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Study of Prevalence of Allergy among College Students

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Abstract: ***Objective: To assess the prevalence and pattern of Allergic diseases among College Students. Methods: 200 College Students from Dasuya town of district Hoshiarpur situated at 31.82°N 75.66°E of Punjab, India included in the present survey. A detailed Performa was filled by all the participants. Data was collected about the allergen, family history, duration and time of allergic reaction and medication. The allergy was further subcategorized on the basis of type of allergen into ten different types. In addition, information was collected about the age, sex, place of residing and medication taken for allergy. None of the participant was smoker or alcohol drinker. Results: Of all the Students included in the present study 63.5% were suffering from one or another type of allergy. Amongst the allergens, dust was the most common cause of allergy (24%) followed by Sunlight (17%) and Cosmetics (11%). The other allergens include Food, Pollen grains, Climate, Drugs, synthetic clothes, Detergents and Metals (48%). Out of the allergic participants 19% were having allergic reaction in the form of sneezing, 18% with a feeling of running nose and 16% had itching, 13% had rashes, 12% had watery eyes, 10% had burning sensation, 10% had Chest Congestion and 2% had nausea. In most of participants the allergic reaction remained for hours (29%) while in some cases it remained for only minutes (22%). In other participants it remained throughout the year (7%) or for few months (17%) while in still small number of participants it remained for days (25%). Conclusion: This study suggests that allergy is a common problem among College students and the most common allergen is dust. Since till date there are no permanent cures for allergies and it can be managed only with proper prevention and treatment. One of the plausible reasons for increase in allergy is change in environment. This information will provide important insight for targeting allergy prevention and management programs and interventions.***

Keywords: Allergy, Allergen, Allergic Reaction, Prevalence.

1. Introduction

All organisms come in contact with the foreign materials – living as well as non living, namely viruses, rickettisia, bacteria, protozoan, fungi, worms, arthropods, dust, pollen grains etc. In order to maintain homoeostasis and survive, the organisms have evolved a variety of defense mechanisms against the disease causing viruses or foreign molecules. One such reaction of the body against foreign molecules is referred as Allergy. Allergy is characterized by an overreaction of the human immune system to a foreign substance/allergen that is eaten, breathed into the lungs, injected or touched. A person develops an allergic reaction when the immune system cannot tell the good from the bad and releases a type of chemical called histamine to attack the harmless substance as if it were a threat. Histamine produces many of the symptoms associated with allergies. These symptoms include Itching, watery eyes, persistent stuffy nose or ears, sneezing, runny nose, rashes, burning sensation and chest congestion.50% of children and young people have one or more allergies within the first 18 years of life (Journal of Clinical & experimental Allergy, 2009). Allergy is a chronic disease that is expected to affect more than 50% of all the Europeans in 10 years time (EAACI, 2011).Acc. to Allergy Statistics, millions of adults suffer from at least one allergy, with their numbers continuing to rise. Each year the numbers of allergy sufferers' increases by 5%, half of all affected are being children. UK hospital admissions for food allergies have increased by 500% since 1990 (Gupta et al, 2011).Common allergens include food, climate, pet, metal, dust, sunlight, pollen grain, cosmetics and synthetic clothes. Although it is well known that pollens, dusts, fungi and insects are common offending allergens responsible for allergic reactions but relative frequency of allergy by these different groups of allergens may vary from place to place. Moreover, even in any one group (e.g. fungi or pollen or dust) the causal allergen may be different in different places depending on the type of local plantation, allergenicity of different pollens, dusts, insects, fungi, etc. present in the atmosphere and immunological state of the patients living in that environment.Most allergic reactions are not serious, but some, such as anaphylaxis, can result in an inability to breathe or a severe drop in blood pressure and can be fatal. Only a few allergies can be cured outright, but a variety of conventional and alternative treatments are available to relieve the symptoms.

Keeping in view the effects of allergies, the objectives of the present study is to assess the prevalence and pattern of Allergic diseases in the College Students involving following Parameters-

- Study the incidence of allergic subgroups based on type of allergen.
- To study the pattern of symptoms during the allergic reaction.

2. Methodology

200 College Students from the Dasuya town of district Hoshiarpur situated at 31.82°N 75.66°E of Punjab, India during the month of July 10,2015 to December 07,2015 included in the present survey. A detailed Performa was filled by the participants. Data was collected about the allergen,

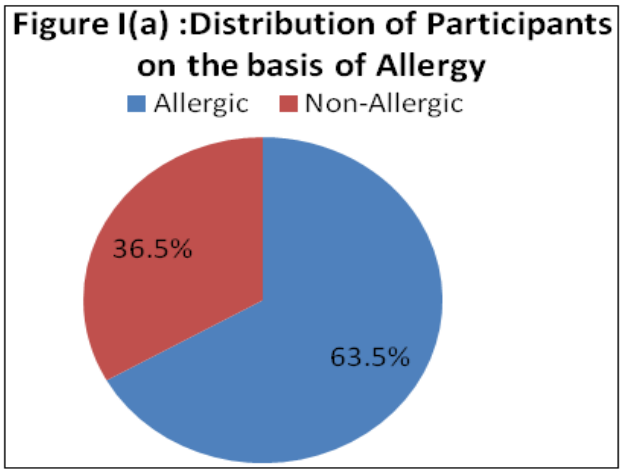
family history, duration and time of allergic reaction and medication. Participants were then subdivided into ten subcategories based on the type of allergen. These include Sunlight, Dust, Climate, Detergents, Cosmetics, Metal, Food, Drugs, Synthetic Clothes and Pollen grains. Participants were further subdivided into two subcategories based on the information about the family history of allergic diseases and based on the age of onset of disease into childhood and late onset of allergic reaction. Any participants who had the first allergic reaction before the age of 12 years were included in childhood category and remaining in late onset category. In addition information was collected about the age, sex, place of residing, symptoms, duration and time of allergic reaction. None of the participant was smoker or alcohol drinker. Informed consent was taken from all the volunteers who participated in the present study.

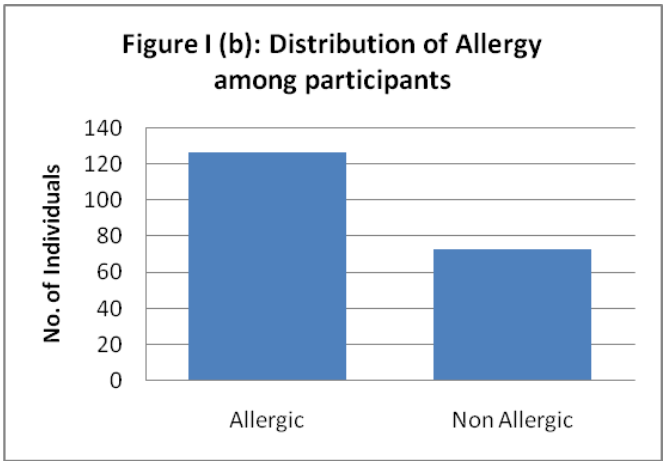
3. Results and Discussion

Out of the 200 participants, 127 (63.5%) were suffering from one or the other form of allergy and 73 (36.5%) were found to be non-allergic as shown in [Table 1/Fig.1 (a, b)].

Table 1: Distribution of participants on the basis of allergy

S.No	*Subgroups*	*No of Individuals*	*%age*
1.	Allergic	127	63.5
2.	Non Allergic	73	36.5
	Total	200	100



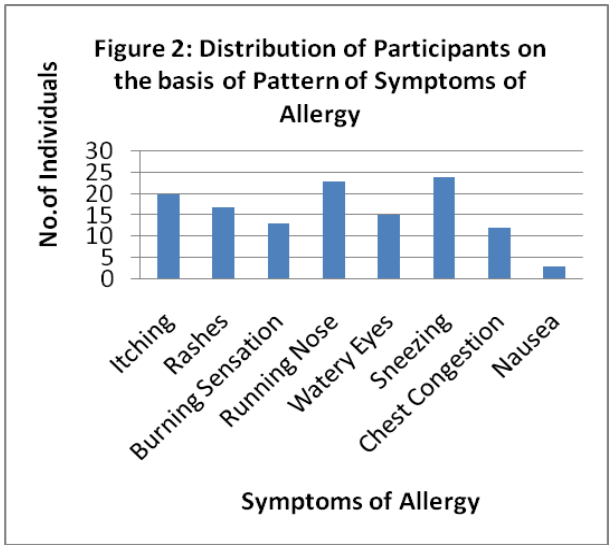


3.1 Symptoms

The 127 participants differ in the presentations of symptoms of allergy. The maximum number of participants has allergic reaction in the form of Sneezing (19%) followed by running nose (18%) and itching (16%). The other symptoms include rashes, burning sensation, watery eyes, chest congestion and nausea [Table 2/Fig.2].

Table 2: Distribution of participants on the basis of Symptoms

S.No	*Allergy Symptoms*	*No. of Individuals*	*%age*
1.	Itching	20	16
2.	Rashes	17	13
3.	Burning Sensation	13	10
4.	Running Nose	23	18
5.	Watery Eyes	15	12
6.	Sneezing	24	19
7.	Chest Congestion	12	10
8.	Nausea	03	02

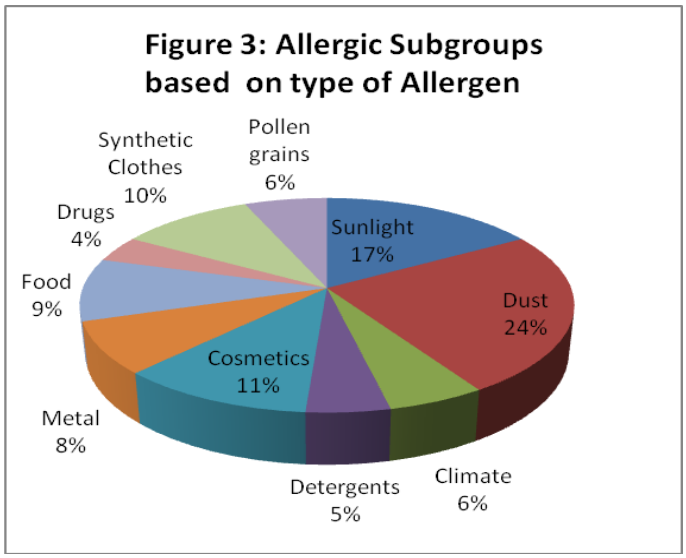


3.2 Allergic subgroups based on the type of allergens

When the allergic individuals were sub grouped on the basis of type of allergen ten different subcategories were formed [Table 3/Fig. 3].

Table 3: Distribution in allergic subgroups based on the type of allergen

S.No.	Allergen	No. of individuals Showing Sensitivity to a Specific Allergen	% age
1.	Sunlight	21	17
2.	Dust	31	24
3.	Climate	07	06
4.	Detergents	06	05
5.	Cosmetics	14	11
6.	Metal	10	08
7.	Food	12	09
8.	Drugs	05	04
9.	Synthetic Clothes	13	10
10.	Pollen grains	08	06



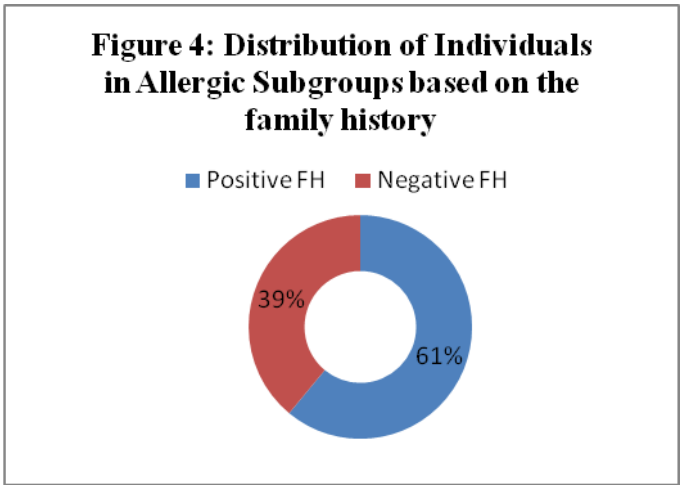
From the table 3 it is apparent that the maximum number of allergic individuals are suffering from allergy from dust (24%) followed by the sunlight (17%).

3.3 Allergic subgroups based on the family history

Earlier studies have reported the role of genes in the allergic responses. To validate the role of genes in allergy the data related to family history of allergy was collected On the basis of family history, individuals under study were divided into two subgroups: one with family history of allergy and other without any history [Table 4/Fig:4].

Table 4: Distribution of individuals in allergic subgroups based on the family history

S.No	Family History (FH)	No of Individuals	%age
1	Positive FH	77	61
2	Negative FH	50	39



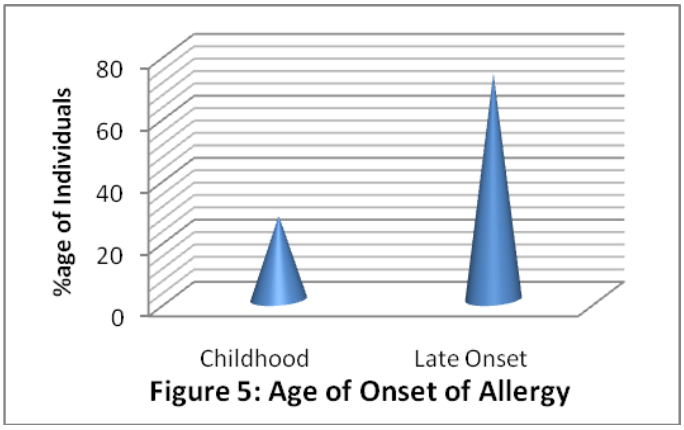
From the observational data, it was found that 61% participants showed positive family history for allergy, hence reflecting the role of genes and heredity in allergic reactions. Since the sample size is small and therefore, more samples need to be studied to validate the above results.

3.4 Allergic subgroups based on the Age of onset

Studies have reported difference in the distribution of allergies in different age groups. Food allergies have been reported mostly in children and generally these allergies to food are outgrown by children with time. In the present study, allergic have been divided into groups on the basis of age i.e. childhood allergic and late onset allergic. Childhoods allergic are those who develop allergic reaction before the age of 12 years. As evident from table 5/Fig. 5, 73% of the individuals develop allergy after the age of 12 years. This could be because the participants who participated in the present study come across the allergen when they grew up.

Table 5: Distribution of individuals in allergic subgroups based on the age of Onset of disease

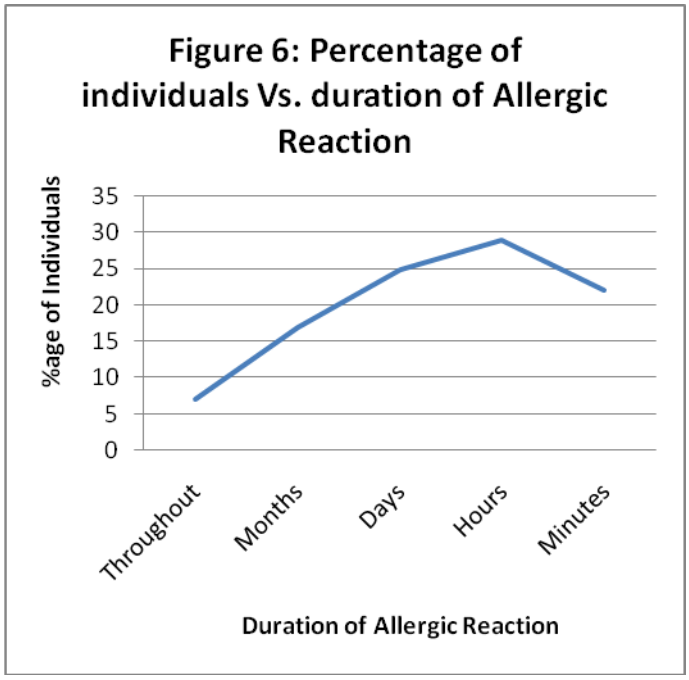
S. No	Age of Onset	No of Individuals	%age
1.	Childhood	34	27
2.	Late Onset	93	73



Information was also gathered about the duration of allergic reaction, time of attack, money spent on the medication. The study results as depicted in Table 6/Fig. 6, the maximum number of individuals had the allergic reaction for hours.

Table 6: Duration of Allergic Reaction in Participants

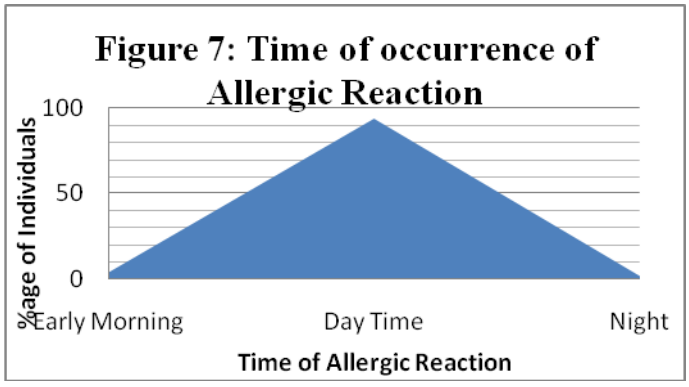
S.No.	Duration of Allergic Reaction	No. of Individuals	%age
1.	Throughout year	09	07
2.	Months	21	17
3.	Days	32	25
4.	Hours	37	29
5.	Minutes	28	22



The maximum number of individuals had the reaction during day time (94%) as shown in Table 7/Fig. 7.

Table 7: Distribution of individuals according to time of allergic response.

S.No	Time of Allergy	No of Individuals	%age
1.	Early Morning	05	04
2.	Day Time	120	94
3.	Night	02	02



This study results showed that most of the people develop the allergic reaction during day time and the reaction stays for hours together.

4. Conclusion

This study shows that allergy is present in 63.5% of the population with dust as the most common allergen and the allergic reaction mainly comprises of sneezing, Running Nose and itching. This reaction occurs mostly during day time and remains for hours together.

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