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Examining the influence of multidimensional health knowledge on consumer preferences for functional foods

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Abstract

Purpose: This study investigates the impact of multidimensional health information on the functional food preferences of consumers in Pune.

Design/methodology/approach: Health knowledge was a three-dimensional construct of HIS, NK, and CA. A standardized questionnaire was administered to 252 participants. After that, SPSS (Version 29) used multiple linear regression to see if the assumptions were true.

Findings: All three health awareness criteria had an impact on customer preferences, making up 30-36% of the difference. Not all sub-dimensions had the same amount of influence. Specific knowledge, especially from scientific studies, can change what people want to eat. You should also use what you know about nutrition to find healthy substances on labels. These preferences are based on how hard nutrition science is and how well consumers grasp the benefits of products and new market entrants.

Practical implications: To get more people to eat functional foods, we need to make sure they have better practical nutrition knowledge and reliable health information. Data can assist politicians and marketers build food education and labeling programs that make people want to eat healthy.

Originality/value: This study employs the KAB framework. It demonstrates that health knowledge is complex.

Keywords: Functional foods, Health knowledge, Nutritional literacy, Consumer awareness, Information seeking, Consumer preferences

1. Introduction

In the past two decades, the way people throughout the world eat has transformed. Eating is becoming more and more connected to health and happiness. Dietary habits are becoming increasingly significant since more people are getting diseases that aren't contagious, like obesity, type 2 diabetes, and heart disease (Granato *et al.*, 2017) ^[5]. Functional foods are expanding quickly over the world in this changing nutritional context (Siro *et al.*, 2008) ^[19]. These meals do more than just fill you up; they might also make you healthier. Bioactive compounds, probiotics, omega-3 fatty acids, vitamins, and minerals support digestion, immunity, and cardiovascular health (Topolska *et al.*, 2021) ^[9].

India's growing middle class and urban population make it a prospective functional food industry that hasn't been examined yet. People in big cities and tier-one cities are eating better because they care more about their health, have more money, and have changed their behaviors. Pune is a rapidly rising Indian city with a strong IT, education, and service sector. It's a terrific way to learn about eating functional foods. The fact that its people are young, educated, and health-conscious shows how health information can change what people want to buy. India's cuisine is still developing, but not many studies look at the cognitive elements that affect eating choices.

1.1 Knowledge of Health in Choosing Functional Foods

Numerous research indicate that health knowledge influences dietary choices (Wardle *et al.*, 2000; Nayga, 2000) ^[22, 12]. Health literacy helps consumers learn how to read food labels, health claims, and how to avoid getting sick (Verbeke, 2005; Chen, 2011) ^[20, 3]. Being health-conscious and eating functional foods don't necessarily go hand in hand. Studies indicate that nutrition professionals are more inclined to select and have confidence in functional foods (Ares & Gámbaro, 2007; Wansink *et al.*, 2005) ^[2, 21]. Some assert that taste,

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affordability, convenience, and belief in claims are more important than knowledge (Siegrist *et al.*, 2008) ^[18]. These conflicting results indicate the necessity to investigate the health information that affects functional food preferences, particularly in non-Western nations where these items are novel.

1.2 Multidimensional Health Knowledge

This study conceptualizes health knowledge as three-dimensional. It has parts that are cognitive, behavioral, and conscious.

Health Information Seeking is looking for, checking, and using health and nutrition information. Digital media, health experts, and social networks are some of the sources (Johnson & Meischke, 1993; Jia *et al.*, 2021) ^[8, 10]. This behavioral aspect demonstrates how information engagement enhances trust in product claims.

Nutritional knowledge includes knowing what nutrients you need, what foods you should eat, and how nutrition can help you avoid being sick (Parmenter & Wardle, 1999) ^[19]. It shows how facts are used to make decisions about what to consume.

People know what functional foods are, how they work, and where to find them (Topolska *et al.*, 2021) ^[9]. People in new markets like India may not know scientific terms or health claims, so they need to be more attentive.

These three traits help us understand how health information affects what individuals want. People that look into health, nutrition, and functional foods are more likely to benefit from them and make wise decisions.

1.3 Pune, India the context of the research

The functional food market in India is increasing quickly (IBEF, 2024), but not much is known about how being mindful of health influences what people buy. Most research is done in big cities like Delhi, Mumbai, and Bengaluru. They discuss about demographics and how sensitive people are to prices, but not the mental factors that affect behavior. Pune is a modernizing, mid-sized city with a lot of different things to offer. There, you can learn about how health information affects people's choices of functional foods.

Indian clients have a health information environment that is different from others. Ayurveda, digital health, social media influencers, and government nutrition programs all work together. Different settings affect how people get and use health information. Examining Pune's intricate health knowledge system may uncover local consumption patterns and the evolution of market health literacy and dietary preferences.

1.4 The goal and scope of the research

RQ: The principal research inquiry for this study is: In what ways can health information seeking, nutritional literacy, and functional food knowledge influence consumer decisions about functional foods?

The study examines the influence of each health information aspect on the development of preferences. You may use SPSS to look at Pune local primary survey data and figure out which parts are best at predicting what customers would choose. This technique offers a theoretical contribution and supplies urban Indian marketers and policymakers with pertinent information.

1.5 Theoretical and Practical Significance

The study formulates the Knowledge-Attitude-Behavior

(KAB) framework. It regards knowledge as a cognitive precursor that shapes attitudes and behavior. To make single-indicator models better, think of health knowledge as three-dimensional. This makes it clear how different kinds of knowledge affect choices about functional foods.

Knowing which health information is most important lets you make specific plans. Ads may stress accurate nutrition data as a source of health information. If knowing about functional foods is the most important thing, marketing can focus on teaching people about the products. These data can assist food companies, nutrition teachers, and lawmakers promote functional foods in India's health-conscious market.

2. Literature Review

The Information-Attitude-Behavior (KAB) framework and the Health Belief Model (HBM) elucidate the impact of health information on dietary choices. The KAB model posits that knowledge cultivates positive attitudes, which then affect behavior (Ajzen & Fishbein, 1980) ^[1]. Knowledge and awareness shape perceptions of health risks and benefits, which are altered by cues to action and perceived barriers (Rosenstock *et al.*, 1988) ^[17].

These models demonstrate that health knowledge assists consumers in assessing product claims, identifying health advantages, and developing favorable preferences for functional meals. Verbeke (2006) ^[20] and Siegrist *et al.* (2008) ^[18] demonstrate that knowledge is heterogeneous. Consumers obtain and utilize it through cognitive and behavioral determinants. We can better understand how nutrition literacy, product familiarity, and information processing affect decision-making if we think of health knowledge as a group of things.

This research, drawing on Wardle *et al.* (2000) ^[22] and Topolska *et al.* (2021) ^[9], categorizes health knowledge into three dimensions: health information seeking, nutritional comprehension, and functional food consumer awareness. Various psychological mechanisms influence client decisions across each dimension.

2.1 Health Information Seeking and Consumer Preferences

Individuals actively pursue, verify, and utilize information pertaining to health, nutrition, and overall well-being (Johnson & Meischke, 1993; Jia *et al.*, 2021) ^[8, 10]. It shows that people are aware of their health, actively involved in it, and that it matters to them personally (Cline & Haynes, 2001) ^[4]. People who actively look for information are more sure that they can read nutrition labels, check claims, and find trustworthy sources (Zhu *et al.*, 2018) ^[7].

People who actively look for functional food benefits messaging are better at remembering them. Research from the West shows that people who care about their health prefer probiotic yogurts and milk with omega-3 added. These customers think of functional foods as health instruments, not just supplements (Siegrist *et al.*, 2008) ^[18].

In India, digital channels and social media make it easier to find health information. Pune people can get nutrition advice from health influencers, nutrition blogs, and websites. But this makes it more likely that people will get wrong or too much information (Chandwani *et al.*, 2025) ^[24]. Sorting and interpreting reliable information helps people come up with good ideas and make healthy food choices that work for them.

H1: Health information seeking has a positive and significant effect on consumer preferences for functional foods.

2.2 Nutritional Knowledge and Consumer Preferences

Nutritional knowledge encompasses the comprehension of nutrients, dietary guidelines, and the relationship between nutrition and health (Parmenter & Wardle, 1999; Wardle *et al.*, 2000) ^[19, 22]. It is the mental basis for health literacy and affects how healthy food is, how products are rated, and what people buy (Nayga, 2000; Worsley, 2002) ^[12, 23]. Advanced nutritional knowledge aids customers in understanding labeling, identifying ingredients, and evaluating the physiological appropriateness of functional foods (Verbeke, 2006) ^[20].

Research indicates that nutritional education enhances attitudes towards functional foods and their consumption. Wansink *et al.* (2005) ^[21] discovered that individuals with nutritional literacy exhibited a greater receptiveness to functional meals. Ares and Gámbaro (2007) ^[2] say that these clienteles were more likely to sample meals with added nutrients. Chen (2011) ^[3] discovered that nutritionally conscious Taiwanese consumers spent more on functional products.

The intensity of this association fluctuates between cultures and markets. Limited health claim exposure and low dietary knowledge may make consumers in emerging nations less receptive. In India, advertising is more widespread than official nutrition education. Pune's health-conscious residents may elucidate the correlation between nutritional awareness and preferences for functional foods, enhancing comprehension of the cognitive determinants of dietary behavior.

H2: Nutritional knowledge has a positive and significant effect on consumer preferences for functional foods.

2.3 Consumer Awareness of Functional Foods and Preferences

The third part, consumer awareness of functional foods, looks at how much people know about these foods' ideas, qualities, and advantages (Topolska *et al.*, 2021) ^[9]. Awareness is product-specific and depends on marketing, labels, and experience, unlike basic nutrition knowledge (Verbeke, 2006) ^[20]. It makes people feel less unsure and safer by translating vague health information into specific product reviews (Siegrist *et al.*, 2008) ^[18].

In developed markets, people see health claims and labels that are regulated all the time. In new markets like India, people are more aware. People who live in cities are drinking more vitamin-enriched drinks, fortified cereals, and probiotic drinks. But a lot of people don't trust functional meals or mix them up with drugs. It can be challenging to make choices when things aren't clear.

Studies indicate that awareness enhances perceived advantages and purchasing intentions (Siro *et al.*, 2008; Topolska, 2021) ^[9]. Verbeke (2006) ^[20] discovered that European consumers who were familiar with the product trusted functional claims and made repeat purchases. Awareness diminishes the cognitive effort required to assess novel or intricate items.

In Pune, supermarkets and digital marketing push functional meals. Awareness affects what people like. Learning about functional food brands and their benefits makes people think and feel better about them.

H3: Consumer awareness of functional foods has a positive and significant effect on consumer preferences for functional foods.

2.5 Integration in three dimensions

Health information affects what people want, yet the two are linked. Health information usually gives you fresh information about nutrition and products. People who know a lot about nutrition can understand what a product says it does. Awareness incorporates this information into purchasing choices. These features foster health literacy, facilitating informed and assured nutritional decisions (Nutbeam, 2000) ^[14].

This broad approach shows that India has health knowledge and functional diet gaps. Students and young professionals in Pune who know how to use computers may be good at discovering information. Older foodies who are more traditional may rely on their own experiences or ads. By looking at each part, we can better understand how health information affects choices in a new and varied market.

- a) **H1:** Health information seeking positively influences consumer preferences for functional foods.
- b) **H2:** Nutritional knowledge positively influences consumer preferences for functional foods.
- c) **H3:** Consumer awareness of functional foods positively influences consumer preferences for functional foods.

In the following sections, SPSS will be employed to examine proposed correlations utilizing primary survey data from clients in Pune, India.

3. Research Methodology

This quantitative survey study investigated the influence of health information seeking, nutritional comprehension, and consumer awareness of functional foods on customer preferences for such products. The cross-sectional study examined a customer sample from Pune, India, once. Pune was selected for research on functional food consumption due to its educated and health-conscious urban population.

This study utilized a structured questionnaire modified from prior research to suit the Indian context. The questionnaire has four parts. The first part got information about the person's age, gender, education, job, and income. The second, third, and fourth parts looked at how people looked for health information, how much they knew about nutrition, how much they knew about functional foods, and what they liked. To provide a better sense of how people felt and thought, all items were evaluated on a 7-point Likert scale, with 1 = strongly disagree and 7 = strongly agree.

Health information-seeking questions were adapted from Johnson and Meischke (1993) ^[8] to evaluate consumers' proactive search for and utilization of health information. Questions based on Parmenter and Wardle (1999) ^[19] assessed respondents' understanding of nutrients, dietary guidelines, and the impact of nutrition on health. Topolska *et al.* (2021) ^[9] assessed consumer awareness regarding the availability of functional food products in the marketplace. Lastly, we used items from Chen (2011) ^[3] and Ares and Gámbaro (2007) ^[2] to examine the dependent variable, consumer preference for functional foods. These items measured how much consumers liked functional meals and how much they wanted to choose them over regular foods. We changed all the words to make sure that Indian customers could understand and relate to the products.

Before the final survey, a pilot study with 40 people from Pune examined the questionnaire's clarity and dependability. After receiving feedback, the questions were made easier to understand by changing the wording slightly and adding examples of functional foods that are available in the area.

In the pilot test, all constructs had Cronbach's alpha values over 0.70, which means that the measuring scales were consistent with each other and well enough for further study.

This study employs non-probability purposive sampling. This strategy was appropriate as the study necessitated consumers of functional food. To include a wide range of people, data were gathered both online and offline. In Pune, supermarkets, gyms, and health food stores provided paper questionnaires, while Google Forms sent the online quiz through WhatsApp, LinkedIn, and Instagram. After checking for incomplete or inconsistent data, 252 valid replies were preserved for review out of the 300 questionnaires sent out.

The time to collect data was from February to April 2025. Participants were informed of the study's objective and assured anonymity and confidentiality. No personal information was gathered during volunteer participation. It took participants roughly 10 minutes to finish the survey. The author's university ethics committee approved the study before data collection.

After collecting the answers, they were all looked at in SPSS (Version 29). We checked the pre-analysis data to make sure it was comprehensive and correct. Descriptive statistics provided a summary of the respondents' demographics and their key concept replies. We used Cronbach's alpha to check the reliability of the assessment scales. This test checks the internal consistency of each construct's items. A Cronbach's alpha of 0.70 or higher showed that the test was reliable (Nunnally & Bernstein, 1994). Cronbach's alpha demonstrated that all constructions satisfied this condition, hence confirming the instrument's dependability.

The subsequent phase involved hypothesis testing to analyze the impact of each health knowledge component on functional food consumer preferences. The study posited three hypotheses: (H1) Health information seeking favorably impacts consumer preference for functional foods; (H2) Nutritional knowledge positively affects consumer preference; and (H3) Consumer awareness of functional foods positively influences consumer preference. The hypotheses were evaluated with SPSS inferential statistics at a 5% significance level ($p < 0.05$). Hypothesis testing identified the health knowledge aspects that affected customer preferences.

The research maintained ethical standards. The participants were informed about the academic objective of the study and engaged voluntarily. We looked at aggregated data without any identifiable information.

This study gathered consumer data in Pune, India, employing a systematic, trustworthy, and precise questionnaire. The 7-point Likert scale illustrated respondents' perspectives on functional nutrition and health literacy. Cronbach's alpha confirmed the scales' reliability, and hypothesis testing looked at the suggested connections between different parts of health knowledge and consumer preferences. The subsequent section presents and discusses the outcomes of the data analysis in relation to the study hypotheses.

4. Results and Analysis

This part shows the findings of SPSS (Version 29) data analysis. There were two steps in the analysis. Cronbach's alpha was used to check the reliability of the measurement scale to make sure that the items on the questionnaire were consistent. Second, hypothesis testing was employed to

investigate the influence of health information seeking, nutritional understanding, and functional food awareness on consumer preferences for functional foods.

4.1 Reliability

To check the reliability of the questionnaire, Cronbach's alpha was used to verify the internal consistency of the 15 measuring items. The overall Cronbach's alpha was 0.930, which means that the questions reliably measure health awareness and functional food consumer preferences. The scale's stability and robustness were corroborated by its 0.931 Cronbach's alpha on standardized items (Table 1). These results validate the reliability of the study instrument and facilitate hypothesis testing.

Table 1: Reliability Analysis

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.930	.931	15

(Source: SPSS output of responses)

4.2 Hypothesis Testing

Health Information Seeking (HIS), Nutritional Knowledge (NK), and Consumer Awareness (CA) were utilized to assess the impact of health knowledge on consumer choices for functional foods in Pune, India. A 7-point Likert scale was used to rate all of the survey items for 252 people. All structures exhibited excellent internal consistency, with a Cronbach's alpha of 0.930 for the 15 items, signifying exceptional reliability. We used numerous linear regression analyses to test each dimension's individual hypothesis.

H1: Health information seeking positively influences consumer preferences for functional foods.

A regression model based on web searches, professional discussions, and scientific studies (Table 2) shows that Health Information Seeking (HIS) explains 32.4% of consumer preferences. The updated R^2 of 0.316 and the estimated standard error of 1.13888 show that the predictions are fairly accurate.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.570 ^a	.324	.316	1.13888

(Source: SPSS output of responses)

The ANOVA results indicated that the model was statistically significant ($F(3, 248) = 39.692$, $p < 0.001$). This suggests that the HIS dimensions together help explain what people like (Table 3).

Table 3: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	154.448	3	51.483	39.692	<.001 ^b
Residual	321.671	248	1.297		
Total	476.119	251			

(Source: SPSS output of responses)

Table 4 shows that citing scientific research ($B = 0.423$, $p < 0.001$, Beta = 0.523) is positively related to what consumers want, but searching online ($B = -0.014$, $p = 0.818$) and talking to professionals ($B = 0.065$, $p = 0.286$) do not show any significant results. These statistics substantially support H1, showing that looking for health information, especially scientific studies, has a big effect on how much people want functional meals.

Table 4: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.965	.224		8.759	<.001
Online Search (IS1)	-.014	.060	-.019	-.230	.818
Discussion with professionals (IS2)	.065	.061	.084	1.070	.286
Referring the scientific studies (IS3)	.423	.064	.523	6.639	<.001

(Source: SPSS output of responses)

H2: Nutritional knowledge positively influences consumer preferences for functional foods.

The research additionally assessed the influence of nutritional education on functional food preferences in Pune, India. Hypothesis 2 (H2) posited that nutritional information enhances customer choice. We used a multiple linear regression analysis to test this hypothesis. The three dimensions of nutritional knowledge (Knowing the Concepts, Recognizing functional ingredients on labels, and Complex Nutritional Science) were the independent variables, and consumer preference (ConsumerPref) was the dependent variable.

Table 5 reveals that nutritional knowledge accounts for 30.2% of consumer preferences, with $R = 0.550$ and $R^2 = 0.302$ in the regression model (Knowing the Concepts, Recognizing functional substances on labels, Complex Nutritional Science). The estimate has a standard error of

1.15734 and an adjusted R^2 of 0.294.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.550 ^a	.302	.294	1.15734

(Source: SPSS output of responses)

The results of the ANOVA test showed that the model was statistically significant ($F(3, 248) = 35.821$, $p < 0.001$). This means that the three dimensions of nutritional knowledge had an effect on what customers chose (Table 6).

Table 6: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	143.938	3	47.979	35.821	<.001 ^b
Residual	332.180	248	1.339		
Total	476.119	251			

(Source: SPSS output of responses)

The analysis of regression coefficients (Table 7) revealed that Recognizing Functional Ingredients on Labels ($B = 0.207$, $p = 0.013$, $Beta = 0.258$) and Complex Nutritional Science ($B = 0.173$, $p < 0.001$, $Beta = 0.233$) were significant positive predictors, whereas Knowing the Concepts ($B = 0.122$, $p = 0.085$) was not significant. These findings provide partial validity for H2, suggesting that some aspects of nutritional knowledge significantly affect customer choices for functional meals in the Pune context.

Table 7: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.835	.242		7.593	<.001
Knowing the Concepts (NK1)	.122	.070	.172	1.727	.085
Recognizing functional ingredients on labels (NK2)	.207	.083	.258	2.494	.013
Complex Nutritional Science (NK3)	.173	.044	.233	3.977	<.001

(Source: SPSS output of responses)

H3: Consumer awareness of functional foods positively influences consumer preferences for functional foods.

This study assessed the impact of consumer awareness on functional food preferences in Pune, India. Hypothesis 3 (H3) posited that customer knowledge enhances consumer preference. A multiple linear regression analysis was conducted utilizing three variables of consumer awareness (Awareness of FFBs, New FFBs, Media Influences) as predictors and consumer preference (ConsumerPref) as the dependent variable to evaluate this hypothesis.

The regression analysis for customer knowledge (FFB awareness, new FFBs, media influences) showed that $R = 0.601$ and $R^2 = 0.361$, which means that 36.1% of consumer choices could be explained by these factors (Table 8). The estimate has a fair level of predictive accuracy, with an adjusted R^2 of 0.354 and a standard error of 1.10731.

Table 8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.601 ^a	.361	.354	1.10731

(Source: SPSS output of responses)

The ANOVA results confirmed the model's significance ($F(3, 248) = 46.768$, $p < 0.001$), demonstrating that the elements of consumer awareness together influence customer decisions (Table 9).

Table 9: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	172.035	3	57.345	46.768	<.001 ^b
Residual	304.084	248	1.226		
Total	476.119	251			

(Source: SPSS output of responses)

The model coefficients indicated that New FFBs ($B = 0.260$, $p = 0.003$, $Beta = 0.314$) and Media Influences ($B = 0.194$, $p < 0.001$, $Beta = 0.252$) were significant predictors. On the other hand, Awareness of FFBs ($B = 0.086$, $p = 0.292$) was not significant (Table 10). These results suggest that knowing how to utilize a product and what benefits it has are two extremely essential pieces of consumer knowledge that help people decide which functional foods to buy.

Table 10: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.837	.213		8.619	<.001
Awareness of FFBs (CA1)	.086	.081	.110	1.057	.292
New FFBs (CA2)	.260	.086	.314	3.016	.003
Media Influences (CA3)	.194	.050	.252	3.915	<.001

(Source: SPSS output of responses)

IS3 (Health Information Seeking), NK2 and NK3

(Nutritional Knowledge), and CA2 and CA3 (Consumer Awareness) were significant predictors of consumer preferences across all three categories of health knowledge. In Pune, targeted initiatives aimed at enhancing health awareness may significantly influence customer choices for functional meals. The models explained between 30.2% and 36.1% of the variation, which shows that health information is important but not complete. It also shows that demographic factors and societal influences may affect consumer choices.

5. Discussion

Health Information Seeking (HIS), Nutritional Knowledge (NK), and Consumer Awareness (CA) were employed to investigate the influence of health knowledge on consumer choices for functional meals in Pune, India. The results yield theoretical and practical insights into the influence of these qualities on consumer behavior regarding functional foods.

5.1 Health Information Seeking and Consumer Preferences

The outcomes somewhat corroborated Hypothesis 1: Only Dimension 3 of Health Information Seeking had a significant effect on customer preferences, showing that people who actively look for health information prefer functional meals. The non-significance of IS1 and IS2 indicates that not all information-seeking behaviors influence customer decisions. Previous studies indicate that targeted and credible health information impacts food-related choices to a greater extent than generic health information (Grunert *et al.*, 2010) ^[6].

These results underscore the necessity for strategic dissemination of health information via credible sources such as nutrition experts, health campaigns, and reputable internet platforms to enhance consumer engagement and interest in functional foods.

5.2 Nutritional Knowledge and Consumer Preferences

Hypothesis 2 was largely confirmed, since NK2 and NK3 shown predictive capability, although NK1 did not. This indicates that vitamin content, functional advantages, and health outcomes affect consumer decisions more significantly than general nutritional awareness. These results corroborate previous research indicating that consumers with greater nutritional and functional food knowledge make more informed choices (Roininen *et al.*, 1999) ^[16].

This means that educational programs and labeling should focus on useful nutritional information instead of general information. Clear, focused knowledge on nutrition can influence what people want in functional meals.

5.3 Consumer Awareness and Consumer Preferences

CA2 and CA3 predicting consumer preferences gave some support to Hypothesis 3. Consumers' understanding of product benefits, appropriate usage, and functional attributes affects food selection, but general awareness (CA1) exerted less influence. These results corroborate prior studies demonstrating that customer awareness of product utility and health implications significantly impacts purchasing decisions (Verbeke, 2006) ^[20].

Instead of focusing on how visible a product is, marketers should focus on how it works and how to utilize it correctly. Promotional ads that focus on real-life benefits and consumption advice get people more interested and make

them want to buy.

5.4 Combining Insights

Results indicate that specific components, rather than sub-dimensions, influence consumer choices across all three health knowledge dimensions. The models showed that health information is important, but price sensitivity, taste, social impact, and lifestyle behaviors may all affect how people act.

In Pune, India, consumer awareness and nutritional knowledge had a marginally greater impact than general health information-seeking behavior. A global study indicates that knowledge application (comprehension of benefits and utilization) typically exerts a greater influence on food choice than information exposure (Bogueva *et al.*, 2020).

5.5 Theoretical and Practical Implications

This research conceptualizes health knowledge as a three-dimensional construct and empirically substantiates its diverse influence on functional food preferences. It demonstrates that consumer behavior models must regard health knowledge as a multifaceted construct.

The research offers pragmatic guidance for Indian functional food marketers, policymakers, and health educators. The results reveal that marketers should focus on benefits that are backed by research and make sure that advertising and labeling are clear and easy to understand to develop trust with customers. Policymakers ought to allocate resources to extensive nutrition education programs and oversee health claims to ensure reliability and avert misinformation. Health educators help create programs that teach individuals how to obtain, assess, and use reliable health information when they are deciding what to eat. These targeted actions can help people feel more confident, help them make better decisions, and speed up the usage of functional foods in urban India.

5.6 Limitations and Future Research

The study has limitations even though it contributes. The sample, confined to Pune, India, may hinder generalizability. We utilized solely survey-based self-reported measures; incorporating behavioral or longitudinal data could enhance causal inference. To enhance generalizability, subsequent research should investigate price sensitivity, taste preferences, and social influence, while evaluating the model across varied cultural and geographic settings.

Subsequent research may investigate cultural or socio-economic disparities in health literacy and dietary choices beyond Pune. Utilizing behavioral data or longitudinal methodologies may enhance causal inference. Future studies may incorporate price sensitivity, sensory appeal, and social influence to further the understanding of functional food consumption.

6. Conclusion

Health Information Seeking (HIS), Nutritional Knowledge (NK), and Consumer Awareness (CA) were utilized to assess the impact of health knowledge on consumer choices for functional meals in Pune, India. The study employed SPSS to analyze 252 survey responses, including reliability analysis, multiple linear regression, and hypothesis testing to investigate construct links.

The research indicates that not all health awareness elements affect consumer preferences. IS3 (health

information seeking), NK2 and NK3 (nutritional knowledge), and CA2 and CA3 (consumer awareness) were all good predictors of what customers will choose. These models accounted for 30-36% of consumer preferences, indicating that health awareness affects functional food selections.

The study demonstrates that focused interventions on trustworthy health information, practical nutritional knowledge, and product advantages and applications can alter consumer preferences. These insights can assist food marketers, lawmakers, and health educators in developing instructional campaigns, labeling strategies, and promotional initiatives that encourage healthy eating.

The study advances theoretical understanding by demonstrating that health information is multifaceted, with its subcomponents exerting varying influences on consumer behavior. This indicates the necessity for advanced conceptualization and measurement of health knowledge in subsequent research.

Finally, the study acknowledges its spatial focus on Pune and reliance on self-reported survey data, which may constrain generalizability and causality. To enhance and expand the findings, subsequent research may incorporate behavioral or longitudinal measures, investigate additional factors of functional food preferences, and evaluate the model in diverse cultural or regional contexts.

In conclusion, the study offers compelling evidence that enhancing health awareness can significantly affect consumer choices for functional foods, supplying stakeholders with pragmatic guidance and theoretical advancements in wellness consumer behavior research.

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