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Research Article

Prevalence of respiratory infections and health issues of people in Ambattur Athipattu garbage site, in Chennai, Tamilnadu

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Abstract
The solid waste handling and disposal is a growing environmental and public health concern. The solid waste workers and the people live near the solid waste disposal area are exposed to a number of pathogens, toxic substances (endotoxins and betaglucans), and chemicals that come from the waste and its decomposition. A face to face questionnaire survey was prepared to understand the prevalence of respiratory infections among the people of Athipattu. Tamilnadu. It was found that more than 90% of the people who are residing have cough. More than 70% of children suffer from cough. It was also understood that the parents are willing to move their children from that area. All the people of the area complained that there is an uncheck burning of garbage in the village. It was also reported that more than 40% of the people died due to respiratory problems. More than 70% of the people complained about breathlessness and chestlessness. Around 30% of the people used bronchodilators. On observation of questionnaire, it was found that people are aware of the medical service that they have to take during a medical problem. They have awareness of expiry date and they said that they discard the expired drugs. However, most of them informed that they take medicines without doctor's advice. It was found that the Athipattu garbage dumping area should be properly organised for the disposal of the waste material.
Keywords: *Solid waste disposal, public health concern, Athipattu, respiratory infections.*

Introduction

There are plenty of bizarre things happening in this world such as Globalization, Terrorism, and others. Though we people seem to be aware of what is happening, actually we aren't. We people are not even aware of what is happening in our locality. Our locality is drowning in Garbage almost literally. In many developing and under developing countries, the garbage is dumped with segregating them in the living locality. Further to precipitate the problem, the garbage is burnt to release toxic gases. This has led to the various respiratory disorders to the people living in the localities. The garbage also forms an excellent growth media for the growth of various pathogens thus causing various infectious diseases among the people living in those localities.

The solid waste handling and disposal is a growing environmental and public health concern. The solid waste workers and the people live near the solid waste disposal area are exposed to a number of pathogens, toxic substances (endotoxins and betaglucans), and chemicals that come from the waste and its decomposition[1,2]. Bioaerosols generated by decaying organic waste, contribute to respiratory problems[3]. The most widely researched of these are endotoxins, 1-3 beta-glucans, volatile organic compounds and fungi. Endotoxins are the most potent inflammatory component present in bioaerosols [4, 5].

Bioaerosol exposure are associated with health effects such as respiratory symptoms, influenza-like symptoms[6] and increased risk of chronic obstructive pulmonary disease (COPD)[7]. The association between adverse respiratory health risks and accumulation of unchecked garbage is one of the most dynamic and serious prevalence for respirable suspended particulate matters (RSPM) in breathing air. Upper respiratory illness is mainly caused by viral agents especially the rhinovirus, influenza, corona virus, parainfleunza virus, adenovirus. Lower respiratory illness is mainly caused by respiratory syncytial virus, influenza virus type A and B, parainfleunza virus type A, B, C and enterovirus[8].

The garbage related pulmonary problems seem to be high[9]. Only few studies had been have done regarding the bioaerosol related respiratory problems[10].

However not many studies have been done conducted about the respiratory problems among the people living in the garbage dumping localities. In the present study an attempt has been to find the respiratory disorders present in the Athipattu garbage site, in Chennai, Tamilnadu.

Methodology

Subjects

A face to face questionnaire (Appendix I) survey was prepared to understand the prevalence of respiratory infections among the people of Athipattu. The prevalence of respiratory symptoms was determined through a structural symptomology questionnaire. The following are the questionnaire developed as per the criteria based on British Medical Research Council (BMRC), American Thoracic Society, International Union against Tuberculosis and Lung Diseases (IUATLD), Bronchial Symptoms Questionnaire. For this the survey area was dividing into different homogeneous strata based on gender, age and socio-economic status of people. A total of 55 members are residing in the locality.

Locality

The houses of people for survey are selected on the following basis:

i. Located within one kilometre Garbage dumping area.
ii. Represent every section of the people in the locality with comparable representation of adults with low, medium and high socio-economic status.

Statistical analysis

Descriptive statistics was performed with statistical package SPSS vs 21.

Results

On general observation of the place, it is understood that the garbage is dumped without proper segregation (Figure 1). The place had a bad foul smell.

Figure 1: Athipattu garbage dumping site

On questionnaire related to the general information (Table 1), it was found that more than 90% of the people who are residing have cough. More than 70% of children suffer from cough. It was also understood that the parents are willing to move their children from that area. All the people of the area complained that there is an uncheck burning of garbage in the village. It was also reported that more than 40% of the people died due to respiratory problems.

Table 1: The frequency of the response for the various questions related to general informations

S.No	Parameter	Yes	No
1	Cough	50(90.9%)	5(9.1%)
2	Wakeup at Night	41(74.5%)	14(25.5%)
3	Any person died due to Respiratory risk	41(74.5%)	14(25.5%)
4	Children suffer due to dry cough/sore throat	40(72.7%)	15(27.3%)
5	Worry about the children to move to another place	52(94.5%)	3(5.5%)
6	Uncheck burning of Garbage	55(100%)	0(0%)
7	Undergone Medical Investigation	43(78.2%)	12(21.8%)
8	Drinking water affected	54(98.2%)	1(1.8%)
9	Smoking	25(45.5%)	30(54.5%)

When the people were asked about questions (Table 2) related to the respiratory problem, more than 70% of the people complained about breathlessness and chestlessness. Around 30% of the people used bronchodilators.

On observation of questionnaire, it was found that people are aware of the medical service that they have to take during a medical problem. They have awareness of expiry date and they said that they discard the expired drugs. However, most of them informed that they take medicines without doctor's advice.

Table 2: The frequency of the response for the various questions related to respiratory illness

S.No	Parameter	Yes	No
1	Breathlessness	40(72.7%)	15(27.3%)
2	Chestlessness	40(72.7%)	15(27.3%)
3	Use of bronchodilators	18(32.7%)	37(67.3%)
4	Phlegm	48(87.3%)	7(12.7%)
5	Wheezing	31(56.4%)	24(43.6%)
6	Go for Medical Service	55(100%)	0(0%)
7	Taking medicines without doctor advice	3(5.5%)	52(94.5%)
8	People check for tablets expiry	52(94.5%)	3(5.5%)
9	People discard expired tablets	52(94.5%)	3(5.5%)
10	Isolate affected patients	41(74.5%)	14(25.5%)

Discussion

In general, it is understood that the people of Athipattu village are suffering from the respiratory related problems. The main reason that can be attributed is the lack of proper solid waste management system in that place. The solid waste should be divided into three parts i.e. solid waste that can be decomposed, solid waste that can be recycled and the solid waste which are non-decomposable. However, in this place there is no provision of any solid waste segregation and all the solid waste are dumped in the same place. Further it is understood from the present study that the solid waste is often burnt which leads to respiratory distress to the residents of that area.

When the solid waste material degrades, they emit foul smell and becomes a ground for the growth for various pathogens that are potential enough to cause the disease. Above all the Athipattu village has lost its aesthetic value and people have almost migrated to various other places.

Conclusion

From the present study it has been concluded that the people in the Athipattu garbage dumping area are affected with various respiratory illness. Proper measures should be taken to segregate the waste material and it should be treated accordingly to improve the standard of living of the people.

References

1. Lavoie J, Dunkerley CJ, Kosatsky T, Dufresne A. Exposure to aerosolized bacteria and fungi among collectors of commercial, mixed residential, recyclable and compostable waste. Sci Total Environ 2006; 370:23–28.
2. Poulsen OM, Breum NO, Ebbehoj N et al. Collection of domestic waste. Review of occupational health problems and their possible causes. Sci Total Environ 1995; 170: 1–19.
3. Hansen J, Ivens UI, Breum NO et al. Respiratory symptoms among Danish waste collectors. Ann Agric Environ Med 1997; 4:69–74.
4. Thorn J, Beijer L, Rylander R. Airways inflammation and glucan exposure among household waste collectors. Am J Ind Med 1998; 33:463–470.
5. Heldal KK, Halstensen AS, Thorn J, Eduard W, Halstensen TS. Airway inflammation in waste handlers exposed to bioaerosols assessed by induced sputum. Eur Respir J 2003; 21:641–645.
6. Wouters IM, Hilhorst SK, Kleppe P et al. Upper airway inflammation and respiratory symptoms in domestic waste collectors. Occup Environ Med 2002; 59:106–112.
7. Matheson MC, Benke G, Raven J et al. Biological dust exposure in the workplace is a risk factor for chronic obstructive pulmonary disease. Thorax 2005; 60:645–651.
8. Graham MH. The epidemiology of acute respiratory infections in children and adults: A global perspective. Epidemiol Rev 1990; 12, 149-178.
9. Heldal KK, Halstensen AS, Thorn J. et al. Upper airway inflammation in waste handlers exposed to bioaerosols. Occup Environ Med. 2003; 60:444–50.
10. Wouters IM, Hilhorst SKM, Kleppe P et al. Upper airway inflammation and respiratory symptoms in domestic waste collectors. Occup Environ Med. 2002; 59:106–12.