



Daffodil
International
University

**"DIETARY FACTOR AND RELATIONSHIP WITH ALLERGIC
SENSITIZATION PREVALENCE"**

A PROJECT REPORT

BY

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Submitted to the Department of Nutrition and Food Engineering in the partial fulfillment of
B.Sc. in Nutrition and Food Engineering

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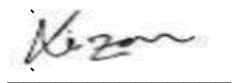
**FACULTY OF HEALTH AND LIFE SCIENCES (FHLS)
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APPROVAL

The project entitled " **Dietary factor and relationship with allergic sensitization prevalence**," submitted by Dipta Chakrabarti to the Department of Nutrition and Food Engineering at Daffodil International University, has been deemed satisfactory in fulfilling the requirements for the Bachelor of Science degree in Nutrition and Food Engineering. It has also received approval regarding its content and formatting.

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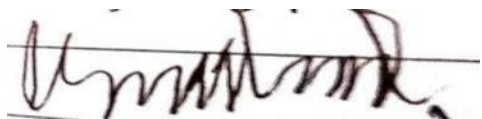
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DECLARATION

I, Dipta Chakrabarti, confirm that the Project report titled “**Dietary factor and relationship with allergic sensitization prevalence**” is my original work, completed under the guidance of Professor Dr. Md. Bellal Hossain, Acting Dean and Professor in the Department of Nutrition and Food Engineering at Daffodil International University. I also certify that this work has not been submitted for any other academic purpose or recognition.

Supervised By



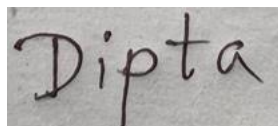
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ABSTRACT

This study examines the association between dietary habits and allergic sensitization, uncovering strong links between food choices and allergy management. 40% of the surveyed participants reported allergies, primarily to dust mites, with many also facing respiratory conditions. A notable dietary trend included low vegetable intake coupled with high consumption of processed foods, soft drinks, and fruit juices, patterns that could worsen allergic symptoms and make symptom management more challenging. Many respondents relied on prescription medications and allergen avoidance strategies, but limited access to diverse, nutritious foods created obstacles to healthier eating. The findings underscore that specific dietary patterns play a direct role in allergy symptom control, emphasizing the need for accessible dietary education, affordable nutritious food options, and tailored guidelines that incorporate diet into allergy management strategies. This study advocates for collaborative efforts between healthcare providers and nutrition experts to develop holistic approaches that position diet as a key component of allergy care, offering the potential to enhance both allergy outcomes and overall well-being, especially in vulnerable populations.

Key Words: Diet, Allergy, Allergic Sensitization, Dietary Habits, Food Choices, Allergy Management

TABLE OF CONTENT

Content	Page
Cover Page	
Approval	i
Declaration	ii
Acknowledgement	iii
Abstract	iv
Table of content	v- vii
CHAPTER 1	INTRODUCTION
1.1	Introduction
1.2	Background of the study
1.3	Previous study gap
1.4	Objectives of the study
CHAPTER 2	LITERATURE REVIEW
2	Literature review
CHAPTER 3	METHODOLOGY
3.1	Study design
3.2	Sampling
3.3	Sample size
3.4	Inclusion and exclusion criteria
3.5	Structured questioner design
3.6	Data collection
3.7	Data analysis
CHAPTER 4	RESULTS AND DISCUSSIONS
4.1	Results
4.1.1	Participant Demographic and BMI Categories
4.1.2	Allergy Management Practice

4.1.3	Dietary Habit of the Respondent	14-15
4.1.4	Association table between Types of allergy you have with Dietary Habits	16-18
4.1.5	Association Table between types of allergy you have with allergy management practices	18-20
4.1.6	Association table between how you manage your allergy with Dietary Habits	20-22
4.1.7	Association table between How you Manage Allergy with Allergy Management Practices	22-24
4.2	Discussions	24-25
CHAPTER 5	CONCLUSION AND RECOMMENDATIONS	26-27
5.1	Conclusion	26
5.2	Recommendations	26-28
REFERENCES		29-32
APPENDIX-1		33-37
APPENDIX-2		38-40
APPENDIX-3		41

LIST OF TABLE

TABLE NUMBER	TABLE TITLE	PAGE
1	Participant Demographic and BMI Categories	11
2	Allergy Management Practice	12-13
3	Dietary Habit of the Respondent	14-15
4	Association table between Types of allergy you have with Dietary Habits	16-17
5	Association Table between types of allergy you have with allergy management practices	18-19
6	Association table between how you manage your allergy with Dietary Habits	20-21
7	Association table between How you Manage Allergy with Allergy Management Practices	22-23

CHAPTER 1

INTRODUCTION

1.1 Introduction:

Allergic conditions have become a pressing public health issue worldwide, with the World Allergy Organization (WAO) estimating that 20-30% of the global population is affected by various allergic diseases, including food allergies, asthma, eczema, and allergic rhinitis (WAO, 2020). Children are particularly susceptible to these disorders, leading to urgent investigations into their underlying causes, particularly the influence of environmental and lifestyle factors such as diet (Cardona et al., 2020). In Bangladesh, similar trends are evident, reflecting patterns seen in many developing nations. Factors such as rapid urbanization, shifting dietary habits, and environmental changes have contributed to the rise in allergic illnesses. Research conducted by the Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine, and Metabolic Disorders (BIRDEM) indicates that approximately 30% of urban children in Bangladesh experience allergic conditions, with asthma, eczema, and allergic rhinitis being the most common (Hakim et al., 2019). Additionally, there is increasing concern regarding food allergies, with around 6-8% of the Bangladeshi population displaying signs of these allergies, often triggered by common allergens such as shellfish, peanuts, dairy products, and eggs (Rahman et al., 2021). These alarming statistics underscore the growing impact of allergic conditions and highlight the urgent need to explore dietary factors that may contribute to allergic sensitization within the Bangladeshi population.

Dietary habits are believed to significantly influence the onset and exacerbation of allergic diseases. Traditional Bangladeshi diets, which were once rich in fruits, vegetables, and whole foods, are increasingly being replaced by processed foods, fast foods, and sugary beverages. This shift toward a more Westernized diet can result in nutrient deficiencies that compromise immune function and gut health, thereby heightening susceptibility to allergies (Baker et al., 2018; Hsiao et al., 2020). Inadequate intake of essential nutrients, such as vitamins and minerals, disrupts the delicate balance of the immune system, making it less capable of effectively responding to allergens. Additionally, poor dietary choices can adversely affect the gut microbiome, which plays a crucial role in immune regulation, potentially leading to

inflammation and an increased risk of allergic reactions. Therefore, understanding the interplay between diet, environmental exposures, and genetic predispositions is essential for effectively addressing allergic sensitization and developing comprehensive prevention strategies (Cardona et al., 2020). Emerging research suggests that inadequate intake of essential nutrients such as omega-3 fatty acids, antioxidants, and dietary fibers may disrupt immune system balance, making individuals more prone to allergic reactions. Moreover, the "hygiene hypothesis" suggests that reduced microbial exposure due to lifestyle changes may hinder the development of a robust immune system, thereby increasing the risk of allergic conditions (Perkin & Strachan, 2022). Given the rising incidence of allergies and the substantial lifestyle changes occurring in Bangladesh, it is essential to investigate how evolving dietary habits affect allergic sensitization. Understanding these relationships could inform public health strategies and dietary recommendations aimed at reducing the prevalence of allergic diseases, particularly among vulnerable groups such as children. This study aims to address existing gaps in the literature by examining the links between dietary choices, environmental influences, and the prevalence of allergic conditions in the Bangladeshi context. Ultimately, the findings could help shape effective preventive measures and policies that promote healthier eating habits and improve overall public health outcomes in the country.

1.2 Background of the Study

The increase in allergic diseases is thought to correlate with evolving eating habits. Modern diets characterized by high consumption of processed foods, refined sugars, and saturated fats, alongside a decline in nutrient-rich fruits and vegetables, may disrupt immune function (Du Toit et al., 2016). Such dietary patterns often lack essential nutrients, including antioxidants, dietary fibers, and beneficial fatty acids crucial for supporting immune health and maintaining a balanced gut micro biome. Poor dietary choices can compromise gut health, potentially leading to inflammation and an increased risk of allergies (Boyce et al., 2010).

The "hygiene hypothesis" further explains this phenomenon, suggesting that reduced exposure to diverse microorganisms due to lifestyle changes including dietary shifts may interfere with immune system development (Perkin & Strachan, 2022). A lack of exposure to a variety of natural foods and beneficial microbes could hinder the immune system's ability to differentiate between harmful and harmless substances, thereby increasing the risk of allergic reactions

(Demoly et al., 2020). Additionally, diets high in preservatives and artificial additives, yet low in plant-based nutrients, may exacerbate this imbalance and predispose individuals to allergies.

1.3 Previous Study Gap

The growing focus on dietary influences stems from the recognition that dietary interventions could serve as effective strategies for allergy prevention. Research into specific nutrients—such as omega-3 fatty acids, probiotics, and antioxidants—indicates potential roles in preventing allergic sensitization by promoting a balanced immune response (Hakim et al., 2019). However, there remains a gap in understanding how dietary choices intersect with genetic and environmental factors to shape allergic sensitization, particularly in the context of Bangladesh.

Allergic conditions are on the rise in Bangladesh, mirroring trends seen across South Asia, where urbanization and lifestyle changes significantly impact dietary habits (Shusterman et al., 2003). Traditional diets, once rich in fresh fruits, vegetables, and home-cooked meals, are increasingly being replaced by fast foods, processed snacks, and sugary beverages. These shifts may disrupt gut micro biome health and immune function, heightening the risk of allergic sensitization, especially among children (Shah et al., 2023).

Investigating the relationship between dietary habits and allergic sensitization in Bangladesh is crucial as the country grapples with a dual health crisis addressing infectious diseases while simultaneously confronting the rise of non-communicable diseases, including allergies. This research aims to explore the correlation between changing dietary patterns and the prevalence of allergic sensitization, ultimately identifying effective preventive measures tailored to the Bangladeshi context. The findings could inform public health policies and promote healthier eating practices, contributing to alleviating the burden of allergies in the country.

1.4 Objectives:

General Objective:

The primary objective of this study is to examine the influence of dietary factors on the prevalence and management of allergic sensitization among individuals, focusing on how specific dietary patterns may impact allergy occurrence and control.

Specific Objectives:

1. Assess the prevalence of various allergy types and related respiratory conditions among participants.
2. Analyze dietary consumption patterns across different food groups, including soft drinks, fruits, vegetables, meats, fast foods, and probiotics.
3. Investigate the associations between specific dietary habits and allergy management practices, such as medication use and allergen avoidance strategies.
4. Identify the challenges individuals encounter in adhering to allergy-conscious diets and the support systems available to assist them.
5. Develop evidence-based recommendations for dietary interventions aimed at improving allergy management and enhancing health outcomes for individuals with allergies.

CHAPTER 2

LITERATURE REVIEW

2. Literature review:

Impact of Diet on Allergic Sensitization: Allergic sensitization occurs when the immune system reacts excessively to benign substances, leading to conditions like asthma, eczema, allergic rhinitis, and food allergies. The global rise in these allergic diseases has sparked interest in various contributing factors, particularly dietary habits. As the prevalence of allergies escalates, researchers are increasingly examining how diet influences the risk and severity of allergic reactions (Saito-Abe et al., 2022).

Dietary Patterns and Allergic Sensitization: Research indicates a strong link between dietary choices and the likelihood of developing allergic diseases. Traditional diets, which emphasize fresh fruits, vegetables, whole grains, and minimally processed foods, are associated with a lower incidence of allergies. These nutrient-rich foods offer antioxidants, fiber, vitamins, and healthy fats, all vital for immune health and maintaining a balanced gut microbiome crucial elements in preventing allergic sensitization (Cohen et al., 2004). In contrast, Western diets, which typically feature high levels of processed foods, refined sugars, unhealthy fats, and a low intake of fresh produce, are correlated with a higher risk of allergies. Such dietary patterns may disturb the immune system's natural equilibrium, increasing the chances of allergic reactions. Additionally, a greater consumption of sugary drinks, fast foods, and processed snacks has been linked to alterations in gut health, which can further affect immune responses (Renz et al., 2018).

Nutritional Deficiencies and Allergy Risk: Nutritional deficiencies play a significant role in allergic diseases (Kolkhir et al., 2017). Lack of essential nutrients such as vitamins D, E, and C, omega-3 fatty acids, and trace minerals has been linked to an increased allergy risk. Vitamin D, in particular, is crucial for immune system regulation, and low levels are associated with conditions like asthma and eczema. Omega-3 fatty acids, found in sources like fish and nuts, possess anti-inflammatory properties that might help reduce the severity of allergic reactions (Durban et al., 2021).

Dietary Interventions and Allergy Management: Research has explored the potential of dietary interventions to prevent and manage allergic sensitization. The Mediterranean diet, which focuses on fruits, vegetables, nuts, whole grains, and healthy fats like olive oil, has shown promising results in lowering the risk of allergic conditions (Jutel et al., 2014). Evidence suggests that adhering to this diet during pregnancy and early childhood can decrease the likelihood of developing asthma and other allergies. Moreover, including probiotic-rich foods like yogurt and fermented products may enhance gut health and help lower allergy risk (Skypala & McKenzie, 2018).

Dietary Management for Allergy Sufferers: Managing food allergies typically requires strict dietary changes to avoid allergens, which can present nutritional challenges and potential deficiencies if not properly handled. Studies underline the need for dietary guidance for individuals with food allergies to ensure they receive a balanced intake of essential nutrients. By educating patients on safe alternatives, allergen avoidance, and overall nutrition, their quality of life can be improved, effectively minimizing the effects of allergies (Sackrider, 2022).

The Gut Micro biome's Influence on Allergic Sensitization: Recent research underscores the significant role of the gut microbiome in immune function and allergic reactions. Diet plays a crucial part in shaping gut microbiota, which, in turn, affects immune health. Diets abundant in fiber, plant-based foods, and fermented items contribute to a healthy and diverse microbiome, offering a protective effect against allergic conditions (Plunkett & Nagler, 2017). In contrast, diets characterized by processed foods and low fiber can disrupt this balance, increasing the likelihood of developing allergies. Findings suggest that early dietary habits promoting microbiome diversity may reduce the risk of allergies in the future (Groetch et al., 2017).

Allergy Trends in Developing Countries: Spotlight on Bangladesh: In developing nations such as Bangladesh, the increasing prevalence of allergies reflects global trends, though local factors significantly influence this rise. Rapid urban growth and lifestyle changes have led to notable alterations in dietary practices (Brauer et al., 2007). Traditional Bangladeshi diets, typically rich in vegetables, legumes, and low-fat foods, are gradually being supplanted by Western-style eating habits that include fast food, processed snacks, and sugary drinks. These

shifts are thought to contribute to the rising incidence of allergic diseases in the area. Furthermore, socioeconomic issues and healthcare access form a critical part of allergy management, highlighting the necessity for targeted education and intervention efforts (Eigenmann et al., 2008).

Environmental Pollution and Rising Allergy Rates: Environmental pollution is a key factor in the rising prevalence and intensity of allergic diseases, especially in urban and industrialized areas. Pollutants such as particulate matter (PM), ozone, and nitrogen dioxide (NO₂) can weaken respiratory defenses, heightening sensitivity to allergens. Studies show that chronic exposure to fine particulate matter (PM_{2.5}) and NO₂ from vehicle emissions contributes to airway inflammation and oxidative stress, intensifying allergic responses to common allergens like pollen and pet dander (Chatkin et al., 2021). Additionally, climate change, partly driven by pollution, exacerbates these effects by extending pollen seasons and increasing allergen potency, which can lead to more severe allergic reactions. Higher allergy rates in children residing in polluted urban areas, compared to those in rural settings, further underscore the risks for vulnerable populations (Peters et al., 2022). These findings stress the need for public health initiatives to curb pollution and protect high-risk communities from allergy-related health impacts

CHAPTER 3

METHODOLOGY

3 Methodology:

3.1 Research Design

This study employed a cross-sectional design to investigate the association between dietary habits and allergic sensitivities among students at Daffodil International University (DIU).

3.2 Sampling

Students from Daffodil International University (DIU) was selected for the study, specifically targeting those aged 18-25 with known allergen sensitivities to ensure relevant data on dietary habits and allergic reactions. Participants were chosen based on their willingness to participate, and all provided informed consent. Efforts were made to capture a diverse demographic within the sample to explore variations in allergy prevalence and dietary patterns. Students with severe chronic conditions, such as autoimmune diseases, were excluded to avoid confounding factors. Additionally, any student who did not fully complete the questionnaire was omitted from the final analysis.

3.3 Sample Size Calculation

The sample size was calculated using a sample size formula to ensure statistical significance, as recommended by (Lu et al., 2016):

- **n is the desired sample size**
- **Z is 1.96 (representing a 95% confidence level and a 5% margin of error)**
- **p is 0.5, assuming a prevalence of 50%**
- **q=1-p=0.5q = 1 - p = 0.5q=1-p=0.5**
- **ε is margin of error 5%**
- **$n = \frac{Z^2 pq}{\epsilon^2}$**
- **$= \frac{1.96^2 \cdot 0.5 \cdot 0.5}{0.05^2}$**
- **=200**

Using these values:

Therefore, a sample size of 200 respondents is sufficient to achieve statistical significance with a 95% confidence level and a 5% margin of error.

3.4 Inclusion and Exclusion Criteria

Eligible participants were DIU students aged 18-25 who agreed to participate voluntarily, provided informed consent, and had known allergen sensitivities. Students with severe chronic conditions, such as autoimmune diseases, which could affect allergy-related data, were excluded. Additionally, those who did not complete the questionnaire in full were omitted from the final analysis.

3.5 Structured Questionnaire Design

Data collection was conducted using a structured, self-administered epidemiological questionnaire designed to capture three main areas: anthropometric information, including age, height, weight, and other background details necessary to calculate BMI and demographic information about participants. Allergic sensitivities, capturing self-reported allergic reactions, symptoms, and any clinical allergy diagnoses; and dietary practices, evaluated through a Food Frequency Questionnaire (FFQ). The FFQ assessed the frequency of consumption of specific food items such as soft drinks, fruit juices, cooked and raw vegetables, citrus fruits, red meat, white fish, dairy products, fast foods, and meals from the university canteen.

3.6 Data Collection

The questionnaire was administered through face-to-face interviews, ensuring respondent confidentiality throughout the process. Before beginning the interview, informed consent was obtained from each participant, and they were briefed on the study's purpose, including the use of their allergy-related information. Participants independently completed the Food Frequency Questionnaire (FFQ) and provided demographic and anthropometric information, allowing researchers to gather comprehensive data on dietary habits and allergic sensitivities.

3.7 Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics were used to examine the prevalence of dietary and allergic conditions within the

sample. Chi-square tests were conducted to identify significant differences in dietary habits and health-related variables across participant subgroups.

CHAPTER 4

RESULT AND DISCUSSIONS

4. Result and Discussions:

4.1 Results:

4.1.1 Participant Demographic and BMI Categories

Table 1: Participant Demographics and BMI Categories

Variable	Category	Frequency	Percentage
Gender	Male	56	28.0%
	Female	144	72.0%
BMI Range	Underweight	11	5.7%
	Normal weight	91	47.4%
	Overweight	49	25.5%
	Obesity	41	21.4%
Department	NFE	174	87.0%
	Public health	13	6.5%
	CSE	8	4.0%
	English	3	1.5%
	TE	2	1.0%
Economic status	Low	14	7.0%
	Medium	179	89.5%
	High	7	3.5%
Marital Status	Married	21	10.5%
	Unmarried	179	89.5%

Table 1 contains data about demographic profile of the respondent and BMI value. The study revealed that almost three-quarters of the respondents are female with 72%. Just under half of the participants are classified as having a normal weight BMI, with a notable portion identified as overweight or obese. Most respondents are affiliated with the NFE department. The majority

come from a medium economic background. Marital status of the majority is Unmarried with almost 90%.

4.1.2 Allergy Management Practice

Table 2: Allergy Management Practice

Variable	Category	Frequency	Percentage
Types of allergy you have	Pollen	10	6.3%
	Pet Dander	18	11.3%
	Food	49	30.6%
	Dust Mites	64	40.0%
	Insect Sting	5	3.1%
	Other	49	30.6%
Respiratory Condition Diagnosis	Yes	65	32.5%
	No	135	67.5%
Allergy Severity	Mild	89	44.5%
	Moderate	98	49.0%
	Severe	13	6.5%
How you manage allergy	OTC Antihistamines	20	10.1%
	Allergen Avoidance	64	32.2%
	Prescription medications	67	33.7%
	Over Allergy shots	4	2.0%
	Others	51	25.6%
Food Allergy	Yes	75	37.5%
	No	125	62.5%
Dietary Preferences	Gluten Free	21	10.4%
	Vegan	33	16.4%
	Vegetarian	35	17.4%
	Nothing	111	55.2%
History of Allergic Conditions	Asthma	111	55.5%
	Eczema	35	17.5%
	Hay Fever	54	27.0%
Allergic Sensitivities	Yes	86	43.0%
	No	114	57.0%

Dietary Modifications for Allergy Management	Yes	63	31.5%
	No	137	68.5%
Specific Diet for Allergy Prevention	Yes	71	35.5%
	No	129	64.5%
Challenges in Maintaining Allergy Diet	Cost	6	3.0%
	Availability Of Food	43	21.5%
	Lack Of Information	38	19.0%
	Time Constraints	34	17.0%
	Other's	79	39.5%
Enough Support for Allergy Diet	Yes	123	61.5%
	No	77	38.5%

Table 2 presents data on allergy types, management strategies, and challenges faced by participants in maintaining allergy diets. Nearly half of the respondents are allergic to dust mites, while around just more than thirty percent have food allergies. Additionally, one-third have a diagnosed respiratory condition, with most experiencing mild to moderate allergy severity. In terms of management, more than half rely on prescription medications and allergen avoidance. About one third report food allergies, and over half do not follow any specific dietary preferences. A significant number have a history of asthma, and nearly half report allergic sensitivities. The main challenges in maintaining allergy diets include food availability and other factors, yet most respondents feel they receive adequate support for managing their allergy diets.

4.1.3 Dietary Habit of the Respondent

3. Table: Dietary Habit of the Respondent

Variable	Category	Frequency	Percentage
Soft Drink Consumption Frequency	≥ 3 times/week	75	37.5%
	1-2 times/week	93	46.5%
	Never/Occasionally	32	16.0%
Fruit Juice Consumption Frequency	≥ 3 times/week	75	37.5%
	1-2 times/week	97	48.5%
	Never/Occasionally	28	14.0%
Cooked Vegetables Consumption Frequency	≥ 3 times/week	30	15.0%
	1-2 times/week	78	39.0%
	Never/Occasionally	92	46.0%
Raw Vegetables Consumption Frequency	≥ 3 times/week	75	37.5%
	1-2 times/week	83	41.5%
	Never/Occasionally	42	21.0%
Citrus Fruits. Consumption Frequency	≥ 3 times/week	52	26.0%
	1-2 times/week	102	51.0%
	Never/Occasionally	46	23.0%
Red Meat. Consumption Frequency	≥ 3 times/week	49	24.5%
	1-2 times/week	113	56.5%
	Never/Occasionally	38	19.0%
Fish. Consumption Frequency	≥ 3 times/week	28	14.0%
	1-2 times/week	98	49.0%
	Never/Occasionally	74	37.0%
Dairy product Consumption Frequency.	≥ 3 times/week	45	22.5%
	1-2 times/week	97	48.5%
	Never/Occasionally	58	29.0%
	≥ 3 times/week	62	31.0%

Fast Foods. Consumption Frequency	1-2 times/week	108	54.0%
	Never/Occasionally	30	15.0%
Seafood Consumption Frequency	≥ 3 times/week	120	60.0%
	1-2 times/week	54	27.0%
	Never/Occasionally	26	13.0%
Egg Consumption. Frequency	Yes	144	72.0%
	No	56	28.0%
Wheat Product Consumption Frequency	≥ 3 times/week	34	17.0%
	1-2 times/week	112	56.0%
	Never/Occasionally	54	27.0%
Soy-Based Food Intake Frequency	Yes	89	44.5%
	No	111	55.5%
Frequency of Probiotic Inclusion:	Daily	11	5.5%
	Weekly	66	33.0%
	Monthly	37	18.5%
	Rarely	45	22.5%
	Never	41	20.5%

The study found that nearly half of the respondents consume soft drinks, fruit juices, and fast food about once or twice weekly. Cooked vegetables are infrequent in diets, while raw vegetables and citrus fruits are slightly more common, with some consuming them weekly. Red meat and fish are eaten by over half of participants once or twice a week, while eggs are a regular staple and dairy products are included less frequently. Wheat products and soy-based foods are moderately present in diets, but probiotic intake remains low, with only a few consuming them regularly and many reporting no probiotic consumption at all.

4.1.4 Association table between Types of allergy you have with Dietary Habits

Table 4: Association table between Types of allergy you have with Dietary Habits

Variable	Category	Pollen	Pet Dander	Food	Dust Mites	Insect Sting	Others	P-Value
Soft Drink Consumption Frequency	≥ 3 times/week	0	0	4	20	0	9	.000
	1-2 times/week	8	11	22	21	3	24	
	Never/occasionally	2	7	23	23	2	16	
Fruit Juice Consumption Frequency	≥ 3 times/week	3	0	5	11	0	8	.048
	1-2 times/week	5	16	24	26	3	22	
	Never/occasionally	2	2	20	27	2	19	
Cooked Vegetables Consumption Frequency	≥ 3 times/week	8	10	26	23	3	17	.003
	1-2 times/week	0	3	17	32	0	24	
	Never/occasionally	2	5	6	9	2	8	
Raw Vegetables Consumption Frequency	≥ 3 times/week	5	3	5	8	0	8	.000
	1-2 times/week	5	12	31	23	5	24	
	Never/occasionally	0	3	13	33	0	17	
Citrus Fruits. Consumption Frequency	≥ 3 times/week	2	3	6	17	0	15	.002
	1-2 times/week	5	5	34	28	5	18	
	Never/occasionally	3	10	9	19	0	16	
Red Meat. Consumption Frequency	≥ 3 times/week	0	6	7	14	0	10	.056
	1-2 times/week	10	8	32	33	5	24	
	Never/occasionally	0	4	10	17	0	15	
Fish. Consumption Frequency	≥ 3 times/week	2	7	19	22	0	21	.001
	1-2 times/week	5	6	30	32	2	24	
	Never/occasionally	3	5	0	10	3	4	
	≥ 3 times/week	5	8	12	12	2	10	.184
	1-2 times/week	5	6	27	34	3	26	

Dairy product Consumption Frequency.	Never/occasionally	0	4	10	18	0	13	
Fast Foods. Consumption Frequency	≥ 3 times/week	0	3	4	19	0	4	.000
	1-2 times/week	8	10	22	31	3	18	
	Never/occasionally	2	5	23	14	2	27	
Egg Consumption. Frequency	Yes	7	12	31	48	2	35	.521
	No	3	6	18	16	3	14	
Seafood Consumption Frequency	≥ 3 times/week	2	2	8	6	0	4	.001
	1-2 times/week	2	0	12	29	2	9	
	Never/occasionally	6	16	29	29	3	36	
Wheat Product Consumption Frequency	≥ 3 times/week	4	5	5	17	2	17	.052
	1-2 times/week	6	8	37	37	3	24	
	Never/occasionally	0	5	7	10	0	8	
Soy-Based Food Intake Frequency	Yes	8	9	16	21	5	17	.002
	No	2	9	33	43	0	32	
Probiotics intake Frequency	Daily	2	0	3	2	2	0	.000
	Weekly	3	6	10	28	0	20	
	Monthly	2	2	13	5	2	5	
	Rarely	1	5	10	21	1	8	

This study found significant associations between certain types of allergies and various food consumption patterns, including soft drinks, fruit juices, cooked vegetables, raw vegetables, citrus fruits, fish, fast foods, seafood, soy-based foods, and probiotics, with P-values<.005 indicating strong significance. Mild associations were noted with red meat (P = .056) and wheat products (P = .052). Conversely, no significant relationships were observed with dairy products (P = .184) and egg consumption (P = .521). These findings imply that dietary habits may influence the prevalence of allergic conditions among respondents.

4.1.5 Association Table between types of allergy you have with allergy management practices

Table 5: Association Table between types of allergy you have with allergy management practices

Variable	Category	Pollen	Pet Dander	Food	Dust Mites	Insect Sting	Others	P-Value
Respiratory Condition Diagnosis	Yes	0	16	20	19	0	11	.000
	No	10	2	29	45	5	38	
Allergy Severity	Mild	7	5	23	34	5	34	.000
	Moderate	0	13	26	26	0	13	
	Severe	3	0	0	4	0	2	
How you manage allergy	OTC Antihistamines	0	3	2	4	0	0	.000
	Allergen Avoidance	5	5	13	22	2	0	
	Prescription medications	5	5	20	25	3	0	
	Allergy Shots (Immunotherapy)	0	0	2	0	0	0	
	Others	0	5	12	13	0	40	
Food Allergy	Yes	0	5	25	25	0	11	.001
	No	10	13	24	39	5	38	
Dietary Preferences	Gluten Free	0	2	7	7	0	5	.589
	Vegan	0	3	10	15	0	9	
	Vegetarian	5	2	7	11	2	9	
	Nothing	5	11	25	31	3	26	
History of Allergic Conditions	Asthma	5	10	15	47	2	29	.000
	Eczema	1	2	14	8	1	6	

	Hay Fever	4	6	20	9	2	14	
Allergic Sensitivities	Yes	6	5	18	26	3	13	.220
	No	4	13	31	38	2	36	
Dietary Modifications for Allergy Management	Yes	6	5	13	13	3	13	.078
	No	4	13	36	51	2	36	
Specific Diet for Allergy Prevention	Yes	4	8	25	33	1	19	.177
	No	6	10	24	31	4	30	
Challenges in Maintaining Allergy Diet	Cost	0	0	2	2	0	2	.000
	Availability Of Food	8	0	9	16	5	2	
	Lack Of Information	0	2	11	7	0	7	
	Time Constraints	0	6	9	9	0	7	
	Other's	2	10	18	30	0	31	
Enough Support for Allergy Diet	Yes	8	7	35	37	5	29	.042
	No	2	11	14	27	0	20	

From this study, it was found that certain types of allergies have significant associations with allergy management practices. There are significant association between types of allergy you have with respiratory condition, allergy severity, how you manage your allergy, food allergy, history of asthma and challenges in maintaining an allergy diet with P-value >.005. There was a mild association regarding whether respondents felt they had enough support for their allergy diet with types of allergy they have (P = .042) and Dietary Modifications for Allergy Management (P=.078).No association was observed with Dietary preference (P=.5890, Allergic Sensitivities (P=.220) and Specific Diet for Allergy Prevention? (P=.177). These findings highlight the complex relationship between allergy management practices strategies.

4.1.6 Association table between how you manage your allergy with Dietary Habits

Table 6: Association table between how you manage your allergy with Dietary Habits

Variable	Category	OTC Antihistamine	Avoid allergens	Prescription Medications	Allergy shots	Other	P-Value
Soft Drink Consumption Frequency	≥ 3 times/week	3	5	15	0	9	.255
	1-2 times/week	7	34	26	2	26	
	Never/Occasionally	10	25	26	2	16	
Fruit Juice Consumption Frequency	≥ 3 times/week	0	7	13	0	8	.060
	1-2 times/week	15	25	33	2	24	
	Never/occasionally	5	32	21	2	19	
Cooked Vegetables Consumption Frequency	≥ 3 times/week	13	29	35	2	19	.101
	1-2 times/week	7	27	18	2	24	
	Never/occasionally	0	8	14	0	8	
Raw Vegetables Consumption Frequency	≥ 3 times/week	10	17	11	0	10	.082
	1-2 times/week	4	24	29	2	24	
	Never/occasionally	6	23	27	2	17	
Citrus Fruits. Consumption Frequency	≥ 3 times/week	8	8	15	0	15	.013
	1-2 times/week	7	43	34	4	20	
	Never/occasionally	5	13	18	0	16	
Red Meat. Consumption Frequency	≥ 3 times/week	6	14	8	0	10	.017
	1-2 times/week	13	41	37	2	24	
	Never/occasionally	1	9	22	2	17	
Fish. Consumption Frequency	≥ 3 times/week	9	20	24	0	21	.069
	1-2 times/week	11	29	34	4	26	
	Never/occasionally	0	15	9	0	4	
	≥ 3 times/week	8	24	20	0	12	.005

Dairy product Consumption Frequency.	1-2 times/week	6	36	27	2	26	
	Never/occasionally	6	4	20	2	13	
Fast Foods. Consumption Frequency	≥ 3 times/week	1	11	14	0	4	.002
	1-2 times/week	13	41	34	2	20	
	Never/occasionally	6	12	19	2	27	
Egg Consumption. Frequency	Yes	11	46	54	2	35	.143
	No	9	18	13	2	16	
Seafood Consumption Frequency	≥ 3 times/week	2	11	9	0	6	.677
	1-2 times/week	5	18	20	2	9	
	Never/occasionally	13	35	38	2	36	
Wheat Product Consumption Frequency	≥ 3 times/week	9	15	17	0	19	.022
	1-2 times/week	7	43	34	4	24	
	Never/occasionally	4	6	16	0	8	
Soy-Based Food Intake Frequency	Yes	8	28	40	0	17	.006
	No	12	36	27	4	34	
Probiotics intake Frequency	Daily	2	2	7	0	0	.000
	Weekly	8	23	19	0	22	
	Monthly	3	16	11	2	5	
	Rarely	2	11	24	0	8	
	Never	5	12	6	2	16	

This study found significant associations between allergy management practices and various dietary habits, including citrus fruits, red meat, dairy products, fast foods, soy-based foods, and probiotics, indicating strong significance as P-value >.005. Mild associations were noted with Fruit juice consumption (P=.060), fish consumption (P=.0690 and wheat products

consumption (P=.022). Conversely, no significant relationships were observed with the frequency of soft drink consumption (P=.255), and egg consumption (P=.143). These findings imply that specific dietary habits may influence the strategies respondents use to manage their allergies.

4.1.7 Association table between How you Manage Allergy with Allergy Management Practices

Table 7: Association table between How you Manage Allergy with Allergy Management Practices

Variable	Category	OTC Antihistamine	Avoid allergens	Prescription Medications	Allergy shots	Other	P-Value
Respiratory Condition Diagnosis	Yes	5	17	36	0	13	.000
	No	15	47	31	4	38	
Allergy Severity	Mild	7	24	24	0	34	.000
	Moderate	13	35	39	2	15	
	Severe	0	5	4	2	2	
Food Allergy	Yes	6	17	41	0	11	.000
	No	14	47	26	4	40	
Dietary Preferences	Gluten Free	0	6	10	0	7	.177
	Vegan	7	6	11	0	9	
	Vegetarian	1	13	10	2	9	
	Nothing	12	39	36	2	26	
History of Allergic Conditions	Asthma	16	39	31	0	31	.002
	Eczema	1	9	19	0	6	
	Hay Fever	3	16	17	4	14	
Allergic Sensitivities	Yes	9	31	37	0	15	.054
	No	11	33	30	4	36	

Dietary Modifications for Allergy Management	Yes	4	21	29	0	13	.270
	No	16	43	38	4	38	
Specific Diet for Allergy Prevention	Yes	12	35	35	2	19	.005
	No	8	29	32	2	32	
Challenges in Maintaining Allergy Diet	Cost	0	0	2	2	2	.000
	Availability Of Food	4	19	22	0	2	
	Lack Of Information	7	10	12	2	7	
	Time Constraints	4	11	12	0	7	
	Other's	5	24	19	0	33	
Enough Support for Allergy Diet	Yes	9	38	51	0	31	.003
	No	11	26	16	4	20	

This study found management of allergies has significant associations with allergy management practices. There are significant associations between allergy management and factors such as respiratory condition diagnosis, allergy severity, the presence of a food allergy, specific diets for allergy prevention, challenges in maintaining an allergy diet, and feelings of support in managing an allergy diet, all with P-values < .005. There was a mild association observed regarding allergic sensitivities ($P = .054$). In contrast, no significant relationships were found with dietary preferences, such as gluten-free or vegan diets ($P = .177$), or with dietary modifications for allergy management ($P = .270$). These findings suggest that understanding allergy history and management strategies can enhance dietary approaches to allergy management.

4.2 Discussion:

This study found that the demographic profile of respondents reveals a significant gender disparity, with approximately 72% of participants being female. This aligns with previous research indicating that women are more likely to report allergies and seek medical help for allergy management (Shusterman et al., 2003). Additionally, the BMI data showed that nearly half of the participants were classified as having a normal weight, while a notable portion was identified as overweight or obese, reflecting broader trends observed in similar populations (Weinmayr et al., 2014).

The prevalence of allergies among respondents was notable, with nearly half experiencing allergies to dust mites, similar result found (Rekima et al., 2020). This is consistent with prior studies, which have documented a rising prevalence of environmental and food allergies, particularly among younger demographics. Furthermore, the finding that 32.5% of respondents have a diagnosed respiratory condition corroborates existing literature that links respiratory issues with allergic conditions (Valero et al., 2017). In terms of management, reliance on prescription medications (33.7%) and allergen avoidance (32.2%) aligns with recommended strategies for effective allergy management (Bousquet et al., 2008). The significant prevalence of asthma among respondents highlights the need for integrated approaches that address both asthma and allergic conditions. Participants reported challenges in maintaining their allergy diets, primarily due to food availability and other factors echoing findings that accessibility and cost are common barriers for individuals with dietary restrictions (Drewnowski, 2004). Notably, more than half felt adequately supported in managing their allergy diets, suggesting that effective support systems are crucial for successful allergy management.

The study reveals concerning dietary habits among respondents, with nearly half consuming soft drinks and fruit juices 1-2 times per week, which may contribute to health issues linked to sugar intake (Johnson et al., 2007). The low frequency of cooked vegetable consumption, with less than half reporting never or occasional intake, highlights a need for improved vegetable intake, as suggested by other research linking higher vegetable consumption to better health outcomes (Slavin & Lloyd, 2012). While raw vegetable consumption is more favorable, the prevalence of red meat and fast food consumption—over half eating these 1-2 times weekly—aligns with trends that associate high consumption with various health risks (Schulze et al.,

2004). Additionally, the low intake of probiotics suggests a missed opportunity for enhancing digestive health and potentially alleviating allergic responses (Ouwehand & Salminen, 2004). These findings indicate a crucial need for increased awareness and accessibility of healthier food options to better manage allergies and promote overall well-being. This study found significant associations between various types of allergies and dietary habits, indicating that specific food consumption patterns, such as soft drinks, fruit juices, and fast foods, may influence allergic conditions among respondents. These results align with previous research that highlights the role of diet in managing allergies (González et al., 2020; Eichenfield et al., 2014). The notable associations between allergy management practices and dietary habits, particularly with citrus fruits and red meat, suggest that certain foods may impact how individuals manage their allergies (Bousquet et al., 2008). The mild associations observed with fruit juice, fish, and wheat products further emphasize the nuanced relationship between diet and allergy management. Conversely, the lack of significant relationships with soft drinks and egg consumption reflects findings from other studies indicating that not all dietary choices correlate with allergic responses (Vazquez-Ortiz et al., 2020). Additionally, the identified challenges in maintaining allergy diets, particularly concerning food availability and support systems, highlight the complexities faced by individuals managing allergies (Drewnowski, 2004). Overall, these findings underscore the importance of tailored dietary recommendations in allergy management strategies.

CHAPTER 5

CONCLUSION

5.1 Conclusion:

This study highlights the significant relationship between dietary habits and the prevalence of allergic sensitization among respondents. The findings reveal a concerning trend of insufficient vegetable consumption coupled with high intakes of soft drinks, fruit juices, and fast foods, all of which may exacerbate allergic conditions. The high prevalence of dust mite allergies and respiratory issues underscores the urgent need for effective allergy management strategies that integrate dietary considerations. While many participants rely on prescribed medications and allergen avoidance, challenges such as limited access to diverse and nutritious foods indicate systemic barriers to achieving optimal dietary practices. Furthermore, the lack of nutritional education and resources can hinder individuals' ability to make informed dietary choices, potentially perpetuating the cycle of allergies. Addressing these barriers through public health initiatives and community support is crucial for improving dietary habits and enhancing allergy management in affected populations.

5.2 Recommendation for further study to meet the gap

To address the gap in research on the relationship between dietary factors and allergic sensitization prevalence, further studies should focus on the following areas:

1. Longitudinal Studies to Establish Causal Relationships

Conduct long-term cohort studies to establish causality between specific dietary factors and the development of allergic sensitization. Current studies are often cross-sectional, which limits the ability to infer causal relationships. Identify whether dietary changes before or during early childhood are linked to the onset of allergic sensitization over time.

2. Investigating the Impact of Diet in Different Age Groups

Explore how dietary factors influence allergic sensitization at different life stages, including infancy, early childhood, adolescence, and adulthood. It is essential to determine if early dietary interventions have a long-term impact on allergic sensitization. Assess if dietary

modifications at various life stages have different effects on immune system development and allergic outcomes.

3. Dietary Diversity and Gut Microbiota

Investigate the relationship between dietary diversity, gut microbiota composition, and allergic sensitization. Emerging evidence suggests that diet can influence gut microbiota, which plays a critical role in immune system development and the risk of allergies. Explore how various food groups, including fiber-rich foods, fermented foods, and prebiotics, contribute to shaping the gut microbiome and potentially reduce the risk of allergic diseases.

4. Nutrient-Specific Studies

Conduct studies focused on the role of specific nutrients (e.g., omega-3 fatty acids, vitamins D, A, and E, antioxidants) in modulating allergic sensitization. While there is evidence suggesting that these nutrients may reduce inflammation or modulate immune responses, more controlled trials are needed. Identify specific nutrients that might mitigate allergic sensitization and establish optimal intake levels for prevention.

5. Effect of Processed Foods and Additives

Further investigate the effect of processed foods, food additives, and preservatives on allergic sensitization. As dietary patterns shift towards processed foods, it is important to understand their role in immune system dysfunction and the rise of allergies. Examine the relationship between artificial food additives (e.g., colors, preservatives) and an increase in allergic reactions, particularly in children.

6. Geographic and Cultural Variations in Diet and Allergies

Study how dietary patterns across different geographical regions and cultures impact allergic sensitization. Understanding how traditional diets, often rich in natural, unprocessed foods, compare with modern, Westernized diets can provide insights into the rise of allergies in certain populations. Highlight dietary practices that may contribute to lower rates of allergic diseases and assess how these can be incorporated into public health recommendations.

7. Intervention Trials

Implement randomized controlled trials (RCTs) to assess the effectiveness of dietary interventions (e.g., elimination diets, specific nutrient supplementation) in reducing allergic sensitization. These trials can provide concrete evidence of diet's role in allergy prevention or management. Evaluate the impact of specific dietary changes, such as increasing intake of anti-

inflammatory foods or reducing allergens, on the development or exacerbation of allergic diseases.

8. Role of Food Allergies and Cross-Reactivity

Investigate the relationship between food allergies and the development of environmental allergies due to cross-reactivity. Research can explore how sensitization to one allergen (e.g., peanuts) may increase the likelihood of developing sensitization to other allergens (e.g., birch pollen). Better understand how dietary factors might modulate immune responses to both food and environmental allergens.

9. Social Determinants of Diet and Allergy Risk

Examine how socioeconomic factors, such as income, education, and access to nutritious food, influence dietary patterns and the prevalence of allergic sensitization. This would help identify vulnerable populations who may benefit from dietary interventions. Address social inequities by exploring how policy changes, food access, and education might reduce allergic sensitization prevalence.

10. Precision Medicine Approaches

Integrate genomic and microbiomic data to personalize dietary interventions based on an individual's genetic predisposition to allergies. Precision nutrition could help tailor dietary recommendations that are more effective for those at high risk of developing allergic diseases. Provide targeted dietary guidance to individuals at higher genetic risk for allergic sensitization, improving both prevention and treatment outcomes.

By addressing these areas, we can improve health outcomes for individuals with allergies and enhance their overall quality of life.

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APPENDIX-1

Daffodil International University
Department of Nutrition and Food Engineering (NFE)
Faculty of Health and Life Sciences (FHLS)

Daffodil Smart City, Birulia, Savar, Dhaka – 1216, Bangladesh

Title: Dietary factor and relationship with allergic sensitization prevalence.

Dear participants,

This is Dipta Chakrabarti here, student of DIU, Dept of NFE. The purpose of this study is to analyze dietary factor and relationship with allergic sensitization prevalence. Please response the questions . It will take your valuable 5 minutes. Your honest and thoughtful responses will contribute significantly to the quality of our research.

Student's Name: Dipta Chakrabarti

Id: 201-34-1095

Section: 201-B

Survey Question

Anthropometric Survey for Data:

1. What is your gender?

- ☐ Male
- ☐ Female

2. What your age?

- ☐ 17-19
- ☐ 20-22
- ☐ 23-25
- ☐ 26-28

3. What is your height? (in ft)

4. What is your weight? (in kg)

5. What is your department?

- ☐ NFE
- ☐ CSE
- ☐ TE
- ☐ English
- ☐ Public Health

6. Your economic status-

- ☐ High

- ☐ Medium
- ☐ Low

7. Your marital status-

- ☐ Yes
- ☐ No

Allergy History:

1. The type(s) of allergy/allergen(s) you have (check all that apply):

- | | |
|--|--|
| ☐ Pollen | ☐ Mold |
| ☐ Pet Dander (cats, dogs, etc.) | ☐ Insect Stings (bee/wasp stings) |
| ☐ Food | ☐ Latex |
| ☐ Dust Mites | ☐ Other |

2. Have you ever been diagnosed with asthma or any other respiratory condition?

- ☐ Yes
- ☐ No

3. How severe are your allergies on a scale of 1 to 5 (1 being mild, 5 being severe)?

- | | |
|-------------------------------------|----------------------------|
| ☐ 1 (Mild) | ☐ 2 |
| ☐ 3 | ☐ 4 |
| ☐ 5 (Severe) | |

4. How do you typically manage your allergies? (check all that apply):

- | | |
|---|---|
| ☐ Over-the-counter antihistamine | ☐ Avoidance of allergens |
| ☐ Prescription medications | ☐ Allergen immunotherapy (allergy shots) |
| ☐ Others | |

Dietary Habit & Allergen prevalence Data:

1. How often do you intake soft drinks? (Ex- Coca cola, fanta, pepsi, mountain deo etc)

- ☐ Never/occasionally
- ☐ 1-2 times/week
- ☐ ≥ 3 times/week

2. How often do you intake fruit juice? (Ex- Fruitica, frfrooto, pran juice, drinko etc)

- ☐ Never/occasionally
- ☐ 1-2 times/week
- ☐ ≥ 3 times/week

3. How often do you consume cooked vegetables?

- ☐ Never/occasionally
- ☐ 1-2 times/week
- ☐ ≥ 3 times/week

4. **How often do you consume raw vegetables? (Ex- Carrots, Cucumbers, Bell peppers, Tomatoes, Celery, Radish, Broccoli, Cauliflower etc)**
 - ☐ Never/occasionally
 - ☐ 1-2 times/week
 - ☐ ≥ 3 times/week
5. **How often do your intake citrus fruits? (Ex- Orange, Lime, Lemon, Grapefruit, Kumquat etc)**
 - ☐ Never/occasionally
 - ☐ 1-2 times/week
 - ☐ ≥ 3 times/week
6. **How often do you consume red meat?**
 - ☐ Never/occasionally
 - ☐ 1-2 times/week
 - ☐ ≥ 3 times/week
7. **How often do you consume fish?**
 - ☐ Never/occasionally
 - ☐ 1-2 times/week
 - ☐ ≥ 3 times/week
8. **How often do your intake dairy products? (Ex- Milk, butter, cheese yogurt, cream, custard etc)**
 - ☐ Never/occasionally
 - ☐ 1-2 times/week
 - ☐ ≥ 3 times/week
9. **How often do you consume fast foods? (Ex- Pizza, burger, fried chicken, sandwich, noodles etc)**
 - ☐ Never/occasionally
 - ☐ 1-2 times/week
 - ☐ ≥ 3 times/week
10. **How often do you eat foods containing peanuts or peanut products?**
 - ☐ Never/occasionally
 - ☐ 1-2 times/week
 - ☐ ≥ 3 times/week
11. **What is your typical intake of tree nuts (e.g., almonds, walnuts, cashews)?**
 - ☐ Never/occasionally
 - ☐ 1-2 times/week
 - ☐ ≥ 3 times/week
12. **How often do you consume seafood (e.g., fish, shrimp, and shellfish)?**
 - ☐ Never/occasionally
 - ☐ 1-2 times/week
 - ☐ ≥ 3 times/week
13. **Do you regularly consume eggs or egg-containing products?**
 - ☐ Yes
 - ☐ No

- 14. How often do you consume wheat-based products (e.g., bread, pasta, cereals)?**
- ☐ Never/occasionally
 - ☐ 1-2 times/week
 - ☐ ≥ 3 times/week
- 15. What is your intake of soy- based foods (e.g., tofu, soy milk, soy sauce)?**
- ☐ Yes
 - ☐ No
- 16. Are you following any specific dietary patterns or restrictions:**
- ☐ Vegetarian
 - ☐ Vegan
 - ☐ Gluten Free
 - ☐ Nothing
- 17. Have you ever been diagnosed with food allergies or intolerances?**
- ☐ Yes
 - ☐ No
- 18. Do you or any family members have a history of allergic conditions:**
- ☐ Asthma
 - ☐ Eczema
 - ☐ Hay Fever
- 19. Have you noticed any changes in your allergic sensitivities in relation to changes in your diet?**
- ☐ Yes
 - ☐ No
- 20. Are you currently following any dietary recommendations or modifications to manage allergic sensitivities?**
- ☐ Yes
 - ☐ No
- 21. Are you aware of any dietary strategies for preventing allergies?**
- ☐ Yes
 - ☐ No
- 22. Do you follow any specific diet to prevent allergies?**
- ☐ Yes
 - ☐ No
- 23. How often do you include probiotics (e.g., yogurt, kefir) in your diet?**
- ☐ Daily
 - ☐ Weekly
 - ☐ Monthly
 - ☐ Rarely
 - ☐ Never
- 24. What challenges do you face in maintaining a diet aimed at preventing allergies?**
- ☐ Cost
 - ☐ Availability Of Food

- ☐ Lack Of Information
- ☐ Time Constraints
- ☐ Other's

25. Do you feel you have enough support and resources to follow a diet for allergy prevention?

- ☐ Yes
- ☐ No

APPENDIX-2

SYNOPSIS

Daffodil International University

Department of Nutrition and Food

**Engineering (NFE) Faculty of Health
and Life Sciences (FHLS)**

Daffodil Smart City, Birulia, Savar, Dhaka – 1216, Bangladesh

- 1. Student's Name:** Dipta Chakrabarti
- 2. Id:** 201-34-1095
- 3. Section:** 201-B

Title: Dietary factor and relationship with allergic sensitization prevalence.

Introduction: Background:

The prevalence of asthma and allergic diseases among children and adolescents has rapidly increased over the last 10 years. This increase in prevalence might be related to various factors, particularly diet. Unfortunately, the reasons for this increase are still obscure but risk factors including genetic predisposition and environmental factors (change in lifestyle, air pollution, etc.) could be responsible. [1]

Rationale:

Allergic rhinitis (AR) is the most common allergic disorder and its prevalence has significantly increased worldwide, nowadays affecting up to 40% of the population in young adults. [2] This research is to evaluate the prevalence of allergic sensitization with dietary factors in suburban area.

Research Question or Hypothesis:

One hypothesis to explain the occurrence of asthma and allergies in childhood, are related to lifestyle factors. Among these factors, dietary habits may be one of the contributing factors.

Objectives:

General objective

- To assess the prevalence and association of allergic sensitization with dietary factors in suburban area of Bangladesh.

Specific objective

- To research the nutritional status of patients with food allergies.
- To enhanced nutritional education in order to provide substitute foods for patients with food allergies who practice food restriction.

Methodology:

- Cross-sectional studies will be performed among the total sample. Short information on data collection methods, including questionnaire, diet, and physical examination. Standardized self-administered epidemiological questionnaires were developed on demographics, allergic sensitization. dietary habits were collected by a food frequency questionnaire (FFQ). The FFQ included the following food items and dietary factors commonly consumed. soft drinks, fruit juice, cooked vegetables, raw vegetables, citrus fruit, red meat, white fish, dairy products, fast food, and canteen lunch. The FFQ was divided by frequency of consumption.
- The data will be analysed using the Statistical Package for the Social Sciences (SPSS), The prevalence rates were calculated for the entire group and the subgroups, and the differences were tested using chi-square analysis. [3]

Expected Outcomes:

A food allergy is an adverse health effect arising from a specific immune response that occurs reproducibly upon exposure to a given food. In those with food allergies that are thought to cause aggravation of eczema, food avoidance is important. The aim of this study is to identify practically deficient nutrients by researching nutrient status of those patient who are suffering for asthma and allergic sensitization. We intend to provide basic information that can be used for establishment of appropriate health and dietary guidelines.

Socio-economic Impact:

dietary factors can be associated with asthma related symptoms and allergic sensitization. This study provides further evidence that adherence to a healthy diet that is rich especially in fruits, fish and meat may provide protection against allergies.

Several risk and protective factors related to environment and style of life could be identified in both environments. [4]

References:

- [1] 7. P. S. Danielle Saadeh1, "Prevalence and association of asthma and allergic sensitization with dietary factors in schoolchildren: data from the french six cities study," BMC Public Health, vol. 15, 2015.

- [2] K. Blomme, P. Tomassen, H. Lapeere, W. Huvenne, M. Bonny, F. Acke, C. Bachert and P. Gevaert, "Prevalence of Allergic Sensitization versus Allergic Rhinitis Symptoms in an Unselected Population," journal of innate immunity , vol. 160, no. 2, 2012.
- [3] "Prevalence of allergen sensitization, most important allergens and factors associated with atopy in children," Sao Paulo Medical Journal, vol. 131, no. 5.
- [4] J. P. L. K. A. K. M. K. M. J. T. G. M. L. K. B. Majkowska–Wojciechowska, "Prevalence of allergy, patterns of allergic sensitization and allergy risk factors in rural and urban children," European journal of allergy and clinical immunology, 2007.

Signature of the Supervisor

APPENDIX-3

PLAGIARISM REPORT

DIETARY FACTOR AND RELATIONSHIP WITH ALLERGIC SENSITIZATION PREVALENCE

ORIGINALITY REPORT

25%	23%	18%	16%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	dspace.cuni.cz Internet Source	1 %
2	dspace.daffodilvarsity.edu.bd:8080 Internet Source	1 %
3	www.ncbi.nlm.nih.gov Internet Source	1 %
4	backend.orbit.dtu.dk Internet Source	1 %
5	Submitted to University of Technology, Sydney Student Paper	1 %
6	escholarship.org Internet Source	1 %
7	ouci.dntb.gov.ua Internet Source	1 %
8	Submitted to Our Lady of Fatima University Student Paper	1 %