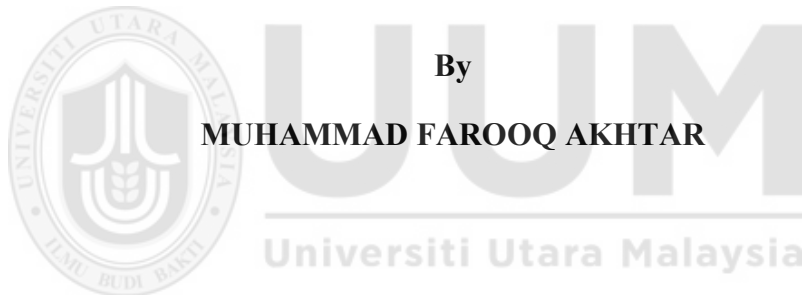


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**THE STRUCTURAL MODEL OF CONSUMER INTENTION AND  
BEHAVIOUR TOWARDS FUNCTIONAL FOODS IN PAKISTAN**



**Thesis Submitted to  
Othman Yeop Abdullah Graduate School of Business,  
Universiti Utara Malaysia,  
in Fulfillment of the Requirement for the Degree of Doctor of Philosophy**



OTHMAN YEOP ABDULLAH GRADUATE SCHOOL OF BUSINESS  
UNIVERSITI UTARA MALAYSIA

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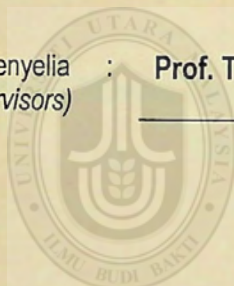
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## Abstract

Functional foods provide nutrients, prevent nutrition-related diseases and enhance physical and mental well-being. However, people in Pakistan face many nutrition-related diseases. This study investigates the impact of procurement goals, (i.e., health, mood, convenience, sensory appeal, natural content, weight control, familiarity, price, and ethical concerns), approval goals, consumer attitudes, consumer subjective norms, consumer perceived behavioral control, consumer intentions and consumer behavior towards functional foods. In addition, this study also investigates the moderating role of nutritional information between consumer intentions and behavior towards functional foods. A quantitative approach was used for the study, where data was collected through a questionnaire from 384 respondents in Pakistan through convenience sampling. Partial least squares-structural equation modeling (PLS-SEM) revealed a significant impact of procurement goals (i.e., health, familiarity, and price) on consumer attitude and between approval goals on consumer subjective norms. Moreover, consumer attitude and consumer subjective norms significantly influence consumer intention. Subsequently, consumer intention affects consumer behavior towards functional foods. However, insignificant relationships were found between procurement goals (i.e., mood, convenience, sensory appeal, natural content, weight control, ethical concerns) and consumer attitudes and between consumer-perceived behavioral control and consumer intention. In addition, nutritional information does not moderate the relationship between consumer intention and consumer behavior toward functional foods. In terms of theoretical implications, this study applied the theory of reasoned goal pursuit (TRGP) with the addition of nutritional information derived from the heuristic system model in a single framework to assess consumer intentions and consumer behavior towards functional foods, as well as the moderating role of nutritional information in the Pakistan context. Marketing managers should emphasize the importance of procurement and approval goals as well as aspects of attitude, subjective norms, and perceived behavioral control in formulating effective strategies for the meaningful consumption of functional foods to address nutritional deficiencies and cure diseases.

**Keywords:** Functional foods, procurement goals, consumers' intention, consumer behavior, theory of reasoned goal pursuit.

## Abstrak

Makanan berfungsi menyediakan nutrien bagi mencegah penyakit berkaitan nutrisi dan meningkatkan kesejahteraan fizikal dan mental. Walau bagaimanapun, penduduk di Pakistan menghadapi banyak penyakit berkaitan pemakanan. Kajian ini mengkaji impak matlamat perolehan, (kesihatan, angin, kemudahan, tarikan deria, kandungan semula jadi, kawalan berat badan, kebiasaan, harga dan kebimbangan etika), matlamat kelulusan, sikap pengguna, norma subjektif pengguna, tanggapan kawalan tingkah laku, niat pengguna dan tingkah laku pengguna terhadap makanan berfungsi. Di samping itu, kajian ini turut menyiasat peranan penyederhanaan maklumat nutrisi antara niat dan tingkah laku pengguna terhadap makanan berfungsi. Pendekatan kuantitatif digunakan dalam kajian ini, di mana data dikumpul melalui soal selidik daripada 384 responden di Pakistan melalui persampelan mudah. Pemodelan Persamaan Struktur Terkecil Kuasa Dua Separa (PLS-SEM) mendedahkan terdapat hubungan yang signifikan antara matlamat perolehan (kesihatan, kebiasaan dan harga) ke atas sikap pengguna dan antara matlamat kelulusan ke atas norma subjektif pengguna. Selain itu, sikap dan norma subjektif pengguna mempengaruhi niat pengguna secara signifikan. Seterusnya, niat pengguna mempengaruhi tingkah laku pengguna terhadap makanan berfungsi. Walau bagaimanapun, hubungan tidak signifikan didapati antara matlamat perolehan (angin, kemudahan, tarikan deria, kandungan semula jadi, kawalan berat badan, kebimbangan etika) dan sikap pengguna, dan antara tanggapan kawalan tingkah laku dan niat pengguna. Di samping itu, maklumat nutrisi tidak menyederhanakan hubungan antara niat dan tingkah laku pengguna terhadap makanan berfungsi. Dari segi implikasi teori, kajian ini mengaplikasikan teori mengejar matlamat beralasan (TRGP) dengan penambahan maklumat nutrisi yang diolah daripada model sistem heuristik dalam satu rangka kerja untuk menilai niat dan tingkah laku pengguna terhadap makanan berfungsi serta peranan penyederhanaan maklumat nutrisi dalam konteks Pakistan. Pengurus pemasaran harus menekankan kepentingan perolehan dan matlamat kelulusan serta aspek sikap, norma subjektif dan kawalan tingkah laku dalam merangka strategi berkesan untuk penggunaan makanan berfungsi yang bermakna bagi menangani kekurangan nutrisi dan penyembuhan penyakit.

**Kata kunci:** Makanan berfungsi, matlamat perolehan, niat pengguna, tingkah laku pengguna, teori mengejar matlamat beralasan.

## Acknowledgements

In the name of Allah S.W.T, the Most Gracious and the Most Merciful. All praise to the Almighty, the One who has responded to my prayers and blessed me with patience, courage, and fortitude throughout this research. Secondly, I am thankful to Hazrat Muhammad (PBUH), who give us a complete code of life, in the form of Islam. Islam and the life of Hazrat Muhammad (PBUH) guides us about continuous efforts to achieve the goals and be patient in difficult situations.

This thesis is possible with support and assistance from many people. First and foremost, I would like to express my earnest gratitude to my research supervisor, Professor Ts. Dr. Hj. Norazah Mohd Suki, for her continuous support, patience, motivation, enthusiasm, and immense knowledge. Her guidance has helped me in completing the research and writing this thesis. Completion of the thesis is possible due to her assistance and dedicated involvement in every step throughout the process.

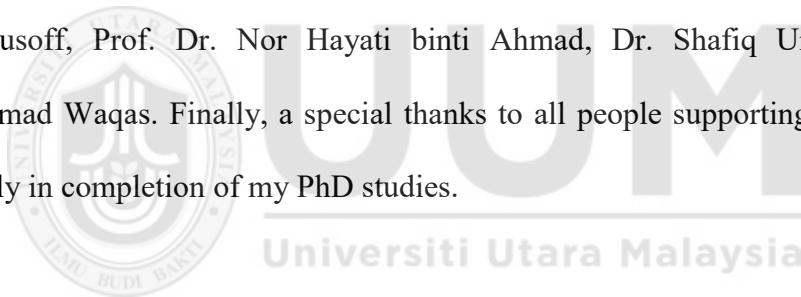
I would like to convey my deepest appreciation to the Dean and the management teams of Othman Yeop Abdullah Graduate School of Business, who have continually and persuasively conveyed a spirit of adventure regarding research and scholarship, and excitement to research. In addition, I am extremely thankful and indebted to Prof. Dr. Nor Azila Mohd Noor for sharing her valuable suggestions to further improve the thesis.

Special love and thanks to my family. Words cannot express my feelings that how much grateful I am to my father, Malik Muhammad Akhtar, mother, Khursheed



Akhtar, wife, Ammara Farooq, brother, Muhammad Imran Akhtar, sister, Najma Akhtar (late), sister-in-law, Noreen Akhtar, nephew, Ali Imran, father-in-law, Mushtaq Ahmad, mother-in-law, Wazir Iqbal, brothers and sisters-in-law, Zia Ur Rehman, Abdul UR Rehman, Urwa Tul Wusuka, Nadia Zia. Your prayers protect me from all difficult situations. I am forever grateful to all of them. My utmost appreciation is also extended to my family members who pray and support me during this difficult journey.

This acknowledgement is not completed without recording my sincere thanks to my supporting teachers and friends who help me and inspire me during PhD: Dr. Arfan Shahzad, Dr. Rohail Hassan, Dr. Hafiz Muhammad Fareed, Professor Dr. Rushami Zien Yusoff, Prof. Dr. Nor Hayati binti Ahmad, Dr. Shafiq Ur Rehman, Dr. Muhammad Waqas. Finally, a special thanks to all people supporting me directly or indirectly in completion of my PhD studies.



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## List of Abbreviations

<b>TRGP</b>	Theory of Reasoned Goal Pursuit
<b>TPB</b>	Theory of Planned Behaviour
<b>PLS</b>	Partial Least Square
<b>SEM</b>	Structural Equation Modeling
<b>ATT</b>	Attitude
<b>SN</b>	Subjective Norms
<b>H</b>	Health
<b>M</b>	Mood
<b>C</b>	Convenience
<b>SA</b>	Sensory Appeal
<b>NC</b>	Natural Content
<b>P</b>	Price
<b>WC</b>	Weight Control
<b>F</b>	Familiarity
<b>EC</b>	Ethical Concern
<b>PBC</b>	Perceived Behavioural Control
<b>INT</b>	Intention
<b>SN</b>	Subjective Norms
<b>CB</b>	Consumer Behaviour
<b>FF</b>	Functional Foods
<b>HSM</b>	Heuristic Systematic Model



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# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

Food is important to maintain health and well-being (Nystrand & Olsen, 2020; Dias et al., 2023). Based on benefits, food products are divided into two broad categories: hedonic and utilitarian (Grippio et al., 2020). Hedonic food products include burgers, pizza, fries, and pasta. The purpose of hedonic food is to create pleasure, excitement, and fun. The consumers used hedonic foods to get pleasure and fun in their fast-paced life. The consumption of hedonic foods causes malnutrition which leads to multiple diseases such as heart and respiratory issues, depression, diabetes, and cancer (Segula, 2014). Similarly, Dias et al. (2023) apprehend the rise of non-communicable diseases in recent years.

A balanced diet is necessary to maintain good health. Utilitarian food products contain long term benefits (Grippio et al., 2020). Functional foods have a distinctive position in delivering utilitarian benefits (Nystrand & Olsen, 2020). Nutrients deficiency is noticed in people who are not using functional food (Jahn et al., 2019), which cause nutrient related diseases. In this context, functional food fulfills nutrition deficiency and improves physical and mental well-being. However, the consumers have limited knowledge about functional foods.

Functional foods play an important role in satisfying hunger, provide necessary nutrients, prevent nutrition-related diseases, and increase the physical and mental

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## Appendix 1

### Survey Questionnaire

#### Cover Letter

Please read the undermentioned material before proceeding with the survey.

You are invited to participate in a survey about functional foods in Pakistan. The study is being conducted by Muhammad Farooq Akhtar, student of PhD Consumer and Market Analysis with contact information +923457805501, email [akhtar\\_muhammad@oyagsb.uum.edu.my](mailto:akhtar_muhammad@oyagsb.uum.edu.my), under supervision of Professor Ts. Dr. Norazah Mohd Suki Deputy Dean, Research Innovation and Knowledge Transfer, Othman Abdullah Graduate School of Business, Universiti Utara Malaysia, Sintok, 06010 Bukit Kayu Hitam, Kedah, Malaysia.

The purpose of this study is to examine the association of procurement goals, approval goals, consumers' attitudes towards functional foods, consumers' subjective norms towards functional foods, perceived behavioural control, consumers' intention on consumer behaviour to purchase functional food products in Pakistan. Your participation in the survey will help academicians and marketers to better understand the consumer behaviour of functional foods. We estimate that it will take 15 minutes of your time to complete the questionnaire. Risks to participants are considered minimal. There will be no costs for participating, nor will you benefit from participating.

Your participation in this survey is voluntary. You may decline to answer any question and you have the right to withdraw from participation at any time without

penalty. If you wish to withdraw from the study or have any questions, contact the investigators listed above.

This study has been reviewed and approved by Universiti Utara Malaysia, Malaysia.

If you have questions about your rights as a study participant or are dissatisfied at any time with any aspect of this study, you may contact his supervisor Professor Ts. Dr.

Norazah Mohd Suki at [norazah.mohd.suki@uum.edu.my](mailto:norazah.mohd.suki@uum.edu.my) .



## Definition and Images of Functional Food

Functional food is a food enriched with minerals, vitamins, fatty acids and proteins to make them healthier or to prevent diseases.



B vitamins, magnesium and omega-3s popular beverage ingredients



Questionnaire ID.....

Screening Questions

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Statements

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Did you know about functional foods?	Yes	No
Today, did you purchase functional foods from ..... store?	Yes	No
Can you identify it from other conventional foods?	Yes	No

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### Section 1: Socio-Demographic Information

Instructions: Please answer all questions by mark (✓) to each question.

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<b>S-D Information</b>	<b>Variables</b>					
1	<b>Gender</b>	Male	Female			
2	<b>Marital Status</b>	Married	Single			
3	<b>Age</b>	Up to 30 years	31-40 years	41-50 years	51-60 years	Over 60 years
4	<b>Education</b>	Up to Matric	Intermediate	Graduation	Master's and above	
5	<b>Monthly Income (Pakistani rupees)</b>	Up to 50000	50001-100000	100001-150000	150001-200000	Over 200000

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**Section 2: General Information about Functional Food**

**Respondents Opinion on Functional Foods**

Instructions: Please answer all questions by mark (✓) to each question.

	<b>Statements</b>	<b>Dichotomous Scale</b>	
1	Healthy foods	Yes	No
2	Natural foods	Yes	No
3	Probiotic foods	Yes	No
4	Organic foods	Yes	No
5	Non-toxic foods	Yes	No
6	Chemical free foods	Yes	No
7	Diseases preventing foods	Yes	No
8	Food supplement	Yes	No
9	Health enriched foods	Yes	No
10	Nutritious foods	Yes	No

## Types of Functional Foods Used

Instructions: Please answer all questions by mark (✓) to each question.

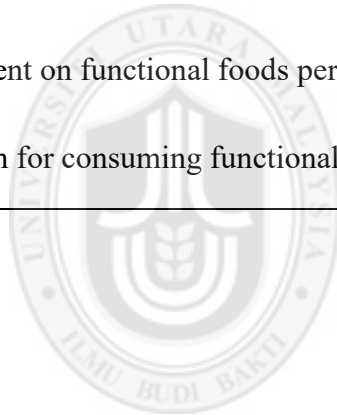
	Statements	Dichotomous Scale	
1	Milk with omega 3, vitamins, minerals, and low fats	Yes	No
2	Energy drinks with vitamins	Yes	No
3	Yogurt with probiotics, low fats, and low cholesterol	Yes	No
4	Fruit juices with added vitamins and calcium	Yes	No
5	Spread and margarine with low cholesterol, omega-3 & 6, and vitamins	Yes	No
6	Sweets with low sugar	Yes	No
7	Cereals with added vitamins, low cholesterol, and low fats	Yes	No
8	Bread with fiber, low cholesterol, and vitamins	Yes	No
9	Biscuit with oat, low fats, less sugar, and low cholesterol	Yes	No
10	Eggs with added vitamin A & omega 3, and low cholesterol	Yes	No



### Experience of Consumers to Purchase Functional Foods

Instructions: Please answer all questions by mark (✓) to each question.

Statements					
1	Frequency of functional foods consumption products per month.	1-2 Times	3-4 Times	5-6 Times	$\geq 7$ Times
2	Money spent on functional foods per month (Rs.).	Up to 5000	5001-10000	10001-15000	Over 15000
3	Motivation for consuming functional foods.	Friends	Family members	Self-motivated	Advertising



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### SECTION 3: Operationalization of Variables

Instructions: Please answer all questions by mark (✓) to each question.

	Statements	Likert Scale				
<b>Health (H)</b>						
1	Functional foods contain lot of vitamins and minerals.	SD	D	N	A	SA
2	Functional foods keep me healthy.	SD	D	N	A	SA
3	Functional foods are nutritious.	SD	D	N	A	SA
4	Functional foods are high in protein.	SD	D	N	A	SA
5	Functional foods are good for skin, hair, and nail.	SD	D	N	A	SA
6	Functional foods are high in fiber.	SD	D	N	A	SA
<b>Mood (M)</b>						
7	Functional foods are helpful in coping with stress.	SD	D	N	A	SA
8	Functional foods are helpful in coping with life.	SD	D	N	A	SA
9	Functional foods are helpful in mind relaxation.	SD	D	N	A	SA
10	Functional foods keep me alert.	SD	D	N	A	SA
11	Functional foods cheer me up.	SD	D	N	A	SA

12	Functional foods make me feel good.	SD	D	N	A	SA
<b>Convenience (C)</b>						
13	Functional foods are easy to prepares.	SD	D	N	A	SA
14	Functional foods can be cooked simply.	SD	D	N	A	SA
15	Functional foods take no time to prepare.	SD	D	N	A	SA
16	Functional foods are easy to buy from the nearest shops.	SD	D	N	A	SA
17	Functional foods are easily available.	SD	D	N	A	SA
<b>Sensory Appeal (SA)</b>						
18	The Smell of functional foods is nice.	SD	D	N	A	SA
19	Functional foods look nice.	SD	D	N	A	SA
20	The texture of functional foods is pleasant.	SD	D	N	A	SA
21	The taste of functional foods is good.	SD	D	N	A	SA
<b>Natural Content (NC)</b>						
22	Functional foods contain no additives.	SD	D	N	A	SA
23	Functional foods contain natural ingredients.	SD	D	N	A	SA

24	Functional foods contain no artificial ingredients.	SD	D	N	A	SA
<b>Weight Control (WC)</b>						
25	Functional foods are low in calories.	SD	D	N	A	SA
26	Functional foods are helpful to control my weight.	SD	D	N	A	SA
27	Functional foods are low in fat.	SD	D	N	A	SA
<b>Familiarity (F)</b>						
28	Functional foods are what I usually eat.	SD	D	N	A	SA
29	Functional foods are familiar.	SD	D	N	A	SA
30	Functional foods are like the food I ate when I was a child.	SD	D	N	A	SA
<b>Price (P)</b>						
31	Functional foods are not expensive.	SD	D	N	A	SA
32	Functional foods are cheap.	SD	D	N	A	SA
33	Functional foods are good value for money.	SD	D	N	A	SA

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<b>Ethical concern (EC)</b>						
34	Functional foods are approved politically.	SD	D	N	A	SA
35	Functional foods have country of origin mark.	SD	D	N	A	SA
36	Functional foods are produced and packed in an environmentally friendly way.	SD	D	N	A	SA

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**Approval Goals**

1	Family members approve my decision to consume functional foods.	SD	D	N	A	SA
2	Friends approve of my decision to consume functional foods.	SD	D	N	A	SA
3	Dietitians approve of my decision to consume functional foods.	SD	D	N	A	SA
4	Doctors approve my decision to consume functional foods	SD	D	N	A	SA

5	Scientists approve my decision to consume functional foods	SD	D	N	A	SA
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**Consumers' Attitudes towards Functional Foods**

1	It is good to consume functional foods.	SD	D	N	A	SA
2	It is valuable to consume functional foods.	SD	D	N	A	SA
3	It is helpful to consume functional foods.	SD	D	N	A	SA

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**Consumers' Subjective Norms towards Functional Foods (SN)**

1	People who are important to me think positively of me to consume functional foods.	SD	D	N	A	SA
2	People important to me will support me to consume functional foods.	SD	D	N	A	SA
3	People who are important to me will understand me to consume functional foods.	SD	D	N	A	SA
4	People important to me will approve of me to consume functional foods.	SD	D	N	A	SA

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**Perceived Behavioural Control (PBC)**

1	I can afford functional foods.	SD	D	N	A	SA
2	I can find a place to consume functional foods easily.	SD	D	N	A	SA
3	I have time to consume functional foods.	SD	D	N	A	SA
4	I think it is easy to consume functional foods.	SD	D	N	A	SA

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**Consumers' Intention to Consume Functional Foods (I)**

1	I intend to consume functional foods regularly.	SD	D	N	A	SA
2	I expect to consume functional foods regularly.	SD	D	N	A	SA
3	I have a plan to eat functional foods regularly.	SD	D	N	A	SA

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**Nutritional Information (NI)**

1	I pay close attention to nutritional information about functional foods.	SD	D	N	A	SA
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2	It is important to me that nutrition information is available on functional foods.	SD	D	N	A	SA
3	I ignore nutritional information of functional foods (reverse coded).	SD	D	N	A	SA
4	I actively seek out nutritional information on functional foods.	SD	D	N	A	SA
5	Calorie levels influence when I consume functional foods.	SD	D	N	A	SA

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**Consumer Behaviour towards Functional Foods (CB)**

1	I often consume functional foods.	SD	D	N	A	SA
2	I normally consume functional foods which are good for my health and promote my well-being.	SD	D	N	A	SA
3	I will put priority to consume functional foods products that are safe to be consumed.	SD	D	N	A	SA
4	When consuming a product, I will look for functional foods which contain healthy ingredients that can make me healthier.	SD	D	N	A	SA



5	I choose to consume functional foods which contain healthy components such as probiotics, vitamins, minerals, fat free, high fiber, and low cholesterol.	SD	D	N	A	SA
6	I normally consume functional foods which are more nutritious.	SD	D	N	A	SA
7	I choose to consume functional foods that I believe can prevent me from certain diseases.	SD	D	N	A	SA



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