

ORIGINAL RESEARCH

A Cross Sectional Study on Prevalence and Risk Factors of Allergic Rhinitis among Women in Thiruvattar

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ABSTRACT

Background: Allergic rhinitis (AR) is one among the most common Chronic respiratory Diseases. It itself can trigger other CRDs like asthma. AR is an important health problem because of its prevalence and its impact on work productivity. It is becoming a global health concern. Globally AR affects about 400 million people. Its prevalence is increasing gradually over years due to the environmental pollution and increased urbanization. Studies regarding women and AR are under covered area hence this study will give an awareness among them. **Objectives:** To find out, the prevalence of Allergic Rhinitis and its risk factors among women in Thiruvattar. **Methodology:** A cross-sectional study was done among women aged 18 years and above who are residing in Thiruvattar in Kanyakumari District during February 2017 to January 2019. Multistage random sampling technique was used. A pretested interview schedule was used for data collection. Analysis was done using SPSS 20.0. **Result:** Among 437 women studied, the prevalence of Allergic Rhinitis was 17.2%. The factors such as marital status, occupational status, type of kitchen, waste disposal, smoke at work place, smoking history among family members, exposure to passive smoking, childhood history of CRDs and family history of CRDs were significantly associated with AR. **Conclusion:** The prevalence of Allergic Rhinitis in our study was more among female population, might be due to the urbanization and environmental factors in this area. AR as such a risk factor for Asthma which can lead to enormous health problem later leads to morbidity and mortality. An awareness regarding the disease and its control is much more important among women.

Keywords: Allergic Rhinitis (AR), Chronic Respiratory Diseases (CRDs).

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INTRODUCTION

Allergic Rhinitis (AR) is one among the most common allergic diseases globally. Allergic rhinitis is one of the most common Chronic respiratory Diseases after asthma. It itself can trigger other CRDs like asthma. AR is an important health problem because of its prevalence and its impact on work productivity. It is becoming a global health concern. Globally AR affects about 400 million people.¹⁻³ Its prevalence is increasing gradually over years due to the environmental pollution and increased urbanization. It has a prevalence of 10% to 30% among the population worldwide.⁴ It contributes to 55% of all allergies.⁵ In India 20% - 30% of the population suffers from at least any one of the allergic diseases. In the past few years, the prevalence of allergic rhinitis tends to increase in India.⁴ But awareness of women regarding

domestic environmental risk factors and their adverse effect on health is poor.⁶ Studies regarding women and AR are under covered area hence this study will give an awareness among them. Modifying the risk factors would help to improve the health status and overall quality of life of women during their most productive life.

OBJECTIVES

To find out, the prevalence of Allergic Rhinitis and its risk factors among women in Thiruvattar.

MATERIALS & METHODS

A Cross-Sectional Study was done in the community among women of the age group 18 years and above who are residing in Thiruvattar was included in the study. The study was conducted during the period

from February 2017 to January 2019. The sample size was calculated by the formula $Z_{\alpha/2}^2 pq/d^2$ and was found to be 450. Woman who was mentally challenged and who were not consenting for the study were excluded. The sampling technique used was Multistage Random Sampling Technique was used for the study. Thiruvattar block of the 16 panchayats, 10 panchayats were selected randomly by lottery method. One ward from each panchayat is selected. In each ward, 45 houses were selected. One woman from the selected house was enrolled for the study thus 450 women were taken for the study.

The data were collected using pretested interview schedule after obtaining the clearance from Institutional Research Committee and Institutional Human Ethical Committee. The purpose of the study was explained before getting an informed consent was obtained and privacy was ensured before conducting the interview. The interview schedule consisted of socio-demographic, environmental details & medical details.

Statistical Analysis

Data entry was done in Microsoft office Excel 2013 spread sheets and data was analysed using SPSS trial version 20.0. Descriptive statistics including mean, standard deviation and 95% confidence interval were calculated. Chi-square test other statistical test was used for finding the association between Allergic Rhinitis and its factors. $P < 0.05$ was considered as significant.

RESULTS

The study included 437 women out of the 450 expected participants with a non-response rate of 2.89%. 124 (28.4%) of them had Chronic Respiratory

diseases out of the 437 women. From those who had CRDs 75 (17.2%) of them had Allergic Rhinitis. Most of the women belong to the age 41 to 60 years with a mean age of 50.42 ± 16.4 . The sociodemographic factors like age, marital status, educational status, occupation, type of family, socioeconomic status was analysed. The factors with significant association are only discussed further. Of 75 AR women, 52 (15.2%) were married, 52 (15.2%) were unemployed. After analysis marital status and occupational status became statistically significant association with Allergic Rhinitis ($p < 0.05$) [Table 1]

The environmental causes like type of house, overcrowding, location of kitchen in the house, type of waste disposal, domestication, presence of any factories, smoke exposure at work place, tobacco consumption or smoking, smoking history among family members was analysed. The factors with significant association are discussed further. 58 (18.5%) had indoor kitchen, 63 (16.1%) use burning as a method of waste disposal, 9(60%) had history to exposure to smoke at work place, 36 (44.4%) had smoking history among family members and 38 (48.5%) had exposure to passive smoking. The medical history of the women was analysed shows 34 (66.7%) had childhood history of CRDs and 22 (31.6%) had family history of CRDs. All these environmental factors and medical history show a statistically significant association with Allergic Rhinitis ($p < 0.05$). [Table 2 & 3].

Further analysis was done for those factors which are statistically significant by binary logistic regression. After the analysis factors such as exposure to smoke at work place and childhood history of CRDs were found to be significantly associated with Allergic Rhinitis ($p < 0.05$). [Table 4]

Variable		AR		Total	X ²	p value
		Yes	No			
Marital status	Single	3 (12.5%)	21 (87.5%)	24 (100%)	14.604	0.006
	Married	52(15.2%)	290(84.8%)	342(100%)		
	Divorced	4 (66.7%)	2 (33.3%)	6(100%)		
	Separated	0 (0.0%)	1 (100%)	1 (100%)		
	Widowed	16 (25%)	48 (75%)	64(100%)		
	Total	75(17.2%)	362(82.8%)	437(100%)		
Occupational Status	unemployed	52(15.2%)	289(84.8%)	341(100%)	14.126	0.015
	unskilled	2 (15.4%)	11 (84.6%)	13 (100%)		
	semi skilled	10(30.3%)	23 (69.7%)	33(100%)		
	skilled	1 (25%)	3 (75%)	4 (100%)		
	clerical, shop owner, farmer	7 (43.8%)	9 (56.2%)	16(100%)		
	semi professional	3 (10%)	27 (90%)	30(100%)		
	Total	75(17.2%)	362(82.8%)	437(100%)		

Table 1: showing the association of Sociodemographic factors with AR

Variable		AR		Total	X ²	p value
		Yes	No			
Kitchen	Indoor	58(18.5%)	255(81.5%)	313(100%)	6.455	0.04
	Outdoor	6 (7.8%)	71 (92.2%)	77 (100%)		
	Both	11(23.4%)	36 (76.6%)	47 (100%)		

	Total	75(17.2%)	362(82.8%)	437(100%)		
Waste disposal	Burning	63(16.1%)	328(83.9%)	391(100%)	10.524	0.005
	Composite pit	3 (12%)	22 (88%)	25 (100%)		
	Dumping	9(42%)	12 (57.1%)	21 (100%)		
	Total	75(17.2%)	362(82.8%)	437(100%)		
Smoke at workplace	Yes	9 (60%)	6 (40%)	15(100%)	20.049	0.001
	No	66(15.6%)	356(84.4%)	422(100%)		
	Total	75(17.2%)	362(82.8%)	437(100%)		
Smoking history among family members	Yes	36(44.4%)	45 (55.6%)	81(100%)	52.005	0.001
	No	39(11.2%)	317(89%)	356(100%)		
	Total	75(17.2%)	362(82.8%)	437(100%)		
Exposure to Passive smoking	Yes	38(48.5%)	45 (54.2%)	83 (100%)	59.035	0.001
	No	37(10.5%)	317(89.5%)	354(100%)		
	Total	75(17.2%)	362(82.8%)	437(100%)		

Table 2: showing the association of Environmental factors with AR

Variable		AR		Total	X ²	p value
		Yes	No			
Childhood history of CRDs	Present	34(66.7%)	17(33.3%)	51 (100%)	99.527	0.001
	Absent	41(10.6%)	345(89.4%)	386(100%)		
	Total	75(17.2%)	362(82.8%)	437(100%)		
Family history of CRDs	Present	22(30.6%)	50 (69.4%)	72 (100%)	10.876	0.001
	Absent	53(14.5%)	312(85.5%)	365(100%)		
	Total	75(17.2%)	362(82.8%)	437(100%)		

Table 3: showing the association of medical history with AR

Variables	B	S.E.	p value	Exp(B)	95% C.I. for EXP(B)	
					Lower	Upper
Exposure to smoke at work place	2.346	.623	.000	10.444	3.079	35.424
Childhood history of CRDs	2.945	.363	.000	19.003	9.335	38.686

Table 4: showing the factors associated with AR in binary logistic regression

DISCUSSION

The study was conducted among 437 women living in Thiruvattar, to find out the prevalence and risk factors of Allergic Rhinitis. The data was collected using an interviewer based validated interview schedule. In our study, the prevalence of CRDs and Allergic rhinitis was found to be 28.4% and 17.2% respectively. In Viswanathan et al⁷ study, the prevalence of CRDs was 10.9% in adults. Nathan et al study⁸ the prevalence of Allergic Rhinitis was found to be 14.2%. According to Sundararaman et al⁹ study the prevalence of AR in India is found to be between 20-30%.

In this study AR showed a statistically significant association with the following factors such as marital status, occupational status, kitchen, how often you cook, waste disposal, smoke at workplace, childhood history of CRDs, family history of CRDs, Smoking history among family members, exposure to passive smoking. Sinha et al had done a study in Delhi reported that independent risk factors associated with AR were overcrowding, family history of allergic diseases, occupational exposure to dust/ smoke and tobacco smoking.⁵ Ming Zheng et al had done a study in China reported that elementary school of education increases the risk of having AR.¹⁰ In Laulajainen et al study factors like environmental exposures and genetic factors together act as a primary risk factor in

AR. Several emerging environmental factors and proximity to waste disposal also contributes to the development of AR.¹¹ In Deb A et al study also mentioned Allergic Rhinitis as an emerging health concern among the Indian population due the fast urbanisation, other environmental and sociocultural factors.¹² Thus Allergic Rhinitis and the health problems it causes should be tackled properly or else it may lead to morbidity and may later contribute to mortality.

The study has few limitations like it is a cross-sectional study the conclusions about the causality has its limits. Questions regarding childhood history, family history, exposure to smoke can lead to recall bias. Diagnostic test is not done among the study population it is only an observational study.

CONCLUSION

Allergic Rhinitis is an emerging health concern among the Indian population due the fast urbanisation, other environmental and sociocultural factors. In our study the prevalence of AR was found to be 17.2% which is high or as par with the other studies. Even if it is not a life-threatening condition it can reduce the quality of life as well as leads to morbidity and sometimes contribute to mortality if not properly treated. An awareness regarding the disease and its

control is much more important among women. Public health initiatives and health awareness campaigns can help in reducing the burden of AR and improve the overall quality of the life of women.

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