropriate for every scale. The eigenvalue of the first factor is far above 1 in each case, and no second factor reaches this threshold.

Table 3 shows that every item loads strongly on the first factor of its scale. Loadings range from 0.867 (EMBARRAS13) to 0.923 (EMBARRAS5) for embarrassment, from 0.905 (ESTIME4) to 0.955 (ESTIME1) for self-esteem, and from 0.926 (INTCOMPACH1) to 0.953 (INTCOMPACH6) for purchase intention. All loadings are well above the 0.50 level usually required (Hair et al., 2010). Such uniform values show that each scale behaves as a single dimension. They also suggest redundancy, since several items repeat the same idea with small changes in wording. Alphas above 0.95 point in the same direction (Hair et al., 2010). Shorter scales could measure the same constructs with less burden for respondents.

4.2. Descriptive Analysis

In line with the procedure described in Section 2.3 (Phase 2), the descriptive statistics below report the sociodemographic characteristics of the study sample, through the frequencies and percentages of each categorical variable. **Table 4** presents the details.

The 305 respondents comprise slightly more women (54.4%) than men (45.6%). Most are aged 30 to 50 (87.9% combined); 8.5% are under 30 and 3.6% are over 50. Education levels are modest: 14.1% have no diploma, 42.0% stopped before the baccalaureate and 25.9% hold it, so that 82.0% have at most the baccalaureate. Single respondents form the majority (61.0%), ahead of married respondents (35.4%). Christians are the largest religious group (63.0%), followed by Muslims (16.4%) and followers of traditional religions (14.1%). The sample is diverse, but it is not representative of the Ivorian population, since it was drawn by purposive

sampling. Its profile, mostly adult and with modest education, must be kept in mind before generalizing the results.

Table 4. Descriptive statistics for the categorical variables.

Variable	Category	n (%)
Sex	Male	139 (45.6%)
	Female	166 (54.4%)
Age group	Under 30 years	26 (8.5%)
	30 to 40 years	167 (54.8%)
	40 to 50 years	101 (33.1%)
	Over 50 years	11 (3.6%)
Education level	No diploma	43 (14.1%)
	Below baccalaureate	128 (42.0%)
	Baccalaureate	79 (25.9%)
	Baccalaureate + 2 years	23 (7.5%)
	Bachelor's degree or higher	32 (10.5%)
Marital status	Single	186 (61.0%)
	Married	108 (35.4%)
	Widowed	11 (3.6%)
Religion	Christianity	192 (63.0%)
	Islam	50 (16.4%)
	Animism	43 (14.1%)
	Atheism	17 (5.6%)
	Buddhism	3 (1.0%)

Source: Author, based on survey data.

4.3. Regression Analyses

In line with the procedure described in Section 2.3 (Phase 3), three models were estimated. As a preliminary check, the Pearson correlation matrix and the multicollinearity diagnostics are presented first.

Embarrassment is positively correlated with purchase intention (r = 0.511, $p < 0.001$). The outcome measures the willingness to buy despite discomfort, and its items mention shame or embarrassment. Part of this correlation may therefore reflect shared wording. Self-esteem is correlated with purchase intention (r = 0.577), and strongly with public self-consciousness (r = 0.780) and culture (r =

0.794). Shame shows the strongest correlation with embarrassment (r = 0.704).

Two further patterns stand out in Table 5. First, self-esteem correlates positively with public self-consciousness (r = 0.780) and with culture (r = 0.794). Consumers with high self-esteem should feel less observed and less constrained by community norms, so negative correlations would be expected. This pattern is consistent with the doubts about item direction raised in Section 3.1. Second, shame is strongly related to embarrassment (r = 0.704) but only weakly to the other constructs (r between 0.282 and 0.401). This supports the distinction between shame and embarrassment proposed by Tangney et al. (1996). All correlations are significant at the 0.01 level, so the predictors share a large part of their variance. This overlap explains why the effects of embarrassment and self-esteem shrink once the related constructs enter Model 3 (Table 6).

Table 5. Pearson correlation matrix between aggregated scores (N = 305).

Variable	EMBARRAS	ESTIME	INTCOMPACH	HONTE	CONSCIENCESO	CULTURE
EMBARRAS	1.000					
ESTIME	0.528**	1.000				
INTCOMPACH	0.511**	0.577**	1.000			
HONTE	0.704**	0.282**	0.401**	1.000		
CONSCIENCESO	0.498**	0.780**	0.602**	0.289**	1.000	
CULTURE	0.500**	0.794**	0.569**	0.290**	0.724**	1.000

Source: Author, based on survey data; **correlation significant at the 0.01 level (two-tailed).

Table 6. Multicollinearity diagnostics, tolerance and VIF.

Variable	Tolerance	VIF	Interpretation
EMBARRAS	0.719	1.390	Acceptable
ESTIME	0.678	1.475	Acceptable
INTERACTION (EMBARRAS × ESTIME)	0.932	1.073	Acceptable

Source: Author, based on survey data.

In Model 2, VIF values range from 1.07 to 1.47. In Model 3, the highest VIF is 3.92 (self-esteem). No VIF exceeds 5, so multicollinearity is not a concern (Hair et al., 2010).

Model 1 is significant ($F(1, 303) = 107.13$, $p < 0.001$; adjusted $R^2 = 0.259$). Embarrassment is positively associated with purchase intention ($\beta = 0.511$; 95% CI [0.411, 0.605]). H1 is supported as an association. A one-standard-deviation higher embarrassment score goes with a 0.511-standard-deviation higher score on the willingness to buy despite discomfort.

Table 7. Regression models of purchase intention (N = 305).

Predictor	Model 1 (H1)	Model 2 (H2)	Model 3 (adjusted)
Embarrassment	0.511*** [0.411, 0.605]	0.288*** [0.163, 0.412]	0.109 [−0.064, 0.279]
Self-esteem		0.416*** [0.288, 0.551]	0.090 [−0.112, 0.307]
Embarrassment × Self-esteem		0.037 [−0.084, 0.152]	0.089 [−0.039, 0.207]
Shame			0.189* [0.035, 0.336]
Public self-consciousness			0.322** [0.138, 0.509]
Culture			0.120 [−0.050, 0.302]
Female (ref. male)			0.009 [−0.153, 0.181]
Age group			−0.079 [−0.232, 0.078]
Education level			−0.006 [−0.064, 0.051]
Married (ref. single)			−0.170 [−0.372, 0.047]
Widowed			−0.231 [−0.709, 0.302]
Islam (ref. Christianity)			−0.008 [−0.205, 0.177]
Animism			−0.179 [−0.403, 0.040]
Atheism or Buddhism			0.226 [−0.233, 0.705]
R^2	0.261	0.393	0.484
Adjusted R^2	0.259	0.387	0.460
ΔR^2 (interaction)		0.001	0.006
F (df)	107.13 (1, 303)	65.07 (3, 301)	19.46 (14, 290)

Source: Author, based on survey data. Note: standardized coefficients with 95% bootstrap confidence intervals (5000 resamples); significance based on HC3 robust standard errors; ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

In Model 2, embarrassment (β = 0.288; [0.163, 0.412]) and self-esteem (β = 0.416; [0.288, 0.551]) are both positively associated with purchase intention. The interaction term is not significant (β = 0.037; 95% CI [−0.084, 0.152]; $p = 0.545$) and adds almost nothing to the explained variance ($\Delta R^2 = 0.001$). The conditional effect of embarrassment is 0.251 at low self-esteem, 0.288 at average self-esteem and 0.325 at high self-esteem, with overlapping intervals. H2 is not supported. In Model 3, the interaction remains non-significant (β = 0.089; [−0.039, 0.207]; $p = 0.165$), so adjustment does not change the conclusion on H2. Adjustment does change the other effects: embarrassment (β = 0.109; $p = 0.222$) and self-esteem (β = 0.090; $p = 0.427$) are no longer significant, whereas shame (β = 0.189; $p = 0.016$) and public self-consciousness (β = 0.322; $p = 0.001$) are. None of the sociodemo-

graphic controls is significant. Model 3 explains 48.4% of the variance (adjusted $R^2 = 0.460$). The association between embarrassment and purchase intention is therefore not independent of the related constructs.

The successive models in Table 7 also show how the explained variance changes. Embarrassment alone explains 26.1% of the variance (Model 1), which corresponds to a large effect ($f^2 = 0.35$). Adding self-esteem raises R^2 to 0.393, an increase of 0.132. The interaction adds only 0.001 ($f^2 = 0.002$), which is negligible. The controls add a further 0.091 in Model 3. With 305 respondents, the study had about 69% power to detect a small interaction ($f^2 = 0.02$) at the 5% level. The absence of a detectable interaction therefore rules out a moderate moderating effect, but not a very small one.

4.4. Conditional Effects and Robustness Checks

Table 8 reports four robustness checks of the complete model (Model 2). Each check changes one element of the specification and re-estimates the interaction with 5000 bootstrap resamples.

Table 8. Robustness checks of the complete moderation model (Model 2).

Specification	Embarrassment β	Interaction β [95% CI]	*p*	R^2
Main model: all items (N = 305)	0.288	0.037 [−0.084, 0.152]	0.545	0.393
R1: embarrassment-worded items only (EMBARRAS1, 9, 13); positive self-esteem items	0.285	0.020 [−0.097, 0.140]	0.740	0.415
R2: ease-worded items only (EMBARRAS2-7, 10, 12); positive self-esteem items	0.275	0.028 [−0.087, 0.144]	0.640	0.411
R3: excluding one respondent with identical answers to all items (N = 304)	0.287	0.037 [−0.078, 0.149]	0.543	0.392
R4: outcome without consumption-frequency items (INTCOMPACH4-12)	0.272	0.026 [−0.093, 0.142]	0.673	0.383

Source: Author, based on survey data. Note: standardized coefficients; 95% bootstrap confidence intervals (5000 resamples); *p*-values based on HC3 robust standard errors.

The conditional effect of embarrassment is positive at all three levels of self-esteem: 0.251 [0.071, 0.435] at low self-esteem, 0.288 [0.163, 0.412] at average self-esteem and 0.325 [0.169, 0.479] at high self-esteem. The intervals overlap widely, which is consistent with the non-significant interaction. The robustness checks lead to the same conclusion. When embarrassment is measured only with the items that express embarrassment, or only with those that express ease, the interaction stays close to zero ($\beta = 0.020$ and $\beta = 0.028$). Removing the consumption-frequency items from the outcome gives the same result ($\beta = 0.026$). The absence of moderation is therefore not an artifact of a particular item set. The fact that the two item subsets give almost the same coefficients also confirms that respondents

answered opposite items in the same direction.

This section discusses the main results of the study in light of the hypotheses formulated and previous work. It successively examines the effect of embarrassment on purchase intention (H1) and the moderating effect of self-esteem (H2), before offering an overall interpretation of the results and drawing their theoretical and managerial implications.

5. Hypothesis Testing

Hypothesis H1 posited that the embarrassment felt when purchasing intimate hygiene products has a significant effect on purchase intention. The results support this hypothesis as an association: embarrassment is positively associated with purchase intention (β = 0.511; 95% CI [0.411, 0.605]). The association is not robust to adjustment for shame and public self-consciousness. Unlike the inhibition logic documented by Dahl et al. (2001), the association is positive. The INTCOMPACH scale does not measure ordinary purchase intention. It measures the self-reported willingness to buy despite anticipated discomfort, and several items mention shame or embarrassment. A positive association may therefore partly reflect this shared content. One possible interpretation is that respondents acknowledge the discomfort but still state an intention to meet an intimate health need. This interpretation of behavioral resilience is not tested in this study.

Hypothesis H2 predicted that self-esteem moderates the relationship between embarrassment and purchase intention. The results do not support this hypothesis. In the complete model, the interaction is not significant (β = 0.037; $p = 0.545$), and it remains non-significant after adjustment. There is no statistically detectable interaction in these data. This does not show that the association is identical at all levels of self-esteem. Self-esteem is, however, directly associated with purchase intention in Model 2 (β = 0.416).

Figure 3 summarizes the two relationships tested: the association between embarrassment and purchase intention in Model 1 (H1, solid line) and the interaction term in Model 2 (H2, dotted line). H1 is supported as an association, and H2 is not supported.

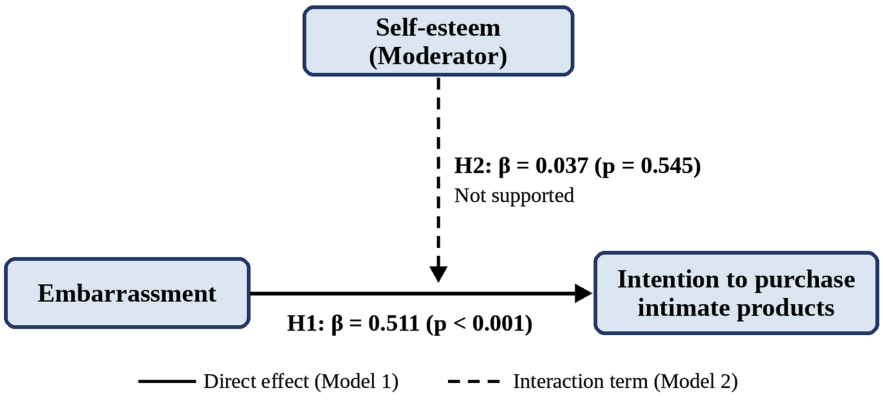


Figure 3. Conceptual model of hypothesis testing.

6. Overall Interpretation and Theoretical Contributions

Two lessons emerge from this study. First, embarrassment is positively associated with the self-reported willingness to buy despite discomfort in the Ivorian sample. This result differs from the inhibition logic observed in Western studies. It must be read with three reservations: the outcome embeds embarrassment in its wording, the association disappears after adjustment for shame and public self-consciousness, and the direction of the embarrassment score cannot be fully confirmed. The suggestion that acknowledged embarrassment can coexist with a determination to buy remains a hypothesis for future work.

Second, self-esteem is directly associated with purchase intention, but no moderating effect is detected. This result does not support the emotional buffering models discussed by Kernis (2003) in this context. It does not refute them either, since the absence of a detectable interaction may also reflect the measurement problems noted above.

The positive association between embarrassment and the stated willingness to buy calls for a careful reading. In the work of Dahl et al. (2001), embarrassment is anticipated before an ordinary purchase and reduces the likelihood of buying. Here, the outcome asks respondents whether they would buy despite discomfort. A respondent who admits strong discomfort and still states the intention to buy scores high on both scales. The positive sign may thus reflect the structure of the questions as much as a psychological mechanism. This reading is reinforced by the fact that the association disappears once shame and public self-consciousness are controlled.

The role of shame and public self-consciousness in Model 3 is a further lesson. Tangney et al. (1996) distinguish embarrassment, a situational reaction to an awkward exposure, from shame, which involves a negative evaluation of the self. In the adjusted model, shame and public self-consciousness carry the association with the outcome, while embarrassment no longer does. In a context where norms of modesty are strong (Ouattara, 2003), the willingness to buy intimate products may depend less on the momentary discomfort of the purchase than on the way consumers perceive the gaze of others and their own moral standing. This interpretation is consistent with the results, but it remains to be tested directly.

The absence of moderation by self-esteem also deserves comment. Rosenberg (1965) and Kernis (2003) treat self-esteem as a global and relatively stable evaluation of one's worth. The scale used here is contextualized: its items refer to the purchase of taboo products. Such items bring self-esteem very close to the purchase situation, and they correlate strongly with public self-consciousness and culture. Under these conditions, self-esteem may act as one more indicator of comfort with the purchase rather than as an independent personal resource. A global measure, such as the Rosenberg scale, would offer a cleaner test of the buffering hypothesis. Theories that link self-esteem to the management of social threats (Baumeister et al., 1996; Greenberg et al., 1992) predict a moderating role that this study could not detect. The present result should therefore be read as an absence

of evidence rather than as evidence of absence.

7. Methodological Lessons

Three methodological lessons follow from this study. First, a moderator specifies the conditions under which an effect occurs (Baron & Kenny, 1986). It must therefore be tested in a complete model that includes the two variables and their product (Aiken & West, 1991; Hayes, 2018). A model containing only the product term confounds the interaction with the main effects. Second, scales that combine positively and negatively worded items must document their reverse coding. In the present data, items of opposite wording correlate between 0.70 and 0.90, so the direction of the scores cannot be confirmed. Third, the outcome should not contain the emotion it is meant to be explained by. Purchase intention items that mention shame or embarrassment create an overlap of content with the predictor, and they make a positive association partly mechanical.

8. Limitations and Future Research Directions

This study has several limitations. First, construct validity is limited. The outcome embeds embarrassment in its wording, and it combines intended consumption frequency (INTCOMPACH1 to INTCOMPACH3) with purchase intention. The result is therefore an association with self-reported willingness to buy despite discomfort, not with purchase intention in the usual sense. Second, items of opposite wording correlate strongly and positively, and the data contain no trace of reverse coding, so the direction of the embarrassment and self-esteem scores cannot be fully confirmed. Third, the items refer only to "taboo products", which may prime stigma and leaves uncertainty about the products respondents had in mind. Fourth, the sample of 305 respondents is a non-probability sample whose area of residence is not recorded. Finally, the design is cross-sectional and does not allow causal relationships to be established. Future research could use validated scales with documented reverse coding, a list of named products, an outcome free of emotional wording, longitudinal or experimental designs (online vs in-store channel, presence or absence of other customers), and comparisons across West African countries.

9. Managerial Implications

For marketing professionals working on intimate hygiene products in Côte d'Ivoire, the implications are tentative. The positive association between embarrassment and the stated willingness to buy suggests that acknowledging discomfort does not necessarily mean giving up the purchase. Discreet purchasing channels may help consumers act on this willingness without social exposure; digital channels offer such discretion (Cheikh Maoulainine & Souaf, 2024). Messages such as "taking care of your intimate health means respecting yourself" could be tested, possibly relayed in virtual communities (Aboudou et al., 2022). As no moderating effect of self-esteem was detected, segmenting communication by self-es-

teem level is not supported by these data. These suggestions are untested interpretations, not demonstrated marketing effects.

Two practical leads can nevertheless be drawn with caution. First, shame and public self-consciousness, rather than embarrassment itself, are associated with the willingness to buy in the adjusted model. Communication that reduces the perceived moral weight of the purchase, by presenting intimate hygiene as ordinary health care, may therefore be more relevant than communication that only addresses the discomfort of the moment. Second, the setting of the purchase matters. Store layouts that limit exposure to other customers, self-service shelves and discreet packaging may reduce the gaze of others that public self-consciousness reflects. Both leads should be tested in field or experimental studies before being applied at scale.

10. Conclusion

This study aimed to analyze, in the Ivorian sociocultural context, the association between embarrassment and the intention to purchase intimate hygiene products, and to test the moderating role of self-esteem. The results, based on 305 respondents, yield two lessons.

First, embarrassment is positively associated with the self-reported willingness to buy despite discomfort ($\beta = 0.511$; 95% CI [0.411, 0.605]). This association does not hold after adjustment for shame and public self-consciousness, and it may partly reflect the emotional wording of the outcome.

Second, self-esteem does not moderate this association: the interaction is not significant in the complete model ($\beta = 0.037$; $p = 0.545$) or in the adjusted model. H2 is not supported. Self-esteem is, however, directly associated with the outcome.

From a theoretical standpoint, the study documents, in an under-studied context, a positive association between embarrassment and the stated willingness to buy sensitive products, and the absence of a detectable moderating effect of self-esteem. These findings are exploratory. The measurement limitations, notably the uncertain direction of the scores and the wording of the outcome, call for replication with improved instruments before firm conclusions are drawn.

Avenues for future research were identified in the previous section. They converge on the need for validated instruments and for longitudinal, experimental and comparative designs at the African level.

Ethical Considerations

Participation in the survey was voluntary and anonymous. Respondents were informed of the academic purpose of the study, and no identifying information was collected.

Data Availability

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Author Contributions

All authors contributed to the design of the study, the data collection, the analysis and the writing of the manuscript, and approved the final version.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix: Items of the Measurement Scales

The item wordings below are translated from the French questionnaire, which refers to "taboo products".

Social shame scale (HONTE1-HONTE8)

Item	Wording
HONTE1	I do not feel judged when I buy taboo products.
HONTE2	I feel that others think well of me if I am seen buying taboo products.
HONTE3	I do not feel uncomfortable when I buy taboo products.
HONTE4	Buying taboo products makes me feel that I have done something wrong.
HONTE5	I am afraid of being judged by others when I buy taboo products.
HONTE6	I feel superior to others when I buy taboo products.
HONTE7	I like running into acquaintances in the store when I buy taboo products.
HONTE8	I am not afraid that others will guess why I am buying taboo products.

Source: Author, based on survey data.

Embarrassment scale (EMBARRAS1-EMBARRAS13)

Item	Wording
EMBARRAS1	I try to avoid running into someone I know when I buy taboo products.
EMBARRAS2	I ask a salesperson directly for taboo products.
EMBARRAS3	I do not feel embarrassed when I buy taboo products in a store.
EMBARRAS4	Buying taboo products makes me feel at ease.
EMBARRAS5	I prefer eye contact with the salesperson when I buy taboo products.
EMBARRAS6	I do not feel uncomfortable if other people see that I am buying taboo products.
EMBARRAS7	I feel at ease in the presence of other customers when buying taboo products.
EMBARRAS8	I prefer to use indiscreet means to buy taboo products.
EMBARRAS9	I am afraid of being judged by the cashier.
EMBARRAS10	I feel that society approves of buying taboo products.
EMBARRAS11	I choose stores close to home to buy taboo products.
EMBARRAS12	Buying taboo products makes me feel very much at ease.
EMBARRAS13	I am more comfortable buying taboo products online than in a store.

Source: Author, based on survey data.

Purchase intention scale (INTCOMPACH1-INTCOMPACH12)

Item	Wording
INTCOMPACH1	I see myself consuming taboo products more frequently in the future, even if this may cause shame or embarrassment.
INTCOMPACH2	I see myself increasing my consumption of taboo products if possible, despite the discomfort this might cause.
INTCOMPACH3	I am likely to consume taboo products frequently in the future, even if it makes me uncomfortable.
INTCOMPACH4	I am willing to consume taboo products, even when I feel shame or embarrassment.
INTCOMPACH5	I will be willing to buy taboo products even if I feel some discomfort when buying them.
INTCOMPACH6	I am motivated to buy taboo products, even while feeling embarrassed.
INTCOMPACH7	I intend to buy taboo products in a store, despite the discomfort or shame this might cause.
INTCOMPACH8	I am willing to buy taboo products, even if this involves interacting directly with a salesperson.
INTCOMPACH9	Buying taboo products remains a priority for my sexual health, even if it may be a source of embarrassment.
INTCOMPACH10	I plan to buy taboo products in the near future, despite the shame I might feel.
INTCOMPACH11	I am likely to buy taboo products when I need them, even if it makes me uncomfortable.
INTCOMPACH12	If the opportunity arises, I will buy taboo products even while feeling uncomfortable.

Source: Author, based on survey data.

Contextualized self-esteem scale (ESTIME1-ESTIME5)

Item	Wording
ESTIME1	I feel at peace with myself when I make a responsible choice about buying taboo products.
ESTIME2	I am satisfied with myself, even when I have to buy taboo products in public.
ESTIME3	Buying sensitive or taboo products sometimes negatively affects my self-perception.
ESTIME4	I feel a drop in self-esteem when I face others' judgment because of my purchases.
ESTIME5	Even when buying taboo products, I consider myself a worthwhile person deserving of respect.

Source: Author, based on survey data.

Public self-consciousness scale (CONSCIENCESO1-CONSCIENCESO5)

Item	Wording
CONSCIENCESO1	I often feel observed or judged when I buy taboo products.
CONSCIENCESO2	I frequently think about the impression I made on others after buying taboo products.
CONSCIENCESO3	I am concerned about how others perceive my actions related to buying taboo products.
CONSCIENCESO4	Buying taboo products in public makes me feel that excessive attention is on me.
CONSCIENCESO5	I feel some unease when I think about others' opinions of my consumption of taboo products.

Source: Author, based on survey data.

Cultural scale (CULTURE1-CULTURE10)

Item	Wording
CULTURE1	Buying taboo products could harm my image in my community.
CULTURE2	My religious beliefs strongly influence my choices regarding taboo products.
CULTURE3	Buying certain taboo products is incompatible with my spiritual convictions.
CULTURE4	I feel religious guilt when I think about buying taboo products.
CULTURE5	In my culture, it is important to maintain a respected collective image by avoiding taboo products.
CULTURE6	In my culture, taboo products are perceived as immoral or inappropriate.
CULTURE7	Taboo products are often associated with negative social judgment.
CULTURE8	I feel judged by my community when I buy taboo products.
CULTURE9	The traditional values of my culture push me to avoid certain taboo products, even if they meet my needs.
CULTURE10	I am less likely to buy taboo products when I am in a traditional social environment.

Source: Author, based on survey data.