Exploring the Relationship Between Food Fussiness, Health Consciousness, Naturalness Perception, and Labelling Preferences in the Utilization of Medicinal Foods

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ABSTRACT:

The resurgence of interest in medicinal foods as a complementary approach to health and wellness emphasizes the importance of understanding the factors influencing their utilization. This study investigates the relationships between food fussiness, health consciousness, perceptions of naturalness, and labelling preferences in the context of medicinal food consumption. By elucidating these relationships, we aim to provide insights that can inform healthcare practitioners, policymakers, and food industry stakeholders. The objectives are to examine these associations and explore their implications for consumer behavior and public health initiatives. Data were collected through a structured questionnaire designed to capture key variables accurately, enabling robust statistical analyses. This study contributes to the literature on medicinal foods and offers actionable insights for stakeholders aiming to enhance their utilization for improved health outcomes.

Keywords: Medicinal Foods, food fussiness, health consciousness, naturalness, and labelling

Introduction:

In recent years, there has been a resurgence of interest in the utilization of medicinal foods as a means to promote health and well-being (Sharma et al.,2007) Medicinal foods, encompassing a diverse array of natural edibles believed to possess therapeutic properties, have garnered attention for their potential to complement traditional medical interventions and contribute to holistic approaches to healthcare (Ramalingum & Mahomoodally, 2014). Understanding the factors influencing the usage of these foods is paramount for healthcare practitioners, policymakers, and consumers alike.

The importance of investigating the utilization of medicinal foods lies in their potential to offer preventive and therapeutic benefits, potentially reducing the burden of chronic diseases and enhancing overall quality of life (Shlisky et al, 2017). With growing concerns about the sustainability and efficacy of conventional medical treatments, exploring alternative and complementary approaches, such as medicinal foods, has become imperative.

This study is conducted to delve deeper into the intricate interplay of factors influencing the usage of medicinal foods. Specifically, we aim to investigate the relationships between food fussiness, health consciousness, perceptions of naturalness, and preferences for labeling in the context of medicinal food consumption. By elucidating these relationships, we seek to provide valuable insights into the decision-making processes underlying the incorporation of medicinal foods into dietary habits.

The significance of this paper lies in its potential to inform healthcare professionals, policymakers, and food industry stakeholders about the determinants driving the utilization of medicinal foods. By identifying the factors that influence consumer behavior in this domain, we can better tailor interventions, educational campaigns, and product labeling strategies to promote the adoption of healthier dietary practices. The objectives of this study is to examine the associations between food fussiness, health consciousness, naturalness perception, and labelling preferences in the context of medicinal food consumption,

This study aims to contribute to the growing body of literature on medicinal foods and offer actionable insights for stakeholders across the healthcare and food sectors. By understanding the factors shaping consumer behavior in this domain, we can pave the way for more informed decision-making and ultimately enhance the utilization of medicinal foods for improved health outcomes.

Literature Review:

Food Fussiness:

Food fussiness, a common behavior characterized by selective eating habits and aversions to certain foods, holds significant implications for the consumption of medicinal foods Gibson & Cooke, 2017). Emerging research indicates that individuals exhibiting food fussiness may have limited dietary diversity and nutrient intake, potentially compromising their overall health and well-being. Studies have shown that picky eaters consume fewer fruits, vegetables, and whole grains, which are essential components of a balanced diet rich in phytonutrients and bioactive compounds with potential medicinal properties (Carruth et al., 2004). Consequently, addressing food fussiness through targeted interventions, such as exposure-based strategies and positive feeding practices, may not only improve dietary quality but also promote the acceptance and integration of medicinal foods into daily dietary habits (Dovey et al., 2008).

By recognizing the influence of genetic, environmental, and psychological factors on food preferences and aversions, stakeholders can tailor interventions and educational initiatives to promote healthier eating behaviors and mitigate barriers to medicinal food consumption (Daniels et al., 2005). Furthermore, creating supportive mealtime environments that encourage exploration and positive food experiences may foster an openness to trying new foods, including those with perceived or scientifically proven health benefits (Birch et al., 2007; Musher-Eizenman & Holub, 2007). Ultimately, addressing food fussiness represents a critical step towards optimizing dietary patterns and maximizing the potential therapeutic effects of medicinal foods in promoting overall health and well-being (Heshmat, 2011).

Health Consciousness:

Health consciousness, defined as the awareness and concern for one's health and well-being, plays a pivotal role in shaping dietary choices and consumption behaviors, particularly regarding medicinal foods (Petrovici & Ritson, 2006). Research has shown that individuals with higher levels of health consciousness are more likely to seek out and incorporate foods perceived to have medicinal properties into their diets (Grunert et al., 2011). These foods, often rich in antioxidants, vitamins, and other bioactive compounds, are believed to confer various health benefits, ranging from disease prevention to immune support and overall vitality (Hasler, 2002). Consequently, understanding the relationship between health consciousness and medicinal food consumption is essential for promoting healthier dietary patterns and enhancing overall well-being.

Several studies have examined the factors influencing health consciousness and its impact on healthy food consumption (Singhal, 2017; Gupta & Sarkar 2022). For instance, research has found that demographic factors, such as age, gender, education level, and socioeconomic status, can influence individuals' health consciousness and dietary choices (Grunert et al., 2011).

Naturalness:

Naturalness perception significantly influences consumers' attitudes and behaviors regarding healthy and medicinal food consumption (Saraiva, 2020). Sensory attributes, environmental concerns, cultural influences, and marketing strategies all contribute to consumers' perceptions of naturalness and shape their preferences for minimally processed foods (Harper & Makatouni, 2002). Understanding these dynamics is crucial for promoting informed dietary choices and enhancing consumer well-being.

Leveraging consumers' preferences for natural and minimally processed foods can facilitate the integration of healthy and medicinal foods into daily dietary practices (Birt et al., 2017). Stakeholders can develop targeted interventions, product innovations, and marketing strategies to capitalize on consumers' appreciation for naturalness and promote healthier eating behaviors (Padel & Foster, 2005). By fostering greater transparency in food production and labeling, stakeholders can empower consumers to make informed choices that align with their health and sustainability goals.

Labels:

Labelling plays a crucial role in shaping consumers' perceptions, attitudes, and behaviors regarding the consumption of healthy foods. Research has shown that clear and informative labelling can enhance consumers' understanding of the nutritional content, health benefits, and production practices associated with food products, thereby influencing their purchasing decisions and dietary choices (Cowburn & Stockley, 2005; Sinclair et al., 2014). Nutrient content labels, such as the Nutrition Facts panel, provide consumers with essential information about the calorie, fat, sugar, and sodium content of foods, enabling them to make more informed choices and manage their dietary intake (Temple & Fraser, 2014). Moreover, health-related claims, such as "low-fat," "high-fiber," or "heart-healthy," can influence consumers' perceptions of food products and their perceived healthfulness, leading to increased purchase intentions and consumption (Chandon & Wansink, 2007; Christoph & An.,2018).

In addition to providing nutritional information, labelling can also communicate other attributes of healthy foods, such as organic certification, sustainability practices, and ethical production standards. Research has shown that labels indicating organic or sustainably sourced ingredients can positively influence consumers' perceptions of food quality, safety, and environmental impact, leading to increased willingness to pay and preference for these products (Hughner et al., 2007; Loureiro & Hine, 2002). Furthermore, labels highlighting ethical production practices, such as fair trade or animal welfare certifications, can appeal to consumers' values and beliefs, driving purchasing decisions and promoting the consumption of socially responsible foods (de-Magistris & Gracia, 2008; Häubl & Trifts 2000). By effectively communicating these attributes through labelling, food manufacturers and retailers can enhance the perceived value and desirability of healthy foods, thereby promoting their consumption and contributing to improved public health outcomes.
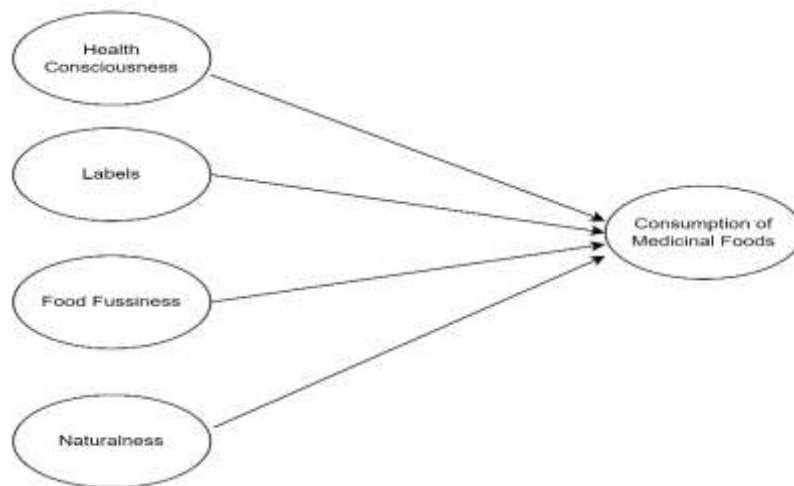
Medicinal Foods Consumption:

Packaged medicinal healthy foods have become increasingly popular due to their convenience, accessibility, and perceived health benefits. These products often contain added nutrients, functional ingredients, or natural bioactive compounds designed to promote health and well-being (Steele et al.,2016 ; Drewnowski & Gomez-Carneros, 2000). Research suggests that the consumption of such foods can contribute to improved dietary quality and nutrient

intake, particularly among individuals with busy lifestyles or limited access to fresh produce (Daniels & Glorieux, 2015; Huffman & West, 2007). For instance, fortified breakfast cereals, protein bars, and meal replacement shakes offer convenient options for meeting nutritional needs and supporting weight management goals (Pereira et al., 2011; Sacks et al., 2009).

Furthermore, packaged medicinal healthy foods often feature labeling claims highlighting their nutritional profile, health benefits, or functional properties, which can influence consumers' perceptions and purchasing decisions (Vyth et al., 2010; Grunert et al., 2007). Foods labeled as "low-fat," "high-fiber," or "vitamin-enriched" may appeal to health-conscious consumers seeking convenient options to support their dietary goals (Drewnowski & Gomez-Carneros, 2000; Roberto et al., 2010). Moreover, the inclusion of natural, organic, or sustainably sourced ingredients in packaged foods can further enhance their perceived healthfulness and environmental sustainability, driving consumer preference and purchase intent (Kotler & Keller, 2012; Loureiro & Hine, 2002). By providing convenient access to nutritious and health-promoting foods, packaged medicinal healthy foods play a valuable role in promoting public health and addressing dietary challenges in modern society.

Research Model:

Research Methodology:

This study employs a descriptive research design to investigate the impact of various factors on the consumption of medicinal foods in Gujarat, India. Specifically, the research aims to assess how health consciousness, labeling, naturalness, and food fussiness influence consumption patterns. The study's objectives are to evaluate the impact of each of these factors individually. Data were collected from a sample of 767 respondents using convenience sampling, which, while practical and accessible, may introduce some biases. Both primary and secondary data were utilized; primary data were gathered through structured questionnaires addressing health consciousness, labeling attitudes, perceptions of naturalness, and food fussiness, while secondary data were sourced from existing literature and market reports. The collected data were analyzed using SPSS version 16.0, which facilitated a range of statistical analyses, including descriptive statistics to summarize respondent characteristics and key variables, correlation analysis to explore relationships between factors, and regression analysis to determine their predictive power on medicinal food consumption. This comprehensive methodological approach aims to provide valuable insights into consumer behavior regarding medicinal foods in the region.

Data Analysis:

Reliability Analysis:

Reliability Statistics

Variable Name	Cronbach's Alpha	N of Items
Health Conciousness	.745	3
Labels	.714	3
Naturalness	.754	3
Food Fussiness	.762	3
Consumption of Medicinal Foods	.840	3

The reliability statistics indicate that all variables have acceptable to high internal consistency, as reflected by their Cronbach's Alpha values. Health consciousness ($\alpha = 0.745$), labels ($\alpha = 0.714$), naturalness ($\alpha = 0.754$), and food fussiness ($\alpha = 0.762$) all exceed the threshold of 0.7, indicating reliable scales. The consumption of medicinal foods has the highest reliability ($\alpha = 0.840$), suggesting that the items measuring this variable are particularly consistent. These results confirm that the scales used in the study are reliable for assessing the constructs of interest.

Results of Correlation & Regression:

Correlations

		HM_Mean	N_Mean	Co_Mean	FS_Mean	LA_Mean
HM_Mean	Pearson Correlation	1	.448**	.286**	.172**	.172**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	767	767	767	767	767
N_Mean	Pearson Correlation	.448**	1	.347**	.173**	.173**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	767	767	767	767	767
Co_Mean	Pearson Correlation	.286**	.347**	1	.118**	.118**
	Sig. (2-tailed)	.000	.000		.001	.001
	N	767	767	767	767	767
FS_Mean	Pearson Correlation	.172**	.173**	.118**	1	1.000**
	Sig. (2-tailed)	.000	.000	.001		.000
	N	767	767	767	767	767
LA_Mean	Pearson Correlation	.172**	.173**	.118**	1.000**	1
	Sig. (2-tailed)	.000	.000	.001	.000	
	N	767	767	767	767	767

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation analysis reveals significant positive relationships among all variables at the 0.01 level. Health consciousness (HM_Mean) shows a moderate correlation with naturalness (N_Mean) ($r = .448$, $p < .01$) and a weaker correlation with consumption (Co_Mean) ($r = .286$, $p < .01$), food fussiness (FS_Mean) ($r = .172$, $p < .01$), and labeling (LA_Mean) ($r = .172$, $p < .01$). Naturalness also correlates moderately with consumption ($r = .347$, $p < .01$) and weakly with food fussiness ($r = .173$, $p < .01$) and labeling ($r = .173$, $p < .01$). Consumption has a weak correlation with food fussiness ($r = .118$, $p < .01$) and labeling ($r = .118$, $p < .01$). Food fussiness and labeling are perfectly correlated ($r = 1.000$, $p < .01$), indicating they measure the same underlying construct. These findings suggest interconnectedness among health-related attitudes and behaviors towards medicinal foods.

Regression Result:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.379a	.143	.140	.62030

a. Predictors: (Constant), FS_Mean, HM_Mean, N_Mean

The regression analysis summary indicates that the model explains a modest portion of the variance in the dependent variable, medicinal food consumption. The R value of 0.379 suggests a moderate correlation between the predictors (health consciousness, labeling, naturalness, and food fussiness) and consumption. The R Square value of 0.143 indicates that approximately 14.3% of the variability in medicinal food consumption is accounted for by these predictors. The Adjusted R Square, which adjusts for the number of predictors in the model, is slightly lower at 0.140, reflecting a similar level of explanatory power. The standard error of the estimate is 0.62030, suggesting a reasonable level of precision in the predictions made by the model. Overall, while the model has a statistically significant relationship with the dependent variable, a substantial portion of the variance in consumption is influenced by other factors not included in this model.

ANOVAᵃ

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	49.188	3	16.396	42.611	.000ᵇ
	Residual	293.586	763	.385		
	Total	342.774	766			

a. Dependent Variable: Co_Mean

b. Predictors: (Constant), FS_Mean, HM_Mean, N_Mean

The ANOVA table for the regression model indicates that the predictors—health consciousness (HM_Mean), naturalness (N_Mean), and food fussiness (FS_Mean)—significantly explain the variance in the dependent variable, medicinal food consumption (Co_Mean). The sum of squares for the regression is 49.188, while the residual sum of squares is 293.586. The total sum of squares, which represents the total variance in consumption, is 342.774. This shows that the model explains a significant portion of the total variance (49.188 out of 342.774), reinforcing the finding that the predictors collectively have a meaningful, though not overwhelming, impact on medicinal food consumption.

Coefficientsᵃ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.339	.095		14.135	.000	1.153	1.525
	HM_Mean	.127	.030	.158	4.192	.000	.068	.187
	N_Mean	.242	.034	.269	7.126	.000	.175	.309
	FS_Mean	.037	.029	.044	1.285	.199	-.020	.095

a. Dependent Variable: Co_Mean

The regression coefficients table provides detailed insights into the contribution of each predictor to the dependent variable, medicinal food consumption (Co_Mean). The constant (intercept) is 1.339, indicating the expected level of consumption when all predictors are zero. Health consciousness (HM_Mean) has an unstandardized coefficient (B) of 0.127, which is significant (t = 4.192, p < 0.001), suggesting that a one-unit increase in health consciousness corresponds to an increase of 0.127 units in consumption, holding other factors constant. The standardized coefficient (Beta) of 0.158 indicates a moderate effect size. Naturalness (N_Mean) has a stronger impact, with an unstandardized coefficient of 0.242 and a significant t-value of 7.126 (p < 0.001). This means a one-unit increase in perceived naturalness leads to a 0.242-unit increase in consumption. The standardized coefficient of 0.269 indicates a relatively larger effect size compared to health consciousness. Food fussiness (FS_Mean), however, does not significantly predict consumption, with an unstandardized coefficient of 0.037, a t-value of 1.285, and a p-value of 0.199, indicating that its effect is not statistically significant within this model. The confidence intervals for each predictor provide further confirmation, as the intervals for HM_Mean and N_Mean do not include zero, whereas the interval for FS_Mean does, reinforcing its lack of significance.

Findings:

The study reveals that health consciousness and the perceived naturalness of medicinal foods significantly impact their consumption among individuals in Gujarat. Specifically, health consciousness (HM_Mean) shows a moderate yet significant positive effect, with an unstandardized coefficient of 0.127 and a significant p-value (p < 0.001). This suggests that as individuals become more health-conscious, their consumption of medicinal foods increases. Similarly, the naturalness of the food (N_Mean) has an even stronger influence, with an unstandardized coefficient of 0.242 and a significant p-value (p < 0.001), indicating that higher perceived naturalness leads to higher consumption. These findings align with prior research indicating that health-conscious consumers are more likely to purchase functional and medicinal foods (Akhondan et al., 2015; Chen, 2011). However, food fussiness (FS_Mean) did not show a significant effect on consumption (p = 0.199), suggesting that picky eating habits do not significantly deter individuals from consuming medicinal foods. This finding is somewhat contradictory to previous studies that found food fussiness to be a barrier to consuming novel or unfamiliar foods (Dovey et al., 2008).

Recommendations:

Based on the findings, it is recommended that marketers and producers of medicinal foods emphasize the health benefits and natural ingredients in their products. Given the significant impact of health consciousness and naturalness on consumption, marketing campaigns should focus on educating consumers about the health advantages and natural origins of medicinal foods. For instance, detailed labeling that highlights organic and natural components, along with health benefits, could attract health-conscious consumers and boost sales. Furthermore, policy makers and health educators in Gujarat should consider initiatives to raise health awareness, which could further drive the consumption of medicinal foods. Contrary to the non-significant impact of food fussiness found in this study, efforts should still be made to introduce these foods in a way that can appeal to a broader audience, including picky eaters, by possibly focusing on familiar flavors and textures. Future research could explore other factors influencing medicinal food consumption, such as cultural beliefs and socioeconomic status, to provide a more comprehensive understanding of consumer behavior.

Conclusion and Future Scope:

In conclusion, this study highlights the significant roles of health consciousness and perceived naturalness in driving the consumption of medicinal foods among individuals in Gujarat. The findings indicate that consumers who are more health-conscious and those who perceive medicinal foods as natural are more likely to incorporate these foods into their diets. However, food fussiness does not significantly affect medicinal food consumption, suggesting that the acceptance of these foods is not substantially hindered by picky eating habits. These insights can guide marketing strategies and policy initiatives aimed at promoting medicinal foods. For future research, it would be beneficial to explore additional factors such as cultural influences, socioeconomic status, and the impact of targeted educational campaigns on consumer behavior. Moreover, longitudinal studies could provide a deeper understanding of how these factors evolve over time and affect long-term consumption patterns of medicinal foods. Expanding the geographic scope beyond Gujarat to include diverse regions could also offer more generalized insights into consumer behavior regarding medicinal foods.

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