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How Aggressive Sales Promotion Dampens the Power of Product Quality in Driving Fortified Milk Purchase Decisions

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Abstract

This study aims to examine the structural mechanism influencing consumer purchase decisions for 20-gram sachet fortified milk powder. Specifically, it investigates the direct effects of product quality and sales promotion, as well as the moderating role of sales promotion in dampening the relationship between product quality and purchase decisions. A quantitative explanatory survey design was employed. Primary data were collected from a purposive sample of 119 consumers who had experience purchasing the targeted product. Variables were measured using a 5-point Likert scale. The empirical data were analyzed using Ordinary Least Squares (OLS) regression and moderated regression analysis via Andrew F. Hayes' PROCESS Macro (Model 1), supported by Johnson-Neyman region of significance evaluation. The statistical analysis reveals that both product quality and sales promotion partially exert a significant positive effect on purchase decisions. However, the moderation test uncovers a significant negative interaction (dampening effect). High intensity of sales promotion severely weakens the influence of product quality on purchase decisions. The Johnson-Neyman analysis indicates that beyond a specific critical threshold of promotional intensity, the positive effect of product quality becomes insignificant, and at extreme levels, it reverses to a significant negative impact. Managerially, this study warns against the peril of price-war traps. Marketing practitioners must implement a calibrated cap on sales promotion exposure. Excessive discounting shifts consumer focus purely to price sensitivity, eroding brand equity and making investments in product nutritional quality irrelevant in the eyes of consumers. This study contributes to the literature by demonstrating that sales promotion and product quality do not always operate synergistically. It introduces the empirical identification of critical thresholds (via Johnson-Neyman) where sales promotion transforms from an accelerator of sales into a destructor of perceived product quality in the economic-sized FMCG sector.

Keywords: *Product Quality, Sales Promotion, Purchase Decision, Moderating Effect*

Introduction

In the highly competitive landscape of the fast-moving consumer goods (FMCG) industry, consumer purchase decisions act as the primary determinant of company survival and profitability (Lacy, Long, & Spindler, 2020; Schroedel, 2024). This dynamic holds especially true for essential nutritional categories like powdered milk, where perceived health benefits and brand trust heavily influence consumer adoption (Zaman et al., 2025). These purchase decisions represent more than mere momentary transactional acts at supermarket shelves; rather, they serve as the final manifestation of a complex cognitive evaluation process. During this process, consumers actively weigh functional added value—such as guaranteed nutritional quality—against external marketing stimuli and broader product perceptions (Reddy et al., 2023; Singh, 2024). For dairy manufacturers, establishing a precise understanding of this decision-making anatomy provides a vital strategic foundation to sustain market share. Companies must successfully drive the transition from mere purchase intention to actual buying action to secure sales volume and brand equity. Conversely, failing to accurately map these decision determinants risks marginalizing the product amidst an increasingly aggressive onslaught of competitor substitutes and optimized FMCG product lines (Andrade, Guimarães, & Figueira, 2021).

Previous literature consistently positions product quality as the primary determinant that drives consumer purchase decisions, particularly for value-added food products like fortified milk (Rai et al., 2023). However, a significant research gap exists regarding how this dynamic survives under the pressure of aggressive sales promotion strategies within the economic-sized fast-moving consumer goods (FMCG) market segment, such as 20-gram sachets (Anjali & Menon, 2025). Most prior studies tend to treat sales promotion and product quality strictly as two independent variables operating in isolation, assuming that both tactics always exert a positive impact on customer choice and impulse buying behavior (Abdelkhair et al., 2023; Qader et al., 2022). Very few empirical studies explore the potential for a negative interaction effect, where overly intensive promotions actively

trigger a detrimental price-quality heuristic. The current lack of comprehensive research identifying the exact critical threshold where promotions begin to degrade quality perception creates a vital opportunity for this study. This research aims to prove that sales promotion does not always synergize with product equity; instead, aggressive discounting can trigger opportunistic consumer behavior that completely ignores nutritional quality—reflecting broader behavioral tendencies where consumers frequently abandon essential attribute evaluations when making rapid purchase decisions (Elmor et al., 2024).

Addressing this conceptual gap, this study formulates a research problem to comprehensively examine the structural mechanisms connecting product quality, sales promotion, and purchase decisions. Specifically, the research questions whether product quality and sales promotion independently stimulate consumer purchase decisions for fortified powdered milk. Furthermore, to close the existing literature gap, this study empirically investigates whether high sales promotion intensity acts as a moderating variable that actively degrades or dampens the impact of product quality on the consumer's final purchase decision.

Research Method

This study employs a quantitative research design with an explanatory survey approach to analyze the causal relationships among variables. The researchers defined the target population as consumers who have previously purchased 20-gram sachet fortified milk powder products. To ensure data relevance, the study applied a purposive sampling technique, establishing direct purchasing and consumption experience as the primary inclusion criterion. Based on these criteria, the researchers successfully collected valid data from 119 participating respondents. This sample size adequately satisfies the underlying assumptions for the parametric statistical tests utilized in this research.

Primary data collection relied on a structured written questionnaire distributed directly to the respondents. The researchers utilized a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), to

measure consumer perceptions and attitudes metrically. The questionnaire evaluated three main variables. It measured Product Quality through indicators of perceived functional superiority and nutritional formulation, while it assessed Sales Promotion based on the intensity of and consumer interest in the offered discount programs. Finally, it measured the dependent variable, purchase decision, by tracking the respondent's progression from evaluating alternatives to committing to the final buying action.

To address the research questions and test the hypotheses, the researchers applied Ordinary Least Squares (OLS) based moderated regression analysis. They estimated the parameters using statistical software integrated with Andrew F. Hayes' PROCESS Macro. Specifically, the researchers utilized Hayes' Model 1 to analyze the direct effects of product quality and sales promotion on purchase decisions, while simultaneously testing the moderating (interaction) effect of sales promotion in strengthening or dampening the relationship between product quality and purchase decisions. Beyond testing path coefficients and significance, this analysis incorporates classical assumption tests (residual normality and heteroscedasticity) and evaluates the Johnson-Neyman region of significance to precisely map the dynamics of the conditional effects.

Results and Discussion

The demographic characteristics of the 119 valid respondents provide essential behavioral context for understanding consumer decision-making dynamics in the 20-gram sachet fortified milk powder segment, as summarized in Table 1.

Table 1. Demographic profile of respondents (n = 119)

Demographic Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	34	28.57%
	Female	85	71.43%
Age	≤ 25 years	17	14.29%
	26 – 35 years	43	36.13%

	> 35 years	59	49.58%
Educational Level	Below Diploma (< Diploma)	78	65.55%
	Bachelor's Degree or Higher	41	34.45%
Total		119	100.00%

As presented in Table 1, the sample is heavily dominated by female respondents, accounting for 71.43% (85 respondents), compared to 28.57% male respondents (34 respondents). This gender distribution aligns with household consumption patterns in the FMCG dairy category, where women typically act as the primary household decision-makers and grocery budget managers. In terms of age distribution, nearly half of the respondents are over 35 years old (49.58%, or 59 respondents), followed by the 26–35 age group at 36.13% (43 respondents), and those aged 25 years or younger at 14.29% (17 respondents). Together, consumers aged 26 and above represent 85.71% of the sample, reflecting mature household shoppers managing recurring family nutritional needs.

Furthermore, educational attainment data reveals that the majority of respondents hold an educational level below a diploma (65.55%, or 78 respondents), whereas 34.45% (41 respondents) hold a bachelor's degree or higher. Within the socio-economic context of emerging FMCG markets, educational attainment frequently correlates with disposable income brackets and price elasticity. The predominance of non-tertiary educated household shoppers helps explain why this segment exhibits heightened price sensitivity and strong responsiveness to immediate financial incentives, while simultaneously relying on price-quality heuristics when encountering excessive discounting.

Based on the regression diagnostic output for Hayes Model 1, the normality test focuses on the model's residual distribution by evaluating skewness, kurtosis, and standardized residual outliers. Evaluation of the Shape of Residuals, the data processing results demonstrate that the regression residuals distribute normally.

Skewness: The model recorded a skewness coefficient of 0.1162 with a standard error of 0.2218. The z-statistic ratio (skewness divided by SE) yields a value of 0.5239. Because this value falls well within the critical tolerance range of -1.96 to +1.96, the residual distribution proves to be symmetrical, without leaning significantly to the left or right.

Kurtosis: The kurtosis coefficient stands at 0.1943 with a standard error of 0.4401, producing a z-statistic ratio of 0.4415. This near-zero value, comfortably situated within the ±1.96 limit, confirms that the residual flatness level classifies as mesokurtic (normal), being neither too peaked (leptokurtic) nor too flat (platykurtic).

Outlier Diagnostics, to ensure no extreme data points disrupt the normality assumption, the Bonferroni-corrected table for the largest t-residual evaluates the maximum residual, located in the 16th observation (casenum 16) with a t-residual of 3.4132. The Bonferroni correction yields a significance value of p = 0.1059. Because the p-value exceeds 0.05, this observation does not constitute a statistically significant outlier, confirming that the model's residuals remain stable. Overall, this moderation model successfully satisfies the classical assumption of residual normality, making the data highly suitable for further regression parameter estimation.

Moderated Regression Equation, based on the regression coefficients extracted from the model table, the analysis forms the following moderated regression equation:

$$Y = i_1 + b_1 X + b_2 W + b_3 (X \times W)$$

Purchase = 46,9836 + 0,3675(PQual) + 0,2901(Promo) - 0,0295(Int_1)

Where:

Purchase = Purchase Decision (Outcome Variable)

PQual = Product Quality (Independent Variable)

Promo = Sales Promotion (Moderator Variable)

Int_1 = Interaction between Product Quality and Sales Promotion (PQual X Promo)

Analysis of Moderation Test Results

Model Fit and Predictive Capability (Goodness of Fit)

Regression analysis of 119 respondents demonstrates a strong multivariate correlation between all predictors and the purchase decision variable (R = 0.7784). This moderation model yields a coefficient of determination (R^2) of 0.6059 (Adjusted R^2 = 0.5956). This proves that the combination of product quality, sales promotion, and their interaction successfully explains 60.59% of the variance in purchase decisions, while other variables outside the model account for the remaining 39.41%. Furthermore, the simultaneous model fit test produces an F-value (3, 115) of 58.9395 with a significance level of p = 0.0000 (p < 0.05), confirming that this regression model fits the data perfectly and validly predicts purchase decisions.

Direct Effects of Main Variables (Main Effects)

The Effect of Product Quality (PQual):

Product quality exhibits a positive path coefficient of 0.3675 (t = 3.8456; p = 0.0002; 95% CI = [0.1782; 0.5567]). Because the confidence interval does not cross zero and the p-value remains below 0.05, product quality partially provides a significant positive contribution to increasing purchase decisions.

The Effect of Sales Promotion (Promo):

Sales promotion generates a positive path coefficient of 0.2901 (t = 3.0883; p = 0.0025; 95% CI = [0.1040; 0.4761]). This indicates that sales promotion independently and substantially increases consumer purchase decisions.

Moderating Interaction Effect

The interaction term (Int_1 = PQual × Promo) produces a coefficient of -0.0295 with a t-value of -6.5921, a significance value of p = 0.0000, and a 95% confidence interval ranging strictly in the negative from [-0.0383 to -0.0206].

The test of the highest order unconditional interaction (ΔR^2) strongly supports this significance, as including the interaction effect delivers a substantial 14.89% spike in variance contribution (R^2-change = 0.1489; F(1, 115) = 43.4564; p = 0.0000).

The moderated regression equation narratively illustrates the dynamic relationships among the variables in predicting consumer purchase decisions. The model establishes a constant baseline score of 46.9836 for the purchase decision when both product quality and sales promotion sit at a value of zero. Operating independently, product quality demonstrates a strong positive influence, where each one-unit improvement in product quality directly increases the purchase decision score by 0.3675 units. Sales promotion also independently accelerates the outcome, adding 0.2901 units to the purchase decision for every single-unit increase in promotional intensity. Most importantly, the interaction term between product quality and sales promotion introduces a critical negative coefficient of -0.0295. This negative interaction mathematically confirms a dampening effect; it proves that as marketers intensify sales promotions, they actively diminish the positive power that product quality holds in securing the consumer's final purchase decision.

The negative sign of the interaction coefficient clearly reveals a dampening (substitutive) moderation effect. This means that although sales promotion and product quality individually increase purchase decisions, pushing promotional intensity higher actively shrinks and dampens the elasticity of product quality's influence on the consumer's final purchase decision.

Table 2. Calculation and hypothesis testing results

Hypothesis	Structural Path	Coefficient (β)	t-value	p-value	95% CI (LLCI; ULCI)	Decision
H1	Product Quality (PQual) → Purchase Decision	0.3675	3.8456	0.0002	[0.1782; 0.5567]	Supported
H2	Sales Promotion (Promo) →	0.2901	3.0883	0.0025	[0.1040; 0.4761]	Supported

	Purchase Decision					
H3	Interaction (PQual × Promo) → Purchase Decision	-0.0295	-6.5921	0.0000	[-0.0383; -0.0206]	Supported

The statistical testing results strongly support all three hypotheses. Product quality and sales promotion independently drive consumer purchase decisions. Meanwhile, the interaction path validates hypothesis 3 by confirming a significant dampening effect, proving that high promotional intensity actively weakens the influence of product quality on the final purchase decision.

The evaluation of the hypothesis testing decisions based on the statistical parameters outlines the following findings:

Hypothesis 1 Testing (The Effect of Product Quality)

Empirical data support the first hypothesis. Path analysis proves that product quality tangibly triggers an increase in consumer purchase decisions. This conclusion relies on a significance probability of 0.0002, which falls well below the 0.05 error tolerance limit. Furthermore, the lower and upper bounds of the confidence interval display entirely positive values without crossing zero, which strongly reinforces the stability of this variable's influence.

Hypothesis 2 Testing (The Effect of Sales Promotion)

The test results confirm the second hypothesis. Promotional activities actively and directly drive purchase decisions. The test parameters reveal a significance level of 0.0025 ($p < 0.05$) alongside a confidence interval estimation range situated completely in the positive area. These statistics firmly reject the null hypothesis, leading the researchers to establish sales promotion as a valid and reliable predictor.

Hypothesis 3 Testing (The Moderating Effect)

Statistical testing accepts the third hypothesis, which posits that sales promotion acts as a moderating variable. The interaction effect records a

significance value of 0.0000 ($p < 0.01$), with a confidence interval located entirely within negative territory [-0.0383; -0.0206]. The negative coefficient clearly demonstrates the characteristic of a dampening moderation effect. This condition dictates that intensifying sales promotion actively degrades or reduces the magnitude of product quality's influence on consumer purchase decisions.

Several consumer behavior mechanisms and marketing strategies explain this phenomenon:

Shifting Focus from Quality to Price Sensitivity

Consumers who purchase fortified milk powder in sachet packaging (small/economic size) generally belong to a highly price-sensitive market segment. Reflecting the demographic profile—which is predominantly composed of female household budget managers (71.43%) and non-tertiary educated consumers (65.55%)—buyers of 20-gram sachet fortified milk generally belong to a highly price-conscious market segment. When manufacturers intensify promotions (such as discounts, buy-2-get-1-free offers, or cashback), consumers' primary attention shifts psychologically from nutritional evaluation (vitamin fortification or taste) toward calculating immediate financial savings.

When manufacturers intensify promotions (such as discounts, buy-2-get-1-free offers, or cashback), consumers' primary attention shifts psychologically. Evaluations of product quality superiority (nutritional content, vitamin fortification, or taste) no longer dictate purchase decisions. Instead, the calculation of the "immediate financial gain" offered by the promotion impulsively stimulates the decision. Massive promotions cause consumers to "turn a blind eye" to how superior the product's quality is compared to competitors, because their primary motivation transforms into bargain hunting.

Negative Signals Toward Quality Perception (Price-Quality Heuristics)

Consumer behavior science recognizes the "price reflects quality" heuristic. If marketers too frequently or extremely promote a fortified milk product that they should position as a value-added product (due to extra

nutritional content), consumers may begin to doubt its fundamental quality.

Consumers might subconsciously think: "Why is this fortified milk heavily discounted? Is the product selling poorly, nearing expiration, or has the manufacturer lowered the milk's quality?" Consequently, the promotion actively degrades perceived quality in the eyes of the consumer. When this quality perception falls due to excessive promotional exposure, the ability of product quality to drive purchase decisions automatically weakens.

Commoditization of Sachet Products

Manufacturers design 20-gram sachet products for practical needs, daily single-brew consumption, and mass sales volume. In the fast-moving consumer goods (FMCG) category with such minimal packaging, consumer involvement levels tend to remain low.

Consumers often do not take the time to deeply evaluate quality (for example, comparing iron or zinc composition). Promotions make consumers increasingly view this product as a "regular commodity." Consumers will buy whichever product currently runs a promo at the local stall or minimarket at that moment, regardless of whether brand A actually offers better fortification quality than brand B. Intense promotion eliminates loyalty toward quality; thus, quality loses its dominance as the primary determinant of purchase decisions.

Opportunistic Buying Behavior (Cherry-Picking)

Aggressive promotions breed cherry-picker consumers—buyers who only shop for brands currently offering incentives.

For cherry-picker consumers, milk quality becomes a secondary concern. As long as the quality meets a minimally acceptable standard (not necessarily the best), they will immediately purchase the product provided the company offers a price cut. When opportunistic buyers dominate the market, the role of product quality superiority becomes dampened because the strength of promotional stimuli at the point of purchase completely controls the final decision.

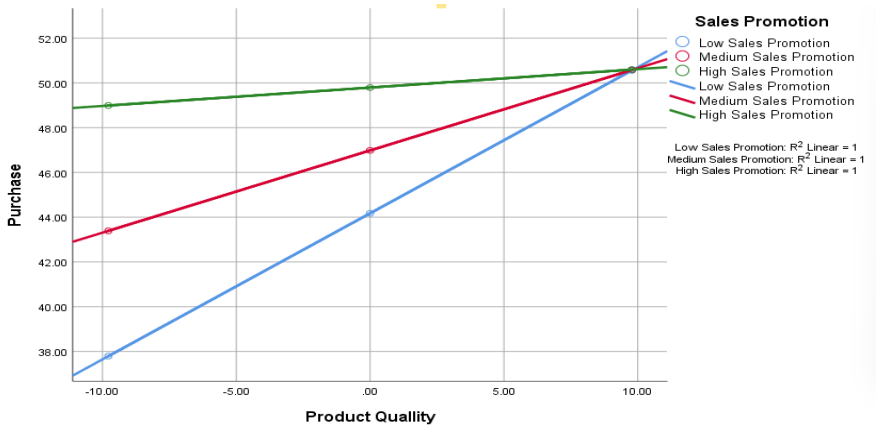


Figure 1. Simple slope analysis

Analysis of Conditional Effects and Johnson-Neyman Significance Regions

The analysis of the conditional effects (simple slopes) and Johnson-Neyman significance regions for the moderated regression model yields the following results:

Conditional Effects Analysis Across Promotional Levels

The conditional effects (simple slopes) table demonstrates how promotional intensity (Promo) dynamically influences the magnitude of Product Quality's (PQual) effect on Purchase Decisions. The analysis divides promotional intensity into three mean-centered levels:

Low Promotional Intensity (Mod Value = -9.6845):

When promotional levels fall below the average, product quality exerts a highly strong and statistically significant influence on purchase decisions. The effect coefficient stands at 0.6528 (t = 5.7334; p = 0.0000). This indicates that when promotions remain minimal, consumers rely almost entirely on product quality as the basis for their purchase decisions.

Moderate Promotional Intensity (Mod Value = 0.0000 / Mean):

At the average promotional level, product quality still positively and significantly influences purchase decisions, but the magnitude decreases to 0.3675 (t = 3.8456; p = 0.0002).

High Promotional Intensity (Mod Value = 9.6845):

When marketers increase promotional intensity beyond the average limit, the influence of product quality weakens drastically, dropping to 0.0821. At this point, the effect becomes statistically insignificant (t = 0.8634; p = 0.3897; the 95% CI crosses zero, specifically [-0.1063; 0.2705]). This means that under highly aggressive promotional conditions, product quality completely loses its appeal as a determinant of purchase decisions.

Johnson-Neyman Significance Region Analysis

The Johnson-Neyman analysis provides mathematical precision to determine the exact point where promotion begins to destroy or extremely alter the influence of product quality. This method identifies two critical cut-off points for the moderator variable:

1. Upper Critical Point (Promo Value = 6.2209): Loss of Positive Significance

As long as the promotional value remains below 6.2209 (covering 72.27% of the sampled population), product quality consistently and significantly drives purchase decisions. However, when the promotional value crosses this 6.2209 threshold, the effect of product quality decays and no longer significantly influences buyers ($p \geq 0.05$). Consumers begin to ignore product quality as a direct consequence of high promotional exposure.

2. Lower Critical Point (Promo Value = 20.1911): Shift to Negative Significance

The Johnson-Neyman analysis detects a second extreme point when the promotional value reaches 20.1911 and beyond (capturing 3.36% of the extreme observations at the population's edge). At this hyper-promotional point, the product quality effect not only disappears but significantly reverses into a negative direction (effect = -0.2275; p = 0.0500).

Conceptually, this extreme finding signals a price-quality heuristic phenomenon that backfires against the product. Excessive promotions at this level actively trigger deep doubts among consumers; they view the product as cheap or defective in quality. Consequently, even if the manufacturer maintains the fundamental quality, purchase decisions

actually decline due to the damaged brand image and ruined perceived quality.

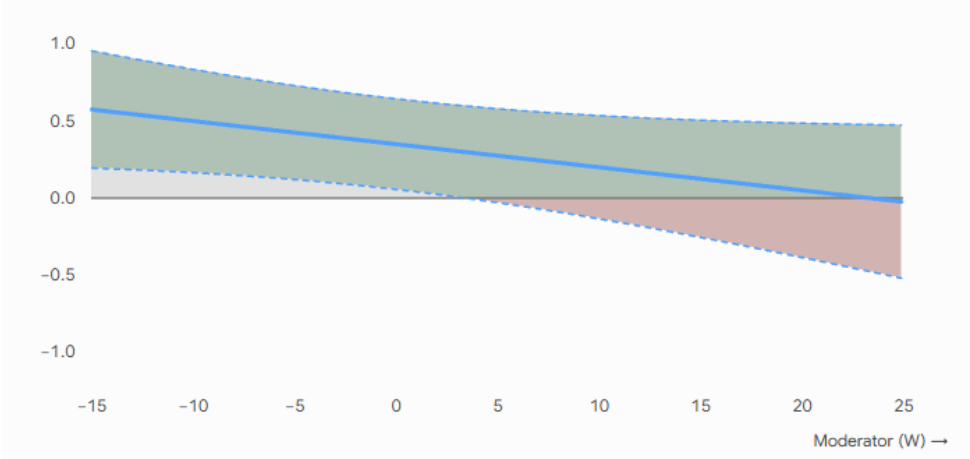


Figure 2. Johnson-Neyman analysis

Based on the empirical findings of this study, specifically the Johnson-Neyman region of significance analysis, management faces a strategic challenge regarding the effectiveness of the promotional mix. The data demonstrate that although early-stage sales promotion successfully stimulates purchase decisions, uncontrolled execution actively destroys the intrinsic value of product quality in the eyes of the consumer. Therefore, this study recommends that management implement a "Calibrated Promotional Exposure Limit" policy by considering the following strategic arguments:

1. Avoiding the "Quality Blindness" Critical Point (Value 6.22)

The Johnson-Neyman findings precisely identify that when promotional intensity exceeds an index of 6.22 (or when companies execute discount, cashback, and bundling strategies massively and continuously), the effect of product quality on purchase decisions becomes static and statistically insignificant. Management must realize that allowing promotions to cross this critical point equates to double wastage: the company loses profit margins due to high promotional costs, while the massive investments allocated to Research & Development (R&D) for creating high-quality fortified milk formulations become useless because consumers no longer pay attention to them. Management needs to lock the

volume, frequency, and depth of discount to ensure the promotional strategy always operates safely below this critical index limit.

2. Preventing Brand Equity Degradation and the Cheap Price Trap

This research reveals a latent danger at hyper-extreme promotional levels (crossing the 20.19 limit), where the relationship between quality and purchase decisions reverses into a negative one. At this point, consumers begin to develop serious skepticism. Management must avoid the psychological trap where consumers associate the product with a cheap brand, low quality, or unsold old stock. If management fails to restrict promotions, the company will fall into a price war cycle that ultimately commoditizes the product, kills brand loyalty, and breeds a consumer base of bargain hunters (cherry-pickers) who refuse to buy the product at its normal price.

3. Recalibrating Marketing Communication Focus

Instead of draining the budget on short-term sales promotions that dangerously approach the critical threshold, management should reallocate a portion of that budget toward brand activation and product education campaigns. The marketing team must refocus the communication strategy to highlight the product's functional advantages—such as the benefits of vitamin fortification, iron content, and zinc for growth. By maintaining financial promotional intensity at a moderate level (below the 6.22 limit), the company gives consumers the necessary space to return to functional quality as their primary consideration, while simultaneously preserving the product's image as a premium mainstream brand.

Sales promotion serves as a tactical instrument, not a long-term survival strategy. Management must adopt a data-driven approach by utilizing the 6.22 critical point as an "emergency brake" within the annual promotional calendar. Companies must return the sales success of fortified milk powder to healthy business fundamentals: winning the market through superior nutritional quality that consumers trust, rather than simply because the brand offers the most frequent discounts.

This research confirms that product quality and sales promotion independently serve as fundamental predictors that significantly drive

purchase decisions for 20-gram sachet fortified milk powder. These empirical findings align closely with classical consumer behavior theories, which position superior product attributes—such as enriched nutritional formulations—as the primary engines of functional utility (Ampadu et al., 2022). Furthermore, Kourav and Sharma (2023) reinforce this perspective by identifying robust product features as critical success factors that propel new product sales within the fast-moving consumer goods (FMCG) sector.

Alongside quality, sales promotion effectively operates as a direct financial stimulus that accelerates the consumer's transition from mere purchase intention to actual buying action. Zhang, Meng, and Wang (2025) strongly support this dynamic, demonstrating how price promotion strategies immediately alter consumer purchase patterns and trigger transactions in FMCG retail environments. Ultimately, the powerful combination of these two variables substantially explains the variance in purchase decisions. This synergy indicates that FMCG consumers actively evaluate the precise blend of product superiority and immediate price incentives when finalizing their choices at the point of sale, reflecting the complex, multi-dimensional buying behaviors that Anjali and Menon (2025) recently mapped in their standardization of consumer behavior metrics.

Nevertheless, the most critical finding in this research lies in the PROCESS Macro moderation analysis, which reveals a significant negative interaction (dampening effect) between sales promotion and product quality. The simple slopes analysis demonstrates that when promotional intensity remains low, product quality maintains full control as the primary determinant driving purchase decisions. However, as marketers aggressively increase promotional intensity—through extreme discounts or excessive bundling—the influence of product quality weakens drastically. This outcome indicates that sales promotion acts as a double-edged sword; rather than synergistically reinforcing product superiority, excessive promotion actively degrades the relevance of product quality in the consumer's eyes. As Knopoff, Secchini, and Terna (2020) demonstrate, consumers operating under swarm dynamics frequently shift their choices

away from quality evaluation when prices dominate the decision environment. Consequently, heavy discounting redirects consumer focus entirely toward opportunistic bargain hunting (cherry-picking behavior), causing them to disregard the product's nutritional advantages completely. This aligns with broader behavioral phenomena where excessive incentives or targeted messaging can fundamentally alter evaluation thresholds and distort decision-making (Li, Hsee, & Wang, 2024; Schmid, Altay, & Scherer, 2023), further proving that unchecked promotional saturation forces consumers to value temporary price cuts over intrinsic product merit.

The Johnson-Neyman region of significance analysis demonstrates the extreme consequences of this dampening effect by identifying the exact critical thresholds where sales promotion begins to destroy product equity. When promotional intensity exceeds an index of 6.22, the impact of product quality becomes statistically insignificant, leading consumers to completely ignore the product's fundamental attributes. Furthermore, when promotions reach extreme levels surpassing an index of 20.19, this effect significantly reverses into a negative relationship. This severe condition highlights the emergence of negative price-quality heuristics, where consumers actively suspect and doubt the actual quality of continuously discounted fortified milk. Thomas (2023) explains how such heuristic price evaluations strongly shape consumer judgments, particularly when abnormal pricing triggers consumer uncertainty and forces them to rely on price as a risk signal (Chung & Saini, 2022). Consequently, instead of perceiving a good deal, consumers lower their quality expectations to match the cheap price, reflecting the deeply ingrained psychological link between price tags and perceived product merit (Kurz, Efendić, & Goukens, 2023; Mukherjee & Pandelaere, 2023). Ultimately, these findings deliver a vital theoretical and practical warning: companies must not apply massive promotional strategies to sachet products without strict limits. Beyond a specific threshold, excessive promotions actively obliterate the product quality value proposition that the brand has carefully constructed.

Conclusion

Based on a comprehensive statistical analysis, this study draws three main conclusions regarding consumer behavior dynamics for 20-gram sachet fortified milk powder. First, product quality convincingly drives a positive increase in purchase decisions. Second, sales promotion independently validates as an effective predictor that stimulates consumer purchase rates. Third, and most critically, the PROCESS Macro analysis proves that sales promotion acts as a moderator with a dampening effect. High promotional intensity drastically reduces or completely nullifies the impact of product quality on the purchase decision. Findings from the Johnson-Neyman critical cut-off points confirm that at hyper-extreme promotional levels, promotions no longer stimulate sales; instead, they deeply damage the product's quality reputation, ultimately triggering consumer rejection.

This study acknowledges several limitations that researchers and practitioners must consider when interpreting the results. Although the sample size of 119 respondents satisfies the feasibility threshold for parametric statistics, it provides limited population representation, which restricts the ability to generalize consumer behavior across broader demographic and geographic areas. Furthermore, the cross-sectional survey approach only captures buying behavior phenomena at a single point in time. Consequently, the study cannot track longitudinal shifts in price sensitivity or quality perception as macroeconomic trends change.

Drawing upon these empirical findings, this study recommends that FMCG marketing managers execute a promotional recalibration strategy. The primary recommendation involves implementing a "promotional exposure limit" policy to avoid deadly price war traps that destroy product quality equity. Management must avoid executing extreme and massive price-cutting campaigns (such as excessive bundling or unreasonable discounts) and instead restrict promotional intensity strictly below the critical point of perception degradation. Marketers should reallocate a portion of the marketing budget away from short-term financial incentives and toward functional product education campaigns. Maintaining promotions at moderate proportions gives consumers the necessary space

to refocus on the product's core utility—its fortified nutritional content—thereby safeguarding the brand's positioning as a high-quality product.

For academics and future researchers, this study recommends expanding the research scale to longitudinal or experimental designs to accurately capture how consumer sensitivity toward promotional stimuli fluctuates over time. Future scholars should also incorporate additional mediating variables, such as brand trust or perceived risk. Investigating these variables will help trace the underlying psychological mechanisms that explain exactly why consumers degrade their quality assessments when confronted with massive discounts.

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Conflicts Of Interest

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

Use Of Artificial Intelligence (AI)

The authors transparently disclose the use of AI Tool exclusively for the purpose of linguistic editing and grammatical refinement of the original draft. The authors maintain full responsibility for the manuscript's substantive content, data integrity, andfinal scientific conclusions.sion to publish the results.


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