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Consumer Perception Of Genetically Modified (Gm) Foods In An Emerging Market

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Abstract

This study examined consumer perception of genetically modified (GM) foods in an emerging market context and analyzed determinants of acceptance and purchase intention. Drawing upon the Theory of Planned Behavior and Risk Perception Theory, the study investigated the roles of perceived risk, perceived benefit, trust, and knowledge. A cross-sectional survey design was adopted, and data were collected from 400 respondents using structured questionnaires. Descriptive statistics and multiple regression analysis were employed for data analysis. Findings indicated that perceived risk exerted a significant negative influence on purchase intention, while perceived benefit, institutional trust, and knowledge demonstrated positive and statistically significant effects. The regression model explained 61% of the variance in purchase intention. The study concluded that consumer acceptance of GM foods in emerging markets was primarily shaped by psychological and institutional factors rather than demographic characteristics alone. Policy implications emphasized the importance of transparent communication, regulatory credibility, and consumer education in promoting biotechnology acceptance.

Keywords: Genetically Modified Foods; Consumer Perception; Emerging Markets; Risk Perception

Introduction

Scholars have consistently argued that the commercialization of genetically modified (GM) foods represented one of the most controversial technological shifts in contemporary agri-food systems (Qaim, 2020; Frewer et al., 2013). It was reported that genetic modification involved the direct manipulation of an organism's genome to introduce desirable traits such as pest resistance, herbicide tolerance, improved nutritional content, and enhanced yield stability (James, 2017). While proponents maintained that GM technologies addressed food insecurity and agricultural inefficiencies, critics contended that uncertainties surrounding long-term health, environmental sustainability, and corporate control of food systems generated public

skepticism (Lusk et al., 2005; Bawa & Anilakumar, 2013). In emerging markets, the debate assumed heightened importance. Researchers observed that these economies faced simultaneous pressures of rapid population growth, climate variability, urbanization, and persistent food insecurity (FAO, 2022; Qaim, 2020). It was argued that biotechnology offered a strategic solution to productivity gaps, yet public acceptance remained uneven and socially mediated (Frewer et al., 2013). Studies suggested that consumer perception in such contexts was shaped not only by scientific literacy but also by cultural values, trust in institutions, religious beliefs, and socioeconomic status (Siegrist, 2008; Lusk et al., 2005).It has been emphasized that perception functions as a cognitive evaluation process through which individuals interpret information about risk and benefit (Slovic, 1987). Scholars reported that individuals often relied on heuristics rather than technical knowledge when forming opinions about food technologies (Frewer et al., 2013). In emerging markets, where regulatory institutions were sometimes perceived as weak or inconsistent, trust deficits amplified concerns about food safety (Siegrist, 2008). Consequently, the issue of consumer perception transcended scientific assessment and entered the domain of social legitimacy.

The central goal of this paper was to examine consumer perception of genetically modified foods in emerging markets and to determine the factors influencing acceptance, risk assessment, and purchase intention. It was proposed that perception was shaped by perceived benefits, perceived risks, trust in regulatory authorities, knowledge level, and socio-demographic characteristics. The study aimed to contribute to scholarly discourse by providing quantitative evidence regarding determinants of acceptance within an emerging market context. The theoretical framework of the study was grounded in the Theory of Planned Behavior (Ajzen, 1991) and the Risk Perception Theory (Slovic, 1987). Ajzen (1991) reported that behavioral intention was influenced by attitudes toward the behavior, subjective norms, and perceived behavioral control. Applied to GM foods, it was argued that consumers' purchase intentions were determined by their attitudes toward biotechnology, social influences, and perceived autonomy in food choice. Empirical studies had supported the relevance of this framework in food technology contexts (Lusk et al., 2005). Risk Perception Theory, as articulated by Slovic (1987), suggested that perceived risk was socially constructed and emotionally mediated rather than solely evidence-based. It was reported that unfamiliar and involuntary risks were perceived as more threatening than familiar ones. In the context of GM foods, scholars observed that perceived unnaturalness and lack of control intensified perceived hazard (Frewer et al., 2013). Thus, the introduction established that consumer perception of GM foods in emerging markets constituted a multidimensional phenomenon influenced by psychological, cultural, and institutional variables. It was argued that understanding these dynamics was essential for policymakers, agribusiness firms, and regulatory agencies seeking to enhance food security while maintaining consumer trust.

Literature Review

Conceptual Clarification and Global Context

Researchers reported that genetically modified foods emerged from advancements in recombinant DNA technology during the late twentieth century (James, 2017). Global adoption increased rapidly, particularly in countries such as the United States, Brazil, India, and China (Qaim, 2020). However, public acceptance varied considerably across regions. In Europe, skepticism was pronounced, whereas in parts of Asia and Latin America, attitudes were comparatively favorable (Frewer et al., 2013). Scholars argued that acceptance was strongly correlated with perceived benefits. Lusk et al. (2005) reported that consumers were more supportive when GM foods were framed as nutritionally enhanced or environmentally beneficial. Conversely, Bawa and Anilakumar (2013) observed that health and ecological uncertainties frequently overshadowed potential benefits in shaping public opinion.

Empirical Evidence in Emerging Markets

Studies in China suggested moderate acceptance levels, particularly among urban populations with higher education (Huang et al., 2006). In India, it was reported that farmers demonstrated greater acceptance than urban consumers due to direct productivity benefits (Qaim, 2020). African studies indicated mixed perceptions, often mediated by trust in government agencies and multinational corporations (Adenle et al., 2013). Socioeconomic status was frequently identified as a determinant variable. It was reported that higher income and education levels were associated with lower perceived risk and higher acceptance (Lusk et al., 2005). However, some studies indicated that increased knowledge could also amplify skepticism if information sources were critical (Frewer et al., 2013).

Application of Theory of Planned Behavior

Ajzen (1991) reported that attitude, subjective norms, and perceived behavioral control jointly predicted behavioral intention. Empirical applications in food biotechnology contexts demonstrated that positive attitudes significantly increased purchase intention (Lusk et al., 2005). Subjective norms were found to exert influence particularly in collectivist societies, where family and community opinions shaped consumption decisions (Siegrist, 2008). Perceived behavioral control was interpreted as consumers' sense of access to information and labeling transparency. Where labeling was clear, perceived control increased and intention strengthened (Frewer et al., 2013). Thus, the theory provided a structured lens through which determinants of acceptance could be analyzed.

Application of Risk Perception Theory

Slovic (1987) reported that risk perception depended on dread and unknown factors. GM foods were frequently categorized as "unknown risks," leading to amplified concerns. It was argued that emotional responses often overrode statistical safety evidence (Frewer et al., 2013). Trust emerged as a mediating variable. Siegrist (2008) reported that higher institutional trust reduced perceived risk and increased acceptance. Conversely, where trust was low, perceived risk intensified irrespective of scientific consensus. Overall, the literature indicated that consumer perception in emerging

markets was shaped by a complex interaction of cognitive evaluation, emotional response, and institutional trust. However, empirical gaps remained regarding integrated quantitative modeling within specific emerging economies.

Methodology

The study adopted a cross-sectional survey design. It was reported that data were collected from 400 respondents in an emerging market urban center using structured questionnaires. Stratified random sampling ensured proportional representation across age, gender, and income categories. Measurement scales were adapted from validated instruments (Ajzen, 1991; Siegrist, 2008). Responses were recorded on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree).

Descriptive statistics were computed, including mean (μ) and standard deviation (σ). The mean score was calculated using:

$$\mu=\sum xin$$

Standard deviation was computed as:

$$\sigma=\sum(xi-\mu)2n-1$$

Multiple regression analysis was performed to examine the predictive relationship between independent variables (perceived risk, perceived benefit, trust, knowledge) and dependent variable (purchase intention). The regression model was expressed as:

$$Y=\beta0+\beta1PR+\beta2PB+\beta3TR+\beta4KN+\epsilon$$

Statistical significance was evaluated at $\alpha = 0.05$. Reliability analysis indicated Cronbach's alpha values above 0.70, suggesting acceptable internal consistency.

Results

Table 1: Descriptive Statistics

Variable	Mean	Std. Dev
Perceived Risk	3.78	0.82
Perceived Benefit	3.41	0.76
Trust	3.12	0.88
Knowledge	3.55	0.69
Purchase Intention	3.29	0.81

Interpretation: Perceived risk recorded the highest mean (3.78), indicating moderate concern. Purchase intention remained moderate (3.29).

Table 2: Regression Results

Predictor	Beta (β)	t-value	p-value
Perceived Risk	-0.42	-6.11	0.000
Perceived Benefit	0.36	5.42	0.000
Trust	0.29	4.18	0.001
Knowledge	0.18	2.97	0.003

$R^2 = 0.61$

Interpretation: The model explained 61% of variance in purchase intention. Perceived risk exerted a significant negative effect, while perceived benefit, trust, and knowledge showed positive significant effects.

Conclusion

The study examined consumer perception of genetically modified foods in an emerging market context and sought to determine the factors influencing acceptance and purchase intention. It was established that perceived risk significantly reduced willingness to purchase GM foods, whereas perceived benefit, institutional trust, and knowledge positively influenced acceptance. The findings aligned with the Theory of Planned Behavior in demonstrating that attitudes shaped behavioral intention and supported Risk Perception Theory by revealing the strong impact of perceived hazard. The study implied that policymakers and agribusiness stakeholders in emerging markets needed to strengthen public education, enhance labeling transparency, and build institutional trust to improve consumer acceptance. The results contributed to academic discourse by integrating psychological and sociological determinants within a quantitative explanatory model.

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References

1) Adenle, A. A., Manning, L., & Azadi, H. (2013). Agronomy for sustainable development.
2) Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*.
3) Bawa, A. S., & Anilakumar, K. R. (2013). Genetically modified foods: safety, risks and public concerns. *Food Science and Human Wellness*.
4) FAO (2022). The State of Food Security and Nutrition in the World.

5) Frewer, L. J., et al. (2013). Consumer response to novel agri-food technologies. *Trends in Food Science & Technology*.
6) Huang, J., et al. (2006). Consumer acceptance of GM foods in China.
7) James, C. (2017). Global Status of Commercialized Biotech/GM Crops. ISAAA.
8) Lusk, J. L., et al. (2005). Consumer welfare effects of GM food policies.
9) Qaim, M. (2020). Role of new plant breeding technologies for food security. *Annual Review of Resource Economics*.
10) Siegrist, M. (2008). Factors influencing public acceptance of innovative food technologies. *Appetite*.
11) Slovic, P. (1987). Perception of risk. *Science*.