

## Research Article

**Antihistamine effect and complication within the population of Karachi; a cross sectional study**Alveena Sadiq<sup>1, 2\*</sup>, Saman Shahab Farooqui<sup>1</sup>, Atiya Kaleem<sup>1</sup>, Quratulain Pirzada<sup>1, 3</sup>, Saima iqbal<sup>1</sup>, Khadija Aslam<sup>1</sup> and Safila Naveed<sup>1</sup><sup>1</sup>Faculty of Pharmacy, Jinnah University for Women, Karachi, Pakistan<sup>2</sup>NabiQasim Industries Pvt Ltd<sup>3</sup>Pliva Pakistan Pvt Ltd**Abstract**Received: Jan, 24, 2021  
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**Background:** As we know that allergies all over the world is the utmost medical problem and in Karachi, Pakistan, every 2nd person is complaining of allergy due to pollution. Antihistamines are considered as one the most widely used and abused medications after analgesics. Antihistamines are generally used in the palliative treatment in allergic condition like hay fever urticaria. Some of pruritus, rhinitis, conjunctivitis, nasal discharge, mild asthma etc. **Methodology:** The study conducts among the population of Karachi to check awareness regarding antihistamine and its complication i.e. sedation affect daily routine or not. This may help to estimate the level of awareness among the population of Karachi towards the usage of these drugs and accordingly enable us to make efforts to improve the same. **Results:** Total no of participants 470 that responded to the survey, and the finding indicated that the main antihistamine used is cetirizine and loratadine. A proportion of 91.5% of total number of respondent have used antihistamine for allergic disease and have information about antihistamine medications and 8.5% had used antihistamine for allergic diseases while 53.2% used antihistamine as a OTC drug and 45.8% used as a prescription drug. 31.9% have experienced sedation after using antihistamine while 44.7% have not experienced any sedative effect. Nearly 23.4% not aware of the sedative effect of antihistamine. **Conclusion:** The most used antihistamine is cetirizine and loratadine and the most participants have an information regarding the complications and the side effects of antihistamine in general.

**Keywords:** Awareness, Allergy, Antihistamine, Sedations, Cetirizine, Loratadine**Introduction**

Allergic diseases are the utmost common medical problem in Pakistan, affecting at least one of every tenth citizen of Karachi. Histamine is measured to be an influential mediator in the allergic reaction. (Johnston *et al.*, 1992, Saleem *et al.*, 2009) Histamine, 4-(2-aminoethyl) imidazole, intrinsically could not attract for enough attention from many years. Histamine plays an important role in human physiology, influencing immunoregulation of the acute and chronic inflammatory response through 4 types of receptors, called H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub>, and H<sub>4</sub> (Black *et al.*, 1972, Mahdy *et al.*, 2011). The allergic response in peoples with atopic disorders involves exposure of the immune system to the antigen, in response of this a mediator release with amplification signals and

production of antigen specific IgE, which binds to mast cells (Galli and Tsai, 2012). Upon re-exposure to the allergen, bridging of the mast cell bound allergen specific IgE results in the release of newly formed bioactive and pro inflammatory mediators which results in the symptoms of allergic rhinitis and chronic idiopathic urticarial and subsidizes to the symptom of atopic dermatitis and respiratory illness (Galli and Tsai, 2012, Axelrod *et al.*, 2008).

Antihistamine is conventionally used to refer to drugs that block the stimulation of H<sub>1</sub>-receptors. clinically used of antihistamines has lengthened progressively for nearly 50 years (Levi *et al.*, 1982). Antihistamines are generally used in the palliative treatment in allergic condition like hay fever urticaria, pruritus, rhinitis, conjunctivitis, nasal discharge, mild asthma etc. Few of antihistamines possess potent antiemetic action and hence are commonly used in the

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prevention and treatment of motion sickness, nausea in pregnancy and post-operative vomiting (Schellack *et al.*, 2019, Simons *et al.*, 2007). The antihistamine can be divided into at least six traditional classes, according to their chemical structure and all these are of type of histamine H<sub>1</sub>-receptor antagonist. However, this classification arrangement has limited value for evaluating the efficacy and adverse effects of specific agents. For example, some of the newer non-sedating antihistamines, such as astemizole, loratadine, fexofenadine and terfenadine are in the same piperidine chemical class as the older sedating agent (Weiler *et al.*, 2000, Thurmond *et al.*, 2008, Casale and Oppenheimer, 2002)

The 'first generation' antihistamines, such as promethazine, caused sedation. With newer generation like 'second generation' antihistamines, such as loratadine, and 'third generation' antihistamines such as desloratadine problem of sedation is less (Walsh *et al.*, 2001, Simon and Simons, 2008). The first-generation antihistamines not much part in therapeutics due to sedation. The unfavorable adverse effect profile has prompted the worldwide Allergy and Asthma European Network to recommend making these antihistamines prescription-only, instead of over the counter, drugs. Nowadays, the second-generation ones are recommended over the first-generation drugs due to their lesser side effect (lesser sedation and cholinergic) profile. (Randall and Hawkins, 2018, Casale *et al.*, 2003, Golightly and Greos, 2005)

This Study has shown awareness, knowledge, and practice regarding antihistamine among the population of Karachi, compared the patient treated with sedating and non-sedating antihistamines.

We tried to assess the knowledge towards the usage of antihistamines. This may help to estimate the level of awareness among the population of Karachi towards the usage of these drugs and accordingly enable us to make efforts to improve the same.

### **Methodology**

A cross sectional study was conducted using an electronic questionnaire that was distributed in the population of Karachi to assess their knowledge, attitude and practice regarding anti histamine use and awareness. The questionnaire distributed among the students, housewife and in working men/women through social media site.

### **Questionnaire**

The questions were related to the choice of the antihistamine drugs prescribed (whether first or second generation), knowledge about their common side effects and clinical guidelines, choice and usage of these drugs in various age groups, and finally information about their dosage and availability. 12 out of 15 question are multiple choice while 3 question are free hand.

We design questionnaire that is based on many questions through which we checked the participant knowledge, attitude, and practice towards antihistamines. The questions we asked from participants are following.

1. Have you taken any antihistamine medicine for allergic diseases?
2. If yes, so which antihistamine you use?
3. In which condition/type of allergy you use antihistamine?
4. Have you taken as OTC (over the counter) or Prescribed by Doctor?
5. If taken as OTC so, what dose you have taken?
6. When do you use antihistamine?

7. At which time you take anti allergic?
8. Is antihistamine affect your daily routine due to drowsiness or sedation when you take?
9. If allergies did not subside what do you do?
10. Do you think that increasing the dose of anti-allergic has side effect?
- 11 Do you have an idea about the contraindication of anti-allergic?
12. Is there any disease you have rather than allergy?
13. If yes, so mentioned -----  
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14. How could you manage dose?
15. Do you use anti-allergic for insomnia?

### Statistical Analysis

Data were coded, recorded, and analyzed statistically via Microsoft excel. Description data were presented in frequencies and percentages in Bar chart form for better understanding.

### Result & Discussion

#### Demographic details of participants

The number of participants in this study is 470 from different areas of Karachi. The age of most participants is between 25 to 50 years. The percentage of female participants is 87.2% while that of male participants is 12.8%. Most of the participants are an office going while the rest are housewife and students (see Table: 1)

**Table 1:** Background Characteristics (n=470)

Variable		Percentage
Age groups	Less than 25years	17%
	25-35	73%
	36-50	10%
Gender	Male	12.8%
	Female	87.2%
Residency	Karachi	99.9%

#### I. Participant's awareness, viewpoint, and practice regarding antihistamine:

The most used drugs in an antihistamine are cetirizine and loratadine taken in allergic diseases. In this study 12.8% of male and 87.2% females taken part. We questioned from both participants, are they taken any anti-allergic/antihistamine in case of allergic disease so, 91.5% responded "YES" and 8.5% responded "NO", then we asked more question from participants, is that antihistamine affect your daily routine so 44.7% answer is "NO", 31.9% answered in "YES" and 23.4% answered in "Maybe". The next question we asked from participants is, do you think that increasing the dose of anti-allergic has side effects? So, 87.2% answered in "YES" and 12.8% answered in "NO" which means the participants have enough knowledge about increasing dose effects and their side effects. Then next question we asked from participants towards contraindication of anti-allergic, 76.1% participants answered in "YES" and rest of that is 23.9% answered "NO". The next question we asked after contraindication is that is any other disease you have rather than allergy so, 10.6% answer was "YES" so we asked a question that mentioned your disease so, mostly answered that they have migraine problem and use pain killer for that problem too while, 89.4% answers were "NO". The next question we asked from participants was about insomnia because mostly had complained about insomnia, 93.6% answered in "NO" while 5.3% answered in "sometime" and 1.2% answered in "YES" (see figure:1).

We questioned from participants which antihistamine they use? Thus, most of the participants answered that they use cetirizine and loratadine (see figure 2) then next question we asked that in which

condition/type of allergy you use antihistamine? So, the answers varied from each other mostly participants take in flu & itching, some take in sinusitis some people take in skin allergies, etc. so, have you taken as OTC (over the counter) or Prescribed by Doctor?. Therefore, 53.2% of participants answered that they take up antihistamine as an “OTC” and 46.8% of participants taken antihistamine as a prescription drug (see figure 3).

Subsequently, we asked questions from participants that at which time they take antihistamines so mostly answered they take antihistamines at bedtime and its range up to 76% and 19.1% answered they take antihistamines in the evening while resting

of taking in the morning (see figure 4). Afterward, we asked other questions in the same context that if you use antihistamine for insomnia then which generic, they use and dose so, 96% answered they do not use antihistamine for insomnia and 4% answered they used some time and most commonly use antihistamine is cetirizine. After these all discussion we asked the last question about the behavior of participants towards the effect of antihistamines that if allergies do not subside so what step you have taken so, mostly answered that they consult with a doctor and the remaining answered that they used another antihistamine while 1.5% answered they increased the dose (see figure 5).

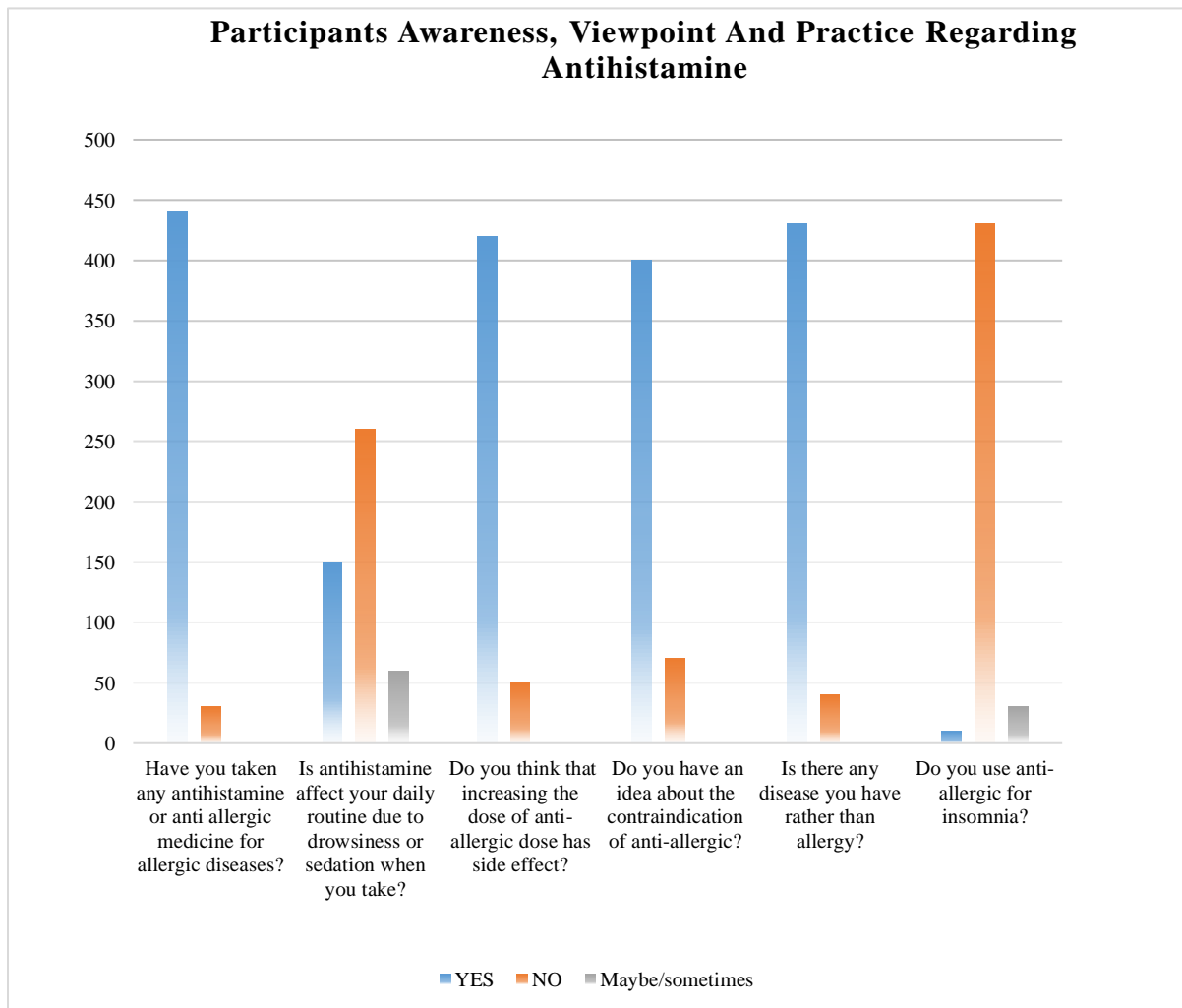
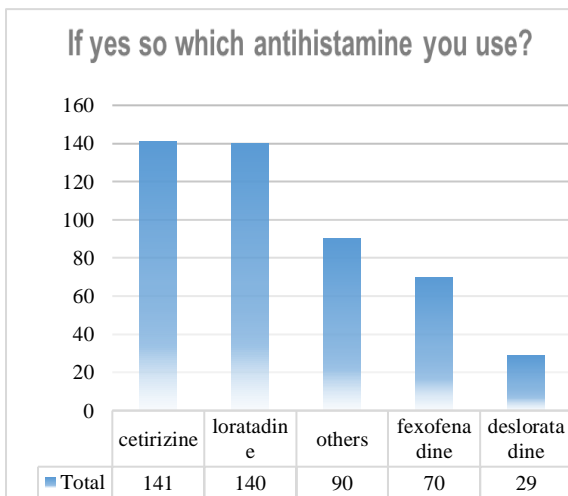
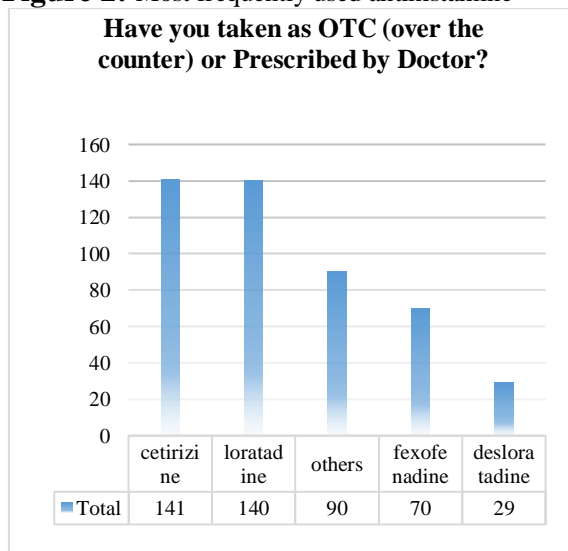


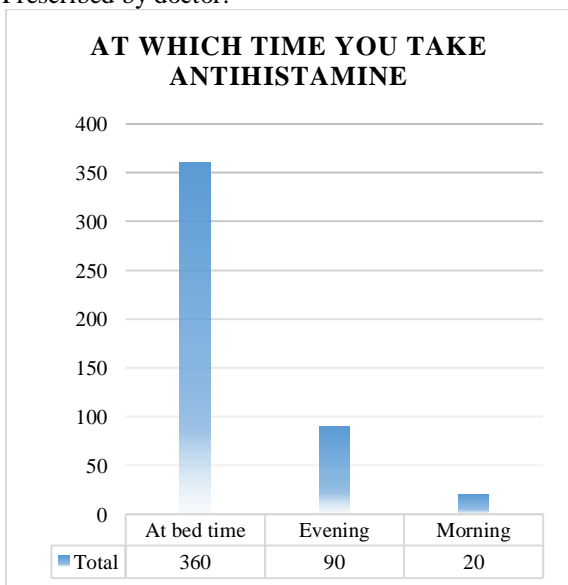
Figure 1: Participant’s awareness, viewpoint, and practice regarding antihistamine.



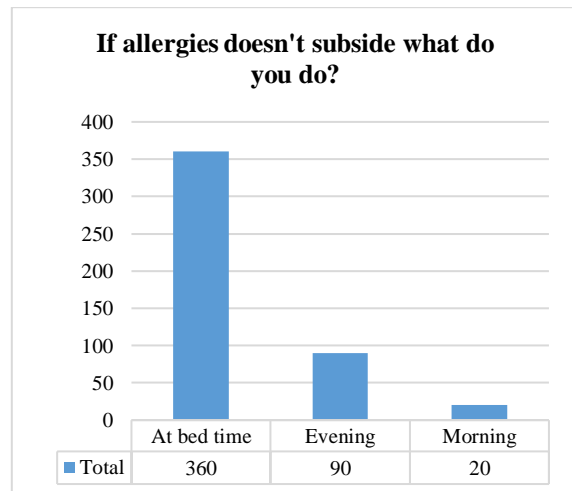
**Figure 2:** Most frequently used antihistamine



**Figure 3:** Use of antihistamine as an OTC or Prescribed by doctor.



**Figure 4:** At which time antihistamines.



**Figure 5:** Behavior against antihistamine effect.

**Limitations:**

The present study deals with the citizen of Karachi to check the awareness and knowledge about the use of antihistamine. In the future, the studies should show the same problem with a more diverse sample of multiple populations and cover other cities of Pakistan too with more antihistamine medication. Further, we concluded this study in one city in Pakistan. Future research should focus on all cities of Pakistan.

**Conclusion**

Antihistamine is effective against allergic diseases and has been used to treated allergic rhinitis, allergic conjunctivitis, urticaria, and pruritus, etc. The older antihistamine cause sedation so, they must be superseded by second-generation drugs i.e., cetirizine and loratadine are commonly used antihistamine for the treatment of various allergies and have less sedation as compared to the first generation.

In terms of knowledge, attitude, and practice regarding the use of antihistamine. We found that nearly all participants in which males and females participated and they have known the effects of antihistamine and its complication. The survey shows that the citizen of Karachi (from age 25 to 50)

having a basic knowledge about the use of antihistamine it is maybe due to pollution and garbage, highly allergic diseases spread in Karachi and the frequent use of antihistamine in this condition. We also concluded that the use of antihistamine is more in females as compared to men. The reason behind this figure out has not been identified but it may be due to the self-attentiveness factor is more in females as compared to men. In this study, we also concluded that the most used antihistamines are cetirizine and loratadine among the citizen of Karachi, and most of the people of Karachi using antihistamine as an OTC medication but, they have an awareness regarding the dose, side effect, and contraindications.

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