



TARIM VE ALLERJİ

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Tarım ve Allerji

1. Akciğer hastalıkları
2. Rinit/rinokonjonktivit/rinosinüzit
3. Dermatit
4. Allerjik duyarlanma
5. Enfeksiyonlar
6. Toksikasyonlar

TARIM VE ALLERJİ

- Tarım kesiminde çalışanların kendilerine özgü sağlık ve allerjik sorunları vardır.
- Tarım kesimi ne demek?? Kırsal ne demek??
- Bazı solunum yolu hastalıkları morbidite ve mortalitesi daha yüksektir. Sigara kullanımı, tarım kesiminde daha azdır(Avrupa)! Türkiye?
- Tarım kesiminin tanımı zor. Aynı ortam olmasına rağmen etken ve risk faktörleri çok çeşitli. Kişilerin etkilenmesi de farklılık gösteriyor.

Tarım ve Allerji

- Epidemiyolojik bilgilerin çoğu ABD ve Avrupa kaynaklıdır. Dünyayı temsil etme durumu ???
- Semptom bazında bakıldığında wheezing, öksürük ve nefes darlığı sıklığı %23-50'ye kadar bildiriliyor!
- Ancak teşhis bazında bakıldığında birçok hastalığın oranı şehirlerden daha düşük. Bu nedenle hijyen hipotezi son 40 yıldır popüler.
- Bu nedenle konunun etken ve hastalık bazında ayrı tartışılması daha doğru görünmektedir.

Tarım ortamındaki allerjik etkenler

- **Organik tozlar**
Mantar ve sporlar
Bakteriler
Akarlar
Hayvan allerjenleri
- **İnorganik tozlar**
- **Kimyasaller**
Pestisitler, insektisit, herbisit
Boyalar
Dezenfektanlar
- **Gazlar** (amonyak, metan, H₂S, CO₂, NO₂, Ozon, metal, egzoz gazları)
- **Polenler**
- **Arı ve çeşitli böcekler**
- **Özel infeksiyonlar**
Mycobacterium bovis
Chlamydia psittaci
Coxiella burneti

Agricultural Lung Diseases

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Agriculture is considered one of the most hazardous occupations. Organic dusts and toxic gases constitute some of the most common and potentially disabling occupational and environmental hazards. The changing patterns of agriculture have paradoxically contributed to both improved working conditions and increased exposure to respiratory hazards. Animal confinement operations with increasing animal density, particularly swine confinement, have contributed significantly to increased intensity and duration of exposure to indoor air toxins. Ongoing research has implicated bacterial endotoxins, fungal spores, and the inherent toxicity of grain dusts as causes of upper and lower airway inflammation and as immunologic agents in both grain and animal production. Animal confinement gases, particularly ammonia and hydrogen sulfide, have been implicated as additional sources of respiratory irritants. It has become evident that a significant percentage of agricultural workers have clinical symptoms associated with long-term exposure to organic dusts and animal confinement gases. Respiratory diseases and syndromes, including hypersensitivity pneumonitis, organic dust toxic syndrome, chronic bronchitis, mucous membrane inflammation syndrome, and asthmalike syndrome, result from ongoing acute and chronic exposures. In this review we focus upon the emerging respiratory health issues in a changing agricultural economic and technologic environment. Environmental and occupational hazards and exposures will be emphasized rather than clinical diagnosis and treatment. Methods of prevention, from both engineering controls and personal respiratory perspectives, are also addressed. **Key words:** agricultural health, agriculture, animal confinement, endotoxin, grain dust, lung diseases, organic dusts, respiratory diseases. — *Environ Health Perspect* 108(suppl 4):705–712 (2000).

<http://ehpnet1.niehs.nih.gov/docs/2000/suppl-4/705-712kirkhorn/abstract.html>

of decreasing respiratory hazards by increasing fresh air circulating or venting of toxic gases outside (4,5). Often, engineering controls are not sufficient, and personal respirators are required to provide additional safeguards. Personal respirators are either atmosphere-purifying filters, such as two-strap dust/mist/fume masks or chemical cartridges that require a tight facial seal, or atmosphere-supplying respirators such as the self-contained breathing apparatus (SCBA). The selection of the appropriate respirator for the conditions encountered and the proper fit is essential for adequate personal respiratory protection and is required by OSHA (6). However, production agriculture and field operations with less than 11 employees, which includes the majority of those working in agriculture, are excluded from OSHA safety regulations and appropriate respiratory protection principles are sporadically and intermittently applied.

The agricultural economic and techno-

Table 1. Agricultural respiratory hazards and diseases.^a

Categories	Sources	Environments	Conditions
Organic dusts	Grain, hay, endotoxin, silage, cotton, animal feed, animal byproducts, cotton, microorganisms	Animal confinement operations, barns, silos, harvesting and processing operations	Asthma, asthmalike syndrome, ODS, chronic bronchitis, hypersensitivity pneumonitis (Farmer's Lung)
Inorganic dusts	Silicates	Harvesting/tilling	Pulmonary fibrosis, chronic bronchitis
Gases	Ammonia, hydrogen sulfide, nitrous oxides, methane, CO	Animal confinement facilities, silos, fertilizers	Asthmalike syndrome, tracheobronchitis, silo-filler's disease, pulmonary edema
Chemicals			
Pesticides	Paraquat, organo-phosphates, fumigants	Applicators, field workers	Pulmonary fibrosis, pulmonary edema, bronchospasm
Fertilizers	Anhydrous ammonia	Application in fields, storage containers	Mucous membrane irritation, tracheobronchitis
Disinfectants	Chlorine, quarternary compounds	Dairy barns, hog confinement	Respiratory irritant, bronchospasm
Others			
Solvents	Diesel fuel, pesticide solutions	Storage containers	Mucous membrane irritation
Welding fumes	Nitrous oxides, ozone, metals	Welding operations	Bronchitis, metal-fume fever, emphysema
Zoonotic infections	Microorganisms	Animal husbandry, veterinary services	Anthrax, Q fever, psittacosis

^aAdapted from Schenker (68) with additional input from the American Thoracic Society (7), Von Essen and Donham (69), Zjeda and Dosman (70), and Donham et al. (71).

Table 2. Selected current and recommended maximum agricultural and animal confinement exposures.

Hazard	OSHA PEL	NIOSH REL	ACGIH TLV	Animal confinement research ^a
Nuisance total dust	15 mg/m ³	NE	10 mg/m ³	
Nuisance hazard respirable dust	5 mg/m ³	NE	3 mg/m ³	
Grain dust	10 mg/m ³	4 mg/m ³	4 mg/m ³	
Organic dust	NE	NE	NE	2.4–2.5 mg/m ³
Respirable organic	NE	NE	NE	0.16–0.23 mg/m ³
Endotoxin	NE	NE	NE	640–1000 ng/m ³
Ammonia	50 ppm	25 ppm	25 ppm	7.5 ppm

NE, not established.

^aData from Donham et al. (14), Reynolds et al. (15), and Donham et al. (16).

Tarım, allerji ve göğüs hastalıkları

- **Tozlar** : organik, inorganik, allerjenler, endotoksinler.
- **Mikroorganizmalar** : infeksiyon.
- **Toksik gazlar**: NO, hayvan barınakları ve pestisitler.
- **Solunum hastalıkları/sendromlar**
 - Hipersensitivite pnömonisi
 - Organik toz toksik sendromu
 - Diğer (astım, astım benzeri vs)

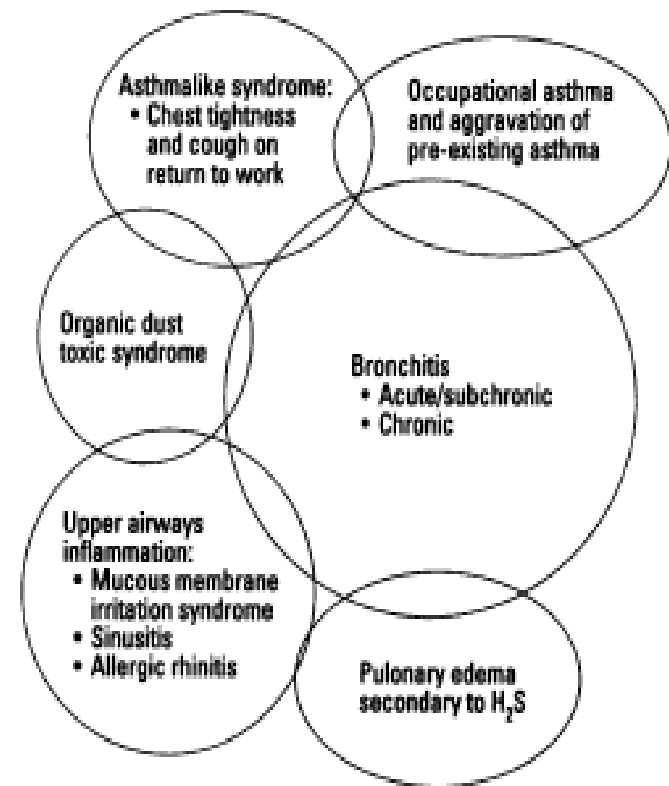


Figure 1. The spectrum of respiratory disease in swine confinement workers. Adapted from Von Essen and Donham (69).

Çiftçilerde bildirilen bazı allerjik hastalıklar(olgu bildirimleri)

Saman

Astım

Tahıl tozu

Astım

Mantarlar

Astım

(alternaria, cladosporium, didymella)

Silo akarları

Rinit ve astım

(glycyphagus, tyrophagus, acarus spp..)

İnek idrar ve deri

Rinit ve astım

Domuz idrarı

Astım

Kırsal Kesimde Rinit

Hububat tarımı

Çiftlikte hayvan besleme

Süt üretimi

Keten ve kenevir üretimi ile nazal
semptomlar arasında bilinen bir ilişki var.

Tarım ve Rinit

Finlandiya 1981-1991 Ulusal Meslek Hastalıkları kayıtlarına göre inek epiteli ve silo akarları en sık nedenler.

Tüm Avrupa'da saman nezlesi dahil her türlü nazal semptom prevalansı, tarım kesiminde beklenen toplum değerlerinden daha az.

Kuzey Almanya'da en sık mesleki yakınma rinit(%23).

Tarım ve rinit

ABD hububat üreticilerinde yapılan bir çalışmada nazal semptom prevalansı %64.

Hububat tozu antijenleri kullanarak DPT sonuçlarına göre duyarlılık ise %2-18.

Ama literatürde bu oranı %0 olarak bulan çalışmalar da var.

Sonuçta rinit yaygın, genellikle önemli bir sorun olarak algılanmıyor, ama astıma eğilim için !!!

Astım ve Tarım

Rinit ve astım genellikle beraber. Kabaca rinitlilerin yarısında astım olduğu kabul ediliyor.

Çiftçilerde en sık nedenler; depo akarları, hayvan tüy ve idrar proteinleri .

İngiltere/SWORD(surveillance of work related respiratory diseases)'de bildirilen 38 astımın 17'si çiftçilerde.

Ama mortalite oranı toplumdan farklı değil.

Çiftçilerde mesleksel astım ile ilgili epidemiyolojik çalışmalar

İskoçya / sığır besicileri/kendi bildirimine göre astım %15 (atopi %37.2)

Finlandiya / şehirli-çiftçi/Doktor tanılı astım %4.1 vs %2.7

Danimarka / Çiftçiler/ kendi bildirimine göre astım %7.7(domuz %32)

Fransa / Çiftçiler(aktif ve emekli)/Halen-yaşamboyu astım %5.9-9.3

İsveç / Çiftçiler/Dr.tanılı astım/bölge geneli %6 ve çiftçiler %10.5

Yeni Zelanda / Çiftlik işçileri/wheezing-BHR/ W için OR 4.27(CI;1.3-14.3)

Norveç / Çiftçiler ve eşleri/ kendi bildirimine göre yaşamboyu astım %6.3

Fransa / Süt üreticileri/ kendi bildirimi astım %5.3-Dr.tanılı astım %4.9

Danimarka / genç çiftçiler/ kendi bildirimine göre astım %5.4-21

Danimarka, Almanya, İsviçre ve İspanya / Büyükbaş ve tavuk üreticileri kendi bildirimine göre astım %2.8, ND %5.1 ve Wheezing %14.1

Swedish register of occupational disease

Kişisel bildirime göre erkek çiftçilerde mesleki astım oranı 179/milyon/yıl. Bu oran genel popülasyonda 80/milyon/yıl.

İsveçli kadın işçilerde mesleki astım bildirimi ikinci en sık; süt ve tavukçuluk sektöründe.

İsveç'te çiftçiler arasında astım nedeniyle standardize mortalite oranı 1.37

Genelde çiftçilerde %3-10. Tüm Avrupa için mesleki risk çiftçilerde (OR): 2.62(CI;1.29-5.35)

Prevalence of Asthma, Allergy, and Respiratory Symptoms in Hasacelebi/Hekimhan/Malatya in Eastern Turkey

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Abstract

Objectives: to assess the prevalence of asthma and to compare our findings with other countries involved in European Community Respiratory Health Survey (ECRHS).

Design: A cross-sectional study using a screening questionnaire adopted from ECRHS.

Participants: Adults living in Hasacelebi, a small town of Malatya from the eastern region of Turkey at 20-97 years of age, in both genders (232 men, 290 women).

Measurements and Results: The mean age was 46.3 years (SD=17.2 years), and 50% of the population was above 44 years of age. The prevalence of wheezing in the last 12 months, diagnosis of asthma and asthma attack in the last 12 months, use of asthma medicine, and any other allergic symptom were 22.6%, 2.3%, 4.5%, 4.3%, and 18.8%, respectively.

Those who had wheezing (age: 52.6 vs 44.4 years), or an asthma attack in the last 12 months (age: 56.2 vs 45.8 years), or received asthma medicine (age: 54.6 vs 45.9) were significantly older than those who did not report the corresponding conditions.

Conclusion: The prevalence of asthma was within the range of other parts of Turkey, and the other Mediterranean countries. The old age observed in this population could at least be partly due to the immigration of the younger people from the town for economic reasons. Compared with the others, the older age of the subjects who reported asthma symptoms and use of medicine for asthma could reflect the severity of asthma in the elderly, which is a frequently underdiagnosed condition in this population.

Turkish Respiratory Journal, 2001;2 (2):29-34

Abbreviations: CI: Confidence interval, ECRHS: European Community Respiratory Health Survey, ISAAC: International Study of Asthma and Allergy in Childhood, SD: Standard deviation, vs: Versus

Table 2. Smoking behaviour of the study population according to age

Age group (year)	Ever smoked Men n (%)	Ever smoked Women n (%)	Total n (%)
20-24	4 (50.0)	2 (7.1)	6 (16.7)
25-29	18 (94.7)	5 (12.2)	23 (38.3)
30-34	23 (74.2)	0	23 (35.4)
35-39	22 (84.6)	2 (9.1)	24 (50.0)
40-44	15 (83.3)	2 (9.1)	17 (40.5)
45-49	27 (90.0)	2 (8.3)	28 (48.3)
50-54	7 (58.3)	1 (3.6)	8 (26.7)
55-59	11 (73.3)	1 (5.6)	12 (42.9)
60-64	2 (22.2)	1 (7.7)	2 (7.7)
65- +	16 (36.4)	0	18 (18.4)
Total	145 (68.4)	16 (5.8)	161 (32.8)

Table 3. Distribution of the occupations in the study population

Occupation	Men n (%)	Women n (%)	Total n (%)
Housewife	-	263 (93.9)	263 (54.7)
Retired	68 (32.1)	2 (0.7)	70 (14.2)
Worker	51 (24.1)	-	51 (10.4)
Farmer	23 (10.8)	2 (0.7)	25 (5.1)
Unemployed	24 (11.3)	1 (0.4)	25 (5.1)
Tradesman	16 (7.5)	2 (0.7)	18 (3.7)
Teacher	9 (4.2)	2 (0.7)	11 (2.29)
Nurse	-	5 (1.8)	5 (1.0)
Other	41 (19.3)	13 (4.6)	54 (11.0)
Total	212 (100)	280 (100)	492 (100)

(4.0%), eczema (1.7%), drug allergy (3.8%) and bee-sting allergy (6.5%). There was not a statistically significant difference between men and women in the prevalence of respiratory and allergic symptoms, except for a higher prevalence of drug allergy in women than that of men.

Table 4. Distribution of respiratory and allergic symptoms in the study population

	Men n (%)	Women n (%)	Total n (%)
Symptoms in the last 12 months			
Wheezing	59 (26.0)	59 (20.7)	118 (22.6)
Without cold	47 (20.5)	48 (16.8)	95 (18.1)
With breathlessness	49 (21.4)	51 (17.8)	100 (19.2)
Woken up with chest tightness	45 (19.4)	40 (14.1)	85 (16.3)
Woken up with shortness of breath	38 (16.6)	42 (14.7)	80 (15.3)
Woken up with cough	44 (19.2)	45 (15.7)	89 (17.0)
Wheezing ever	57 (24.9)	59 (20.6)	116 (21.8)
Asthma diagnosis	4 (1.7)	8 (2.8)	12 (2.3)
Asthma attack in the last 12 months	10 (4.3)	13 (4.8)	23 (4.4)
Use of medicine for asthma	10 (4.3)	12 (4.1)	22 (4.2)
Any allergic symptom	41 (18.1)	57 (19.7)	98 (18.8)
Hay fever	15 (6.6)	28 (9.8)	43 (8.2)
Perennial rhinitis	6 (2.6)	6 (2.1)	12 (2.3)
Food allergy	12 (5.2)	9 (5.1)	21 (4.0)
Eczema (dryness and itching of the skin)	5 (2.2)	4 (1.4)	9 (1.7)
Drug allergy*	4 (1.7)	16 (5.6)	20 (3.8)
Urticaria	9 (3.9)	12 (4.2)	21 (4.0)
Bee-sting allergy	18 (7.9)	16 (5.6)	34 (6.5)

*Statistically significant ($p < 0.05$)

Table 8. Causes of adult deaths recorded in Hekimhan as compared to that of Turkey

	Hekimhan n (%)	Turkey* n (%)
Heart disease	58 (34.5)	67540 (46.9)
Malignancies	31 (18.4)	17114 (11.9)
Tuberculosis	5 (2.9)	901 (0.6)
Pneumonia	1 (0.6)	3120 (2.2)
Asthma	3 (2)	869 (0.6)
Others	75 (44.6)	54463 (37.8)
Total	173 (100)	144007 (100)

*Statistical Yearbook of Turkey 1995, State Institute of Statistics
Prime Ministry Republic of Turkey, State Institute of Statistics,
Printing Division, January 1996.



Prevalence and Risk Factors of Allergies in Turkey (PARFAIT): results of a multicentre cross-sectional study in adults

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ABSTRACT: The Prevalence and Risk Factors of Allergies in Turkey (PARFAIT) study was planned to evaluate the prevalence of and risk factors for asthma and allergic diseases in Turkey.

The present analysis used data from 25,843 parents of primary school children, obtained from a cross-sectional questionnaire-based study.

A total of 25,843 questionnaires from 14 centres were evaluated. In rural areas, the prevalences asthma, wheezing, allergic rhinitis and eczema in males were: 8.5% (95% confidence interval (CI) 7.9–9.1%), 13.5% (95% CI 12.8–14.2%), 17.5% (95% CI 16.7–18.2%) and 10.8% (95% CI 10.2–11.4%), respectively; and in females were: 11.2% (95% CI 10.9–11.8%), 14.7% (95% CI 14.3–15.1%), 21.2% (95% CI 20.4–22.0%) and 13.1% (95% CI 12.4–13.8%), respectively. In urban areas, the corresponding prevalences in males were: 6.2% (95% CI 5.8–6.6%), 10.8% (95% CI 10.3–11.3%), 11.7% (95% CI 11.4–12.0%) and 6.6% (95% CI 6.2–7.0%), respectively; and in females were: 7.5 % (95% CI 7.9–7.1%), 12.0% (95% CI 11.7–12.3%), 17.0% (95% CI 16.4–17.6%) and 7.3% (95% CI 6.9–7.7%), respectively. Having an atopic first-degree relative or any other atopic diseases had significant effects on the prevalence of allergic diseases. Housing conditions, such as living in a shanty-type house, visible moulds at home and use of wood or biomass as heating or cooking material were associated with one or more allergic diseases.

Although genetic susceptibility is strongly associated, country- and population-based environmental factors may contribute to increased prevalence rates of allergic diseases.

KEYWORDS: Allergy, asthma, prevalence, risk factors, Turkey

AFFILIATIONS

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STATEMENT OF INTEREST

None declared.



FIGURE 1. Map showing the 14 study locations.

RESULTS

Demographic characteristics

Questionnaires from 14 cities were analysed. Overall, 30,000 questionnaires were distributed. The response rate was 92.3%. Of the 27,690 questionnaires collected, 25,843 were appropriate for analysis. Questionnaires with missing responses that could affect the quality of the data were excluded as inappropriate. Of these, 60.2% were from metropolitan areas, in accordance with the distribution of Turkey's population. The rural/urban ratio ranged 0.43–1.02 (median 0.64) between regions.

Prevalences of demographic characteristics and proposed risk factors in rural and urban residents are presented in table 1. Living in a single-family house, use of wood and brick as construction materials in houses and the presence of pets and moulds at home were more prevalent in rural areas ($p<0.001$). The main heating fuel in houses was wood in rural area, whereas it was coal in urban areas. Smoking was more prevalent among females living in urban areas than those living in rural areas, whereas the opposite was true in males ($p<0.001$). The prevalences of asthma, allergic rhinitis and eczema were higher among people living in rural areas (table 2).

TABLE 1 Demographic characteristics and proposed risk factors in rural and urban residents

Variable	Rural	Urban	p-value
Respondents n	10289	15554	
Females age yrs	35.1 $\pm$ 5.9	35.1 $\pm$ 5.3	0.802
Males age yrs	40.5 $\pm$ 7.6	39.4 $\pm$ 6.0	<0.001
Occupation of females			<0.001
Housewife	94.4	78.9	
Worker	3.9	4.2	
Official	0.6	11.1	
Other	1.1	5.8	
Occupation of males			<0.001
Farmer	31.3	20.8	
Worker	37.6	26.6	
Official	9.4	40.1	
Merchant	21.7	12.5	
Familial atopy in females	29.9	28.9	0.10
Familial atopy in males	24.5	24.3	0.715
Any other allergic disease in females	23.0	21.0	<0.001
Any other allergic disease in males	20.8	17.7	<0.001
House type			<0.001
Apartment	14.2	71.1	
Single-family house	78.0	26.4	
Shanty	7.8	2.5	
Construction material of the house			<0.001
Concrete	72.6	95.1	
Wood	9.9	1.9	
Brick	17.5	3.0	
Plants at home	57.6	65.8	<0.001
Pets at home	17.6	9.5	<0.001
Moulds at home	17.1	10.7	<0.001
Home heating fuel			<0.001
Natural gas	0.2	26.3	
Wood	71.7	22.4	
Coal	23.4	44.6	
LPG	0.2	0.7	
Other (biomass)	4.5	6.0	
Use of natural gas as cooking fuel	2.0	21.1	<0.001
Use of natural gas + LPG as cooking fuel	81.3	98.0	
Smoking in females	12.4	26.6	<0.001
Smoking in males	57.4	49.6	<0.001
Living near an animal barn	37.0		
Livestocking	37.2		

Data are presented as mean $\pm$ sd or %, unless otherwise stated. LPG: liquefied petroleum gas.

TABLE 2 Standardised prevalences of allergic diseases and wheezing in rural and urban areas in all adults

	Males		Females	
	Rural	Urban	Rural	Urban
Asthma	8.5 (7.9–9.1)	6.2 (5.8–6.6)	11.2 (10.9–11.8)	7.5 (7.9–7.1)
Wheezing	13.5 (12.8–14.2)	10.8 (10.3–11.3)	14.7 (14.3–15.1)	12.0 (11.7–12.3)
Allergic rhinitis	17.5 (16.7–18.2)	11.7 (11.4–12.0)	21.2 (20.4–22.0)	17.0 (16.4–17.6)
Eczema	10.8 (10.2–11.4)	6.6 (6.2–7.0)	13.1 (12.4–13.8)	7.3 (6.9–7.7)

Data are presented as standardised % prevalence (95% confidence interval).

TABLE 3 Adjusted prevalences of allergic diseases with respect to age and rural/urban residence

City	Respondents	Males				Females			
		Asthma	Wheezing	Allergic rhinitis	Eczema	Asthma	Wheezing	Allergic rhinitis	Eczema
Afyon	1234	5.9 (4.6–7.2)	9.8 (8.1–11.4)	12.1 (10.3–13.9)	8.3 (6.7–9.8)	7.2 (5.8–8.7)	7.9 (6.4–9.4)	16.2 (14.2–18.3)	10.0 (8.3–11.7)
Bursa	3956	5.8 (5.0–6.6)	11.0 (10.0–12.1)	13.5 (12.4–14.6)	7.6 (6.7–8.3)	7.5 (6.6–8.3)	13.1 (12.0–14.3)	17.9 (16.6–19.1)	8.7 (7.8–9.6)
Denizli	1399	8.5 (6.9–10.1)	13.2 (11.3–15.1)	13.5 (11.6–15.4)	9.2 (7.6–10.9)	11.1 (9.4–12.8)	11.5 (9.8–13.2)	19.7 (17.5–21.9)	10.9 (9.2–12.7)
Elazığ	1731	9.8 (8.4–11.2)	15.8 (14.0–17.5)	16.3 (14.6–18.1)	7.8 (6.6–9.1)	11.1 (9.6–12.6)	14.7 (13.0–16.3)	21.6 (19.7–23.6)	11.4 (9.9–12.9)
Erzurum	1202	7.4 (5.9–8.9)	11.6 (9.8–13.4)	12.3 (10.5–14.2)	6.7 (5.3–8.2)	10.9 (9.1–12.6)	15.6 (13.6–17.7)	18.6 (16.4–20.8)	10.6 (8.8–12.3)
Eskişehir	1884	5.7 (4.7–6.8)	11.2 (9.7–12.6)	12.0 (10.5–13.4)	6.0 (4.9–7.1)	7.3 (6.1–8.5)	12.2 (10.7–13.7)	17.8 (16.0–19.5)	7.3 (6.1–8.5)
Isparta	2139	5.7 (4.7–6.6)	8.2 (7.0–9.3)	10.7 (9.4–12.0)	4.7 (3.8–5.6)	7.6 (6.5–8.8)	7.7 (6.6–8.8)	16.4 (14.8–17.9)	6.6 (5.6–7.7)
Tarsus	1772	8.4 (7.1–9.7)	15.1 (13.4–16.7)	15.1 (13.4–16.7)	9.5 (8.13–10.8)	11.1 (9.6–12.6)	16.0 (14.3–17.8)	20.5 (18.6–22.3)	11.0 (9.6–12.5)
İstanbul	1241	5.2 (3.9–6.4)	7.4 (5.9–8.8)	8.0 (6.5–9.6)	6.7 (5.3–8.1)	7.3 (5.8–8.8)	9.9 (8.2–11.6)	11.5 (9.8–13.3)	7.4 (6.0–8.9)
Kocaeli	1840	7.2 (6.0–8.4)	12.1 (10.6–13.6)	13.1 (11.5–14.7)	9.4 (8.1–10.8)	8.9 (7.6–10.2)	14.2 (12.6–15.8)	18.5 (16.7–20.2)	9.3 (8.0–10.7)
Manisa	1911	8.0 (6.7–9.3)	13.7 (12.1–15.3)	15.8 (14.1–17.5)	10.6 (9.1–12.0)	9.6 (8.3–11.0)	14.3 (12.7–16.0)	20.6 (18.8–22.5)	11.3 (9.8–12.7)
Samsun	1971	9.5 (8.0–10.9)	14.0 (12.3–15.6)	17.6 (15.8–19.4)	11.4 (9.9–12.9)	11.2 (9.7–12.7)	16.5 (14.8–18.3)	22.8 (20.9–24.8)	11.6 (10.1–13.1)
Van	1551	9.4 (8.0–10.9)	15.3 (13.5–17.1)	21.9 (19.8–23.9)	9.5 (8.1–11.0)	10.7 (9.1–12.2)	18.6 (16.7–20.6)	21.7 19.6–23.7	10.2 (8.7–11.7)
Düzce	2032	5.4 (4.4–6.4)	9.4 (8.11–10.7)	13.2 (11.7–14.7)	8.6 (7.4–9.8)	7.8 (6.7–9.0)	11.8 (10.4–13.2)	17.5 (15.8–19.1)	9.0 (7.7–10.2)
Total	25843	7.1 (6.8–7.4)	11.9 (11.7–12.1)	14.0 (13.8–14.2)	8.2 (8.5–7.9)	9.0 (8.6–9.4)	13.1 (12.7–13.5)	18.7 (18.2–19.2)	9.6 (9.2–10.0)

Data are presented as n or adjusted % prevalence (95% confidence interval).

Original article

Prevalence of COPD: First epidemiological study of a large region in Turkey

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Abstract

Background: Although chronic obstructive pulmonary disease (COPD) is one of the leading causes of mortality and morbidity worldwide, epidemiological data on COPD is very limited. This study was designed to obtain some baseline data on COPD in the Malatya region of Turkey.

Methods: Sixty clusters from urban and rural regions were randomly selected. Ten and seven consecutive households were included in the study from each urban and rural cluster, respectively. A validated questionnaire on the epidemiology of COPD was completed for each participant over 18 by a pulmonary physician. Each subject underwent standard spirometric measurement and early bronchodilation testing.

Results: A total of 1160 participants completed the study (93%). Some 6.9% of the participants were found to have COPD (F/M=1/4). While the prevalence of COPD was 18.1% in current smokers over 40 years of age, the prevalence was 4.5% among younger smokers. Some 25.5% of the women and 57.2% of the men were current smokers. Biomass exposure, as a sole reason for COPD, was significantly common among female patients living in rural areas (54.5%). In the development of COPD, the relative risk ratio of cigarette smoke was found to be 3.4 and 3.3 times higher than biomass exposure and occupational exposure, respectively.

Conclusions: Smoking rate and COPD prevalence were found to be unexpectedly high in the region, and biomass exposure is still an important cause of COPD, particularly among females living in rural areas. We think that national policies against smoking and biomass exposure should be implemented immediately.

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Keywords: COPD; Prevalence; Smoke; Biomass exposure; Occupational exposure

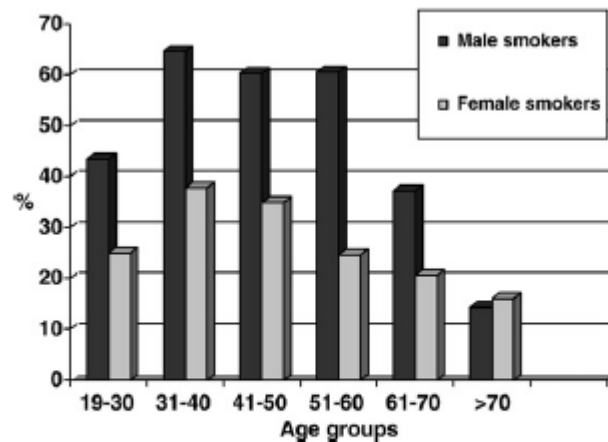


Fig. 2. Distribution of smoking rates according to age groups and gender in the urban regions.

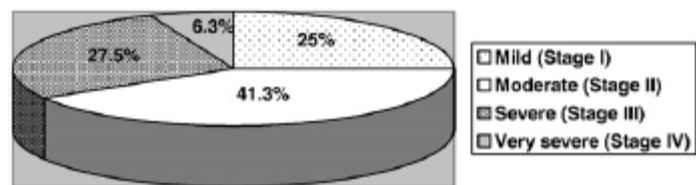


Fig. 5. Percentages of the patients in stages of COPD according to ERS/ATS classification.

Table 1

Distribution of smoking, biomass exposure, and occupational exposure according to gender and region

Exposure	All patients			Male patients			Female patients		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Smoke (total)	477 (41.1)	261 (39.9)	216 (42.7)	327 (57.2)	164 (51.1)	163 (64.9)	150 (25.5)	97 (29.1)	53 (20.8)
Smoke (sole)	312 (26.9)	245 (37.5)	67 (13.2)	199 (34.8)	156 (48.6)	43 (17.1)	113 (19.2)	89 (26.7)	24 (9.4)
Biomass (total)	393 (33.9)	45 (6.9)	348 (68.8)	194 (33.9)	19 (5.9)	175 (69.7)	199 (33.8)	26 (7.8)	173 (67.8)
Biomass (sole)	228 (19.7)	29 (4.4)	199 (39.3)	66 (11.5)	11 (3.4)	55 (21.9)	162 (27.6)	18 (5.4)	144 (56.5)
Occupational (total)	480 (41.4)	188 (28.7)	292 (57.7)	267 (46.7)	109 (34)	158 (62.9)	213 (36.2)	79 (23.7)	134 (52.5)
Occupation (sole)	112 (9.7)	75 (11.5)	37 (7.3)	48 (8.4)	32 (10)	16 (6.4)	64 (10.9)	43 (12.9)	21 (8.2)
Smoke and biomass	165 (14.2)	16 (2.4)	149 (29.4)	128 (22.4)	8 (2.5)	120 (47.8)	37 (6.3)	8 (2.4)	29 (11.4)
Smoke and occupational	236 (20.3)	96 (14.7)	140 (27.7)	184 (32.2)	69 (21.5)	115 (45.8)	52 (8.8)	27 (8.1)	25 (9.8)
Biomass and occupational	247 (21.3)	28 (4.3)	219 (43.3)	127 (22.2)	13 (4)	114 (45.4)	120 (20.4)	15 (4.5)	105 (41.2)
Smoke and biomass and occupational	115 (9.9)	11 (1.7)	104 (20.6)	92 (16.1)	5 (1.6)	87 (34.7)	23 (3.9)	6 (1.8)	17 (6.7)
None	393 (33.9)	289 (44.2)	54 (10.7)	131 (22.9)	114 (35.5)	17 (6.8)	212 (36.1)	175 (52.6)	37 (14.5)
Total	1160 (100)	654 (56.4)	506 (43.6)	572 (49.3)	321 (56.1)	251 (43.9)	588 (50.7)	333 (56.6)	255 (43.4)



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Original article

The prevalence of chronic obstructive pulmonary disease in Elazig, Eastern Turkey

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ABSTRACT

Background: To investigate the prevalence of Chronic Obstructive Pulmonary Disease (COPD) in the urban and rural areas of the Elazig Region of Turkey.

Methods: A questionnaire was conducted and spirometric measurements were made, based on the BOLD protocol. A total of 1270 individuals, over 18 years of age, were included in the study, comprising 610 individuals from the city center and 660 from the rural area. The questionnaire included demographics, symptoms and possible risk factors. The description and staging of COPD were in accordance with GOLD (Global Initiative for Chronic Obstructive Lung Disease).

Results: Of the 1270 cases, 1206 (94.9%) were able to complete the questionnaire and undergo spirometric analysis. Of these 1206 cases, 1188 (98.5%) were used in the final assessment; the remainder were excluded due to errors in the spirometric analysis. Of the cases included in the study, 43.2% (25.9% female; 56.7% male) were current smokers. The prevalence of COPD at ≥ 18 years old was 4.5% (female 2.5%; male 6%); the prevalence at ≥ 45 years old was 11.5% (female 5.9%; male 15.1%). The majority of the COPD cases were at stages I and II (22.6% and 66%, respectively). The prevalence of COPD was higher among current and former smokers (5.8%) than non-smokers (2.8%). In general, the risk factors for COPD were found to be age, male gender, smoking, living in a rural area, and low income.

Conclusions: The prevalence of COPD in Elazig, Turkey was highest among the elderly and smokers, and constituted primarily stages I and II of the disease.

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Table 1

Comparison between study population and general population of Elazig region.

Characteristic	General population in Elazig region		Sample group		P value
	n	%	n	%	
Age					
18–29	137,974	38.9	455	38.3	$\chi^2 = 0.004, P = 0.95$
30–39	76,206	21.6	268	22.6	$\chi^2 = 0.98, P = 0.7541$
40–49	55,763	15.7	204	17.2	$\chi^2 = 0.327, P = 0.5677$
50–59	36,993	10.4	127	10.6	$\chi^2 = 0.016, P = 0.8994$
≥60	47,423	13.4	134	11.3	$\chi^2 = 0.618, P = 0.4316$
Total	354,359	100.0	1188	100.0	
Gender					
Female	176,109	49.6	521	43.9	$\chi^2 = 1.707$
Male	178,250	50.4	667	56.1	$P = 0.1913$
Total	354,359	100.0	1188	100.0	

Table 3

Age-specific percentage of subjects with airflow obstruction from all groups.

Age (years)	Total	Male	Female
18–24	0.7	0.8	0.6
25–44	1.7	1.8	1.6
45–64	8.3	11.3	3.6
65–74	25.3	28.2	17.6
≥75	13.3	16.6	11.1
≥18	4.5	6.0	2.5
≥45	11.5	15.1	5.9

Table 4

Prevalence of airflow obstruction stratified by GOLD severity classification.

GOLD stage	Total study group (≥18 years)			Age ≥45 years		
	Total	Male	Female	Total	Male	Female
I	1.0	1.1	1.0	1.7	2.3	0.7
II	2.9	4.2	1.3	8.2	10.5	4.5
III	0.4	0.4	0.2	1.1	1.4	0.7
IV	0.2	0.3	0.0	0.5	0.9	0.0
Total	4.5	6.0	2.5	11.5	15.1	5.9

Entries indicate percentage values.

Table 5

Frequency of COPD in the urban versus rural area.

COPD prevalence	Urban area			Rural area		
	Total	Male	Female	Total	Male	Female
Total study group	2.5	3.8	1.0	6.5	7.8	4.3
≥45 years	8.6	13.0	2.8	14.1	16.5	9.2

genetic differences [26,27]. Therefore, although smoking appears to be the most important risk factor for COPD, other potential factors must be considered.

Our study has several strengths and limitations. First, it is the

[Hoppin JA](#), [Umbach DM](#), [Long S](#), et al. **Respiratory disease in United State farmers.**

[Occup Environ Med.](#) 2014 Jul;71(7):484-91 ■

- **OBJECTIVES:** Farmers may be at increased risk for adverse respiratory outcomes compared with the general population due to their regular exposures to **dusts, animals and chemicals**. However, early life farm exposures to microbial agents may result in reduced risk. Understanding respiratory disease risk among farmers and identifying differences between farmers and other populations may lead to better understanding of the contribution of environmental exposures to respiratory disease risk in the general population.
- **METHODS:** We compared the prevalence of self-reported respiratory outcomes in 43,548 participants from the Agricultural Health Study (AHS), a prospective cohort of farmers and their spouses from Iowa and North Carolina, with data from adult participants in the National Health and Nutrition Examination Survey (NHANES) over the same period (2005-2010).
- **RESULTS:** AHS participants had **lower prevalences of respiratory diseases (asthma, adult-onset asthma, chronic bronchitis and emphysema), but higher prevalences of current respiratory symptoms (wheeze, cough and phlegm)** even after controlling for smoking, body mass index and population characteristics. The overall prevalence of asthma in the AHS (7.2%, 95% CI 6.9 to 7.4) was 52% of that in NHANES (13.8%, 95% CI 13.3 to 14.3), although the prevalence of adult-onset asthma among men did not differ (3.6% for AHS, 3.7% for NHANES). Conversely, many respiratory symptoms were more common in the AHS than NHANES, particularly among men.
- **CONCLUSIONS:** These findings suggest that farmers and their spouses have lower risk for adult-onset respiratory diseases compared with the general population, and potentially higher respiratory irritation as evidenced by increased respiratory symptoms.

Ekstrinsik allerjik alveolit

(Hipersensitivite pnömonisi, aşırı duyarlılık pnömonisi)

Çeşitli antijenik ajanlara karşı oluşan lenfositik interstisyel pnömoni . Bu hastalığın prototipi; çiftçi akciğeri. IgE antikoru burada rol oynamaz.

Hayvan kökenli protein veya glikoproteinler, bitkiler, bakteri, mantar, protozoa, virüs, düşük molekül ağırlıklı kimyevi maddeler ve ilaçlar.

En sık etkenler termofilik aktinomiçesler ve aspergillus türleridir. Nedenler 100'den çok.

Çiftçi akciğerinde *Saccharopolyspora rectivirgula* temasının da önemi var.

Tüm bu nedenler en çok saman ve tahıl tozunda var. Soğuk, rutubet ve kış önemli.

AŞIRI DUYARLILIK PNÖMONİLERİ(EAA/HP)

Örnek hastalıklar;

- Çiftçi akciğeri (mikropolispora faeni)
- Kuş besleyenlerin akciğeri (kanatlı antijenleri)
- Kahve işçileri hastalığı (kahve tozu)
- Paprika işçileri hastalığı (biber tozu)

Patogenezi bilinen 4 tip allerjik reaksiyona da tam olarak uymaz. Kompleks bir tip III-IV.

Patolojik olarak; alveollerde granülomatöz reaksiyon ve interstisyumda fibrozis bulunur.

AŞIRI DUYARLILIK PNÖMONİLERİ(EAA/HP): TANI

- * Temas edenlerin %20-50'sinde duyarlılık ve bunların da %10-15'inde granülomatöz inflamasyon.
- *Temastan 4-8 saat sonra kırgınlık, ateş ve daralma
- *Oskültasyonla özellikle alt loblarda inspiryum sonu ral ve ronkuslar
- *CXR'da interstisiel gölgeler.
- *SFT'de restriktif ve obstrüktif bozukluk
- *Kan testleri (akut faz reaktanları, spesifik IgG)
- *Reverzibl'dır. Ancak temas sürerse kronikleşir.

AŞIRI DUYARLILIK PNÖMONİLERİ(EAA/HP): TANI

ANTİJENLE KARŞILAŞMADA;

SFT azalır (FEV1, FVC, FEF25-75)

PaO2 düşer.

DLCO azalır.

Ateşlenme (38.5 C civarına kadar).

Lökositoz.

Sedimentasyonda artma.

BAL'da CD8 lenfositler artar.

AŞIRI DUYARLILIK PNÖMONİLERİ: KLİNİK

Akut formu: Antijenle temastan birkaç saat (2-9 saat) sonra başlayan nefesdarlığı, kuru öksürük, ateş miyalji ve titreme nöbetleri.

Tipik olarak öğleden sonra ve akşamları oluyor ve 24-48 saat içinde düzelir.

Subakut form: Sürekli ve düşük doz temasta, tekrarlayan akut ataklar, kronik prodüktif öksürük, hırıltı ve yavaş ilerleyen nefesdarlığı.

Kronik form: Progressif dispne, kuru öksürük, kilo kaybı, anoreksi görülmektedir.

- Sigara ile ters nedensel bir ilişki olabilir.

AŞIRI DUYARLILIK PNÖMONİLERİ: EPİDEMİYOLOJİ

- Kesin bilgi çok zor.
- 1970/İskoçya/prevalans 86/1000
- 1985/İsveç/Akut olgu insidansı 2-5/10.000
- SWORD/İngiltere'de en sık bildirilen çiftçi hastalığı 1997. 20/38 bildirim.
- 1998-2000 arasında da durum aynı.
- İngiltere'de 1979-1990 arası ADP'ne atfedilen ölüm sayısı 56.

Tanı Kriterleri: Terho kriterleri

- **MAJOR kriterler (<4)**

- ADP ile uyumlu klinik,
- Öyküde antijen teması veya serum veya BAL da etkene karşı Sp.IgG antikorların saptanması,
- CXR ve HRCT de ADP ile uyumlu görünüm,
- Açık akc.bx; alveolit, nonkazeöz granülomlar, dev hücreler, köpüksü alveoler makrofajlar ve/veya fibrozis

- **MİNÖR kriterler (<2)**

- Bilateral bazal ince raller,
- DLCO azalma,
- SaO2 istirahatte normal veya azalmış, ancak eforada desatürasyon,
- SFT; restriktif bozukluk, bazen miks tipte de olabilir.
- Doğal provokasyon testi pozitif
- ADP ile uyumlu biopsi.
- Birkaç kriter var!

Prognoz

- Kişisel
- Korunma
- Kortizon tedavisine yanıt, çiftçi akciğerinde kuş besleyenlere göre daha fazladır ve prognozu iyidir.
- Kaçınma, havalandırma.

ORGANİK TOZ TOKSİK SENDROMU(OTTS)

- Havayolu ve alveollerin akut inflamasyonu. Ama mekanizması net bilinmiyor. Lokal bir reaksiyon. Muhtemelen endotoksin teması önemli.
- Temastan 4-6 saat sonra nefesdarlığı, ateş, öksürük ve halsizlik. ADP akut formu ile karışır. Spontan düzelir.
- Hollanda/anket/domuz yetiştiricileri YB %6
- Bu rakam YB %10-15'e çıkabiliyor.

ASTIM BENZERİ SEMPTOMLAR

AKUT NONALLERJİK SOLUNUM SEMPTOMLARI

- Çiftlik ortamındaki organik tozların inhalasyonu astım benzeri semptomlara yol açabilir. Wheezing ve nefesdarlığı. Tahıl, pamuk tozu, amonyak, endotoksin.
- Etkenle uyumlu bir doz-yanıt ilişkisi var.
- Sıklığı %20-50. FEV1 %10 azalabilir.
- Astımdan, persistan havayolu hiperreaktivitesinin olmaması ile ayrılır.



Lung health in workers exposed to reed dust

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KEYWORDS

Organic dust;
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ODTS;
Respiratory
symptom.

Summary We conducted a cross-sectional survey in a cellulose plant among 109 reed workers, exposed to reed dust and 78 unexposed office workers, to investigate respiratory health effects of reed dust exposure. Investigations included dust measurements, serum total IgE, skin prick test, pulmonary function testing and questionnaire on respiratory symptoms. Total dust level in the reed processing unit was higher than the office (9.7 and 0.02 mg/m³, respectively). Reed workers had a higher rate of current smoking (67% and 46%, respectively). After the adjustment for smoking status and age, reed dust exposure was significantly associated with wheezing, chronic cough, dyspnea, itching eyes and itching nose. Chest tightness and ODTS symptoms were only reported by reed workers (27.5% and 23.9%, respectively). After the adjustment for pack-years of smoking, percentage of predicted FEV₁, FVC, FEV₁/FVC and FEF_{25–75} in reed workers were significantly lower than office workers. Among reed workers, wheezing was associated with older age (>40 years) and ever smoking, and cross-shift decline in FVC and FEV₁ with shorter duration of work. Reed dust exposure in the workplace could provoke respiratory symptoms, possibly due to an irritating effect. Health selection bias is likely, and could have underestimated the health effects of reed dust exposure.

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Table 1 Dust measurements of the office and the reed plant.

Work sites	Respirable dust level (mg/m ³)
Office	0.02
Preparation section	4.1
Grouping section	13.8
Cutting section	11.3

comparison of respiratory and allergic symptoms in the office workers and reed workers is shown in Table 3. After the adjustments for smoking status and age, exposure to reed dust was significantly associated with wheezing (OR: 5.3, 95% CI: 2.3–12.4), chronic cough (OR: 5.5, 95% CI: 2.2–13.9), dyspnea (OR: 11.1, 95% CI: 4.0–30.5), itching eyes (OR: 2.5, 95% CI: 1.1–5.8), and itching nose (OR: 2.8, 95% CI: 1.2–6.4). Chest tightness and ODTS symptoms were only reported by the reed workers (27.5% and 23.9%, respectively).

Table 2 Personal characteristics and atopic status of office workers and reed workers.

	Office workers	Reed workers
<i>N</i>	78	109
Age (year), mean $\pm$ so (median)	39.5 $\pm$ 5.4 (40)	40.7 $\pm$ 2.8 (40)
Height (cm), mean $\pm$ so (median)	172.1 $\pm$ 5.9 (172)	171.4 $\pm$ 7.3 (172)
Smoking status <i>n</i> (%)		
Non-smoker	27 (34.6)	20 (18.4)
Ex-smoker	15 (19.2)	15 (13.8)
Current smoker	36 (46.2)	74 (67.9)*
<i>Amount of cigarettes smoked (pack-year) mean $\pm$ so (median)</i>		
Ex-smoker	26.5 $\pm$ 19.2 (23)	22.2 $\pm$ 29.0 (12)
Current smoker	22.3 $\pm$ 13.4 (21)	23.5 $\pm$ 11.1 (22.5)
Duration of work (year), mean $\pm$ so (median)	12.0 $\pm$ 6.0 (15)	15.4 $\pm$ 4.7 (15)*
Atopy†	13 (16.7)	16 (14.7)
Total IgE, mean $\pm$ so	112.8 $\pm$ 59.8	129.2 $\pm$ 65.2
Logarithm of total IgE, mean $\pm$ so	2.0 $\pm$ 0.4	2.0 $\pm$ 0.3

Values are expressed as counts and percentages in parentheses, unless otherwise specified.

* $P < 0.05$.

†Atopy was defined as at least one positive reaction to the aeroallergens tested.

Table 3 Comparison of respiratory and allergic symptoms in office workers and reed workers.

	Office workers <i>n</i> (%)	Reed workers <i>n</i> (%)	OR* (95% CI)
Diagnosis of asthma	4 (5.1)	5 (5.6)	0.9 (0.2–3.7)
Wheezing	8 (10.3)	47 (43.1)	5.3 (2.3–12.4)
Chest tightness	0 (0)	30 (27.5)	NA
Chronic bronchitis	12 (15.4)	27 (24.8)	1.7 (0.7–3.8)
Chronic cough	7 (9.0)	34 (31.2)	5.5 (2.2–13.9)
Dyspnea	5 (6.4)	46 (42.2)	11.1 (4.0–30.5)
ODTS	0 (0)	26 (23.9)	NA
Eczema	5 (6.4)	9 (8.2)	1.4 (0.4–4.4)
Itching eyes	9 (11.5)	28 (25.7)	2.5 (1.1–5.8)
Itching nose	10 (12.8)	30 (27.5)	2.8 (1.2–6.4)

*Odds ratios adjusted the association between reed dust exposure and the respiratory diseases and symptoms for smoking status (non-smoker as reference, ex-smoker and current smoker as dummy variables) and age (in years, continuous variable).



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ORIGINAL ARTICLE

Storage mite sensitisation is associated with early life village residence in Turkey

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KEYWORDS

Allergic asthma;
Allergic sensitisation;
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House-dust mite;
Skin prick test;
Storage mite;
Village life

Abstract

Background: Storage mites (SMs) occur in house-dust and the rate of sensitisation to them is high. We aimed to investigate if past and current living conditions are associated with the risk of SM sensitisation.

Methods: In total, 321 patients (70% females) aged 33.6 ± 11.9 years (range: 14–68 years) were studied at our allergy unit between September 2009 and December 2010. Patients with persistent or intermittent rhinitis and/or asthma were included in the study. Skin prick tests (SPTs) for SMs (*Lepidoglyphus destructor*, *Tyrophagus putrescentiae*, and *Acarus siro*) and other common aeroallergens were performed. Demographic data and characteristics of the patients' homes were assessed via a questionnaire.

Results: In all, 102 (31.8%) patients were sensitised to ≥ 1 SM, of whom 43.1% were also sensitised to *Dermatophagoides pteronyssinus*. Comparison between the SPT-negative group ($n = 129$) and the SM-positive only group ($n = 33$) showed that having lived in a village during the first years of life was associated with SM sensitisation. Current place of residence was not significantly associated with any of the study variables.

Conclusions: Living conditions have been changing and SM sensitisation may be associated with a history of village residence. The high rate of SM sensitisation observed in the study population might indicate the necessity of including those mite species in SPT panels, but the clinical relevance of sensitisation remains unclear. The clinical importance of SM sensitisation in urban areas should be investigated further.

Materials and methods

Participants

This cross-sectional study included 321 patients (70% females) aged 33.6 ± 11.9 years (range: 14–68 years) that were studied at our allergy unit between September 2009 and December 2010. Consecutive patients that were diagnosed with persistent/intermittent rhinitis and/or asthma, and provided informed consent to participate were included in the study. Demographic data, the characteristics of the homes the patients lived in at least until the age of two years, and the homes they were currently living in for ≥ 1 years were assessed via a structured questionnaire administered by a trained physician. The questionnaire collected data on level of education, method of home heating, number of individuals living in the home, the presence of wall-to-wall carpeting, and the presence of domestic animals and livestock (cows, sheep, and chickens). Location of the home (inland or coastal) was also recorded. All participants provided written informed consent and the study protocol was approved by the local Ethics Committee.

Table 3 Comparison of past living conditions between the SPT-negative, DP-positive only, and SM-positive only groups.

Variables <i>n</i> (%)	SPT (–) <i>n</i> = 129	DP (+) only <i>n</i> = 17	SM (+) only <i>n</i> = 33	DP (+) only vs. SPT (–)	SM (+) only vs. SPT (–)
Gender (female)	89 (69)	13 (76.5)	26 (78.8)	0.528	0.269
Age (<40/≥40 years) %	68/32	71/29	61/39	0.843	0.408
Smoking	26 (20.2)	1 (5.9)	8 (24.2)	0.306	0.67
Level of education ^a	50 (38.3)	4 (23.5)	12 (36.4)	0.236	0.936
Coastal region	25 (19.4)	8 (47.1)	5 (15.2)	0.024	0.577
Village home	44 (34.1)	4 (23.5)	18 (54.5)	0.383	0.031
City home	85 (65.9)	13 (76.5)	15 (45.5)	0.383	0.031
Stove heating	114 (89.1)	11 (64.7)	29 (87.9)	0.018	1
≥ 5 persons living in the home	51 (39.8)	9 (52.9)	15 (45.5)	0.064	0.212
Livestock on the property	55 (43%)	7 (41.2)	19 (59.4)	0.888	0.096
Pets in the home	18 (14.3)	1 (5.9)	7 (21.2)	0.564	0.331
Wall-to-wall carpeting	12 (9.5)	5 (29.4)	5 (15.2)	0.048	0.539

^a University graduate. For all comparisons degrees of freedom was 1.

Table 4 Analysis of the variables strongly associated with DP or SM sensitisation, based on a logistic regression model adjusted for age and gender.^a

	DP (+) only		SM (+) only	
	OR (95% CI) ^b	<i>p</i>	OR (95% CI) ^b	<i>p</i>
Coastal region	3.96 (1.36–11.5)	0.01	0.77 (0.27–2.22)	0.63
Village home	0.59 (0.17–2.05)	0.41	2.37 (1.01–5.55)	0.04
Wall-to-wall carpeting	3.80 (1.11–12.98)	0.03	1.59 (0.51–4.96)	0.42
Stove heating	0.17 (0.05–0.63)	0.008	0.68 (0.19–2.41)	0.56

^a Characteristics of the homes in which the patients lived until age two years.

^b ORs and 95% CIs are given.

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WORK-RELATED SYMPTOMS AMONG WORKERS EXPOSED TO BLACK TEA DUST

OBJAWY ZWIĄZANE Z PRACĄ U PRACOWNIKÓW EKSPONOWANYCH NA PYŁ CZARNEJ HERBATY

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ABSTRACT

Background: Tea may be classified as unfermented green, semi-fermented oolong and fermented black. All of these types are derived from *Camellia sinensis*, the Tea Plant, which contains the low molecular weight (LMW) agent Epigallocatechin gallate (EGCg), probably responsible for allergic reactions. The aim of our study was to assess the work-related allergic symptoms and IgE-mediated sensitivity among black tea packers. **Material and Methods:** Study groups comprised 26 black tea packers (group 1) and 20 office workers (group 2). A questionnaire, skin prick tests (SPTs) to common allergens and black tea, evaluation of specific IgE (sIgE) to *Camellia sinensis* and moulds, pre- and post-work-shift spirometry were performed. **Results:** At least 1 symptom suggesting allergic disease was reported by 85% of the tea packers and 60% of the office workers. The most frequent positive results of SPTs were obtained with moulds (8%). A small decline in FEV₁ (forced expiratory volume in 1 s) after the work shift was observed among tea packers sensitized to moulds. **Conclusions:** Although specific sensitization to black tea was not observed in our study groups, cough and skin symptoms were significantly more frequently among the tea packers than in office workers. The irritant impact on the airways and the skin of tea dust and/or sensitization to moulds contaminating tea leaves are being suspected. Med Pr 2015;66(1)

Key words: occupational allergy, black tea dust, sensitization to moulds, microbial contamination of tea, work-related symptoms

INTRODUCTION

All types of tea are derived from *Camellia sinensis*, the Tea Plant. The method of processing tea leaves allows to classify tea as unfermented green, semi-fermented oolong and fermented black tea. The major catechine contained in tea leaves is called Epigallocatechin gallate (EGCg). It is a low molecular weight (LMW) agent that is probably able to induce allergic IgE-mediated bronchial and skin reactions. The contents of EGCg in various tea types is different (8% in green, 4% in oolong and 1% in black) (1,2). Moreover, fungi have been isolated in all of the steps of processing tea leaves (withering, fermentation, firing, sorting, packaging) (3).

It is known that workers exposed to various organic dusts may develop respiratory symptoms and functional changes deteriorating airways (4,5).

The aim of the study was to evaluate the work-related allergic symptoms, immunological status and lung function among workers packaging dried black tea in relation to office workers employed at the same industrial plant.

MATERIAL AND METHODS

A cross-sectional study was conducted at a tea-packaging factory in Poland. Study groups consisted of one day 1st-shift workers who participated in the examination voluntarily and comprised 26 operators working on tea bag production lines and 20 office employees. All of the production lines were equipped with local ventilation. Half-face protective dust masks were available only for operators, although their application was not obligatory. All of the subjects underwent a detailed questionnaire (6), physical examination and rest spirometry using the MicroLab Spirometer (Micro-Medical, England). Atopy was assessed by skin testing.

The results of the SPTs were assessed after 15 min. A positive reaction was defined as a wheal of at least 3 mm in diameter. Venous blood samples in the amount of 5 ml were collected to test for the presence of specific immunoglobulin E antibodies (asIgE) against tea (Rf 222) and fungi (mx2: *Penicillium chrysogenum*, *Candida albicans*, *Alternaria alternata*, *Setomelanomma rostrata*, *Cladosporium herbarum*, *Aspergillus fumigatus*) by the commercial fluoroenzymeimmunoassay method (ImmunoCap, Phadia, Sweden). A cut off value for asIgE detection was 0.35 kU/l with the sensitivity range at the level of 84–95% and the specificity range at the level of 85–94% (7). Subjects had been avoiding steroids, antihistamines or antidepressants for at least one month before testing and they did not report any acute viral infections at that time.

The study protocol was approved by the Bioethical Committee at the Nofer Institute of Occupational Medicine in Łódź, Poland. The workers were informed about the research process and methods in a written manner. Participation in the study was voluntary and required informed consent.

Statistical analysis was performed using Statistica 8. Chi-square test (or Fisher's exact test) and Wilcoxon rank sum were used to compare the tea packers and office workers.

A p-value < 0.05 was considered as a significant.

RESULTS

The groups were similar in relation to age, sex, smoking habits, presence of pets at home and the family history of atopy. The average period of employment in the tea factory was longer among the office workers (group 2) in comparison to the tea packers (group 1), while their daily time of exposure to tea dust amounted to more than 5 h per group 1 in comparison to group 2.

Table 1. Characteristics of the study group
Tabela 1. Charakterystyka grupy badanej

Parameter Parametr	Group 1 tea packers Grupa 1 pakowacze herbaty (N = 26)	Group 2 office workers Grupa 2 pracownicy biurowi (N = 20)	P
Age [years] / Wiek [w latach] (M±SD)	39.8±8.7	40±8.1	n.s.
Gender (male vs. female) / Płeć (męska vs żeńska) [n (%)]	5 (35) vs. 17 (65)	8 (40) vs. 12 (60)	n.s.
Period of employment [years] / Czas zatrudnienia [w latach] (M±SD)	9.98±8.30	16.60±8.80	0.0112
Daily exposure to tea dust [h] / Dzienna ekspozycja na pył herbaciany [godz.] (M±SD)	7.00±0.14	1.70±1.30	0.00008
Smoking habit / Palenie tytoniu [n (%)]	18 (69)	11 (55)	n.s.
Family history of atopy / Rodzinny wywiad atopowy [n (%)]	12 (46)	7 (35)	n.s.
Presence of pets at home / Posiadanie zwierząt domowych [n (%)]	19 (73)	14 (70)	n.s.
At least 1 symptom suggesting allergic disease reported / Co najmniej 1 objaw sugerujący schorzenie alergiczne [n (%)]	22 (85)	12 (60)	n.s.
onset after the beginning of employment / wystąpienie objawu po rozpoczęciu zatrudnienia [n (%)]	19 (73)	9 (45)	n.s.
Respiratory symptoms / Objawy ze strony układu oddechowego [n (%)]	12 (46)	9 (45)	n.s.
Cough / Kaszel [n (%)]	8 (31)	1 (5)	0.0290
onset after the beginning of employment / wystąpienie objawu po rozpoczęciu zatrudnienia [n (%)]	6 (23)	1 (5)	n.s.
Work-related cough / Kaszel związany z pracą [n (%)]	1 (4)	0 (0)	n.s.
Rhinitis / Nieżył nosa [n (%)]	6 (23)	7 (35)	n.s.
onset after the beginning of employment / wystąpienie objawu po rozpoczęciu zatrudnienia [n (%)]	1 (4)	4 (20)	n.s.
Work-related rhinitis / Nieżył nosa związany z pracą [n (%)]	0 (0)	1 (5)	n.s.
Dyspnoea / Dusznosc [n (%)]	3 (12)	2 (10)	n.s.
onset after the beginning of employment / wystąpienie objawu po rozpoczęciu zatrudnienia [n (%)]	2 (8)	1 (5)	n.s.
Work-related dyspnoea / Dusznosc związana z pracą [n (%)]	1 (4)	0 (0)	n.s.
Wheezing / Świszczący oddech [n (%)]	2 (8)	0 (0)	n.s.
onset after the beginning of employment / wystąpienie objawu po rozpoczęciu zatrudnienia [n (%)]	1 (4)	0 (0)	n.s.
Work-related wheezing / Świszczący oddech związany z pracą [n (%)]	0 (0)	0 (0)	
Conjunctivitis / Nieżył spojówek [n (%)]	10 (39)	5 (25)	0.3342
onset after the beginning of employment / wystąpienie objawu po rozpoczęciu zatrudnienia [n (%)]	6 (23)	3 (15)	n.s.
Work-related conjunctivitis / Nieżył spojówek związany z pracą [n (%)]	4 (15)	3 (15)	n.s.
Skin disorders / Zmiany skórne [n (%)]	10 (39)	2 (10)	0.0293
onset after the beginning of employment / wystąpienie objawu po rozpoczęciu zatrudnienia [n (%)]	8 (31)	1 (5)	0.0311
Work-related skin symptoms / Zmiany skórne związane z pracą [n (%)]	4 (15)	0 (0)	n.s.
Baseline spirometry values – FEV ₁ / Wyjściowe wyniki pomiarów spirometrycznych – FEV ₁ [%] (M±SD)	104.00±10.84	101.00±10.84	n.s.
End-work-shift spirometry values – FEV ₁ / Wyniki pomiarów spirometrycznych po zakończeniu zmiany roboczej – FEV ₁ [%] (M±SD)	100.00±10.50	101.00±9.64	n.s.
At least 1 positive SPT with common allergens / Co najmniej 1 dodatni wynik SPT z alergenem pospolitym	3 (12)	5 (25)	n.s.

CONCLUSIONS

In conclusion, we did not find evidence of any specific IgE-induced sensitization to black tea among the production line operators. A not statistically significant 4% fall in the mean value of FEV among tea workers at the end of the work shift in comparison to the baseline parameters seems to be rather a random variation than the result of non-specific irritant impact of organic dust on airways. However, the role of sensitization to mould-contaminated tea leaves in work-related respiratory symptoms could not be excluded.

Sensitization to horse hair, symptoms and lung function in grooms.
Tutluoğlu B, Atış S, Anakkaya AN ve ark.
Clin Exp Allergy ;32(8):1170-3, 2002.

- **OBJECTIVE:** This study aimed to investigate the rate of occupational sensitization to horse hair in grooms and whether occupational exposure to horse hair increases respiratory and allergic symptoms and affects lung function in grooms or not.
METHODS: This is a cross-sectional study. Two hundred grooms were randomly selected among 1000 grooms working in Veliefendi Hippodrome of Istanbul. One hundred and twenty-five subjects agreed to enter the study. Ninety-two workers who worked in the different parts of this hippodrome enrolled as the control group. A detailed questionnaire including respiratory and allergic symptoms was filled in, physical examination, skin prick tests and pulmonary function tests were performed.
RESULTS: Sensitization to horse hair was **12.8%** in grooms and **4.3%** in controls. The difference was statistically significant ($P = 0.0035$). **Asthma was found in 14.4% of the grooms and 5.4% of the controls**, allergic rhinitis in **42.4%** of the grooms and 18.4% of the controls, allergic conjunctivitis in **35.2%** of the grooms and 15.2% of the controls, and allergic skin diseases in **32.8%** of the grooms and 13% of the controls. The differences were statistically significant ($P = 0.043$, $P = 0.0002$, $P = 0.001$ and $P = 0.0008$, respectively). The means of FEV1, FEV1/FVC and FVC parameters were significantly lower in the groom group ($P = 0.006$, $P = 0.001$ and $P = 0.003$, respectively). In the multivariate analysis, being in the groom group and working years were found to be predictive factors for impairments of lung function ($P < 0.001$ and $P = 0.002$, respectively).
- **CONCLUSION:** Occupational exposure to horse increases the sensitization to horse hair, induces asthma and allergic symptoms and also impairs lung functions.

Sensitization to sunflower pollen and lung functions in sunflower processing workers. Atış S, Tutluoğlu B, Şahin K ve ark. Allergy;57(1):35-9, 2002.

- **BACKGROUND:** This study aimed to investigate whether exposure to sunflower pollen (*Helianthus annuus*) increases both sensitization and respiratory symptoms, and whether or not it affects lung functions in sunflower processing workers.
- **METHODS:** The largest sunflower processing factories in the Thrace region of Turkey participated in this study. Workers from the units directly exposed to sunflower seed enrolled as the study group (n = 102) and workers who were not directly exposed to *Helianthus annuus* pollen (n = 102) were the control group. Detailed questionnaires covering respiratory and allergic symptoms were completed, and skin prick tests and lung function tests were performed.
- **RESULTS:** We found a very high rate (**23.5%**) of sensitization to *Helianthus annuus* in the study group compared to the controls ($P < 0.001$). Logistic regression analysis showed that the risk of sensitization to *H. annuus* was increased **4.7-fold** (odds ratio = 4.17, 95% confidence interval = 1.3-16.7) if subjects were exposed to sunflower **pollen in the workplace**. While asthmatic symptoms and allergic skin diseases were not different between the two groups, workers in the study group had a higher rate of allergic rhinitis and conjunctivitis ($P < 0.05$). We found that **pulmonary function** was significantly **impaired** in the study group ($P < 0.01$). Using a multivariate analysis model, inclusion in the study group was found to be a predictive factor for impairment of lung function ($P = 0.002$).
- **CONCLUSIONS:** We conclude that sunflower pollen has high allergenic potential, especially when there is close contact, and exposure to sunflower pollen in the workplace can result in impairment in lung function

Allergy symptoms and IgE immune response to rose: an occupational and an environmental disease.

Demir AU, Karakaya G, Kalyoncu AF. Allergy ;57(10):936-9, 2002.

- **BACKGROUND:** Turkey is one of the four major producers of rose. Cultivation of rose is the main economic activity of many villagers in the Lakes region. Rose allergy has not been reported before. We investigated the prevalence of allergy symptoms and specific-IgE immune response due to rose in villagers who had been cultivating rose in Guneykent village in the Lakes region.
- **METHODS:** A screening questionnaire including respiratory and allergic symptoms was administered to 290 villagers. The investigation team visited and studied 75 randomly selected villagers with an interviewer-administered questionnaire, pulmonary function testing, skin prick testing and serum total IgE. Specific IgE against *Rosa rugosa* was measured in 41 villagers.
- **RESULTS:** Villagers reported asthma/allergy symptoms outside the rose season (17.6%), during the rose season (6.2%), and both during the rose season and outside the rose season (whole the year) (17.6%). Atopy and specific IgE against *Rosa rugosa* were detected in 12 (19%), and 8 (19.5%) of the villagers tested. Villagers who had symptoms whole the year reported wheeze more frequently than those who reported symptoms only outside the rose season (41.2% vs 11.1%).
- **CONCLUSIONS:** IgE-mediated allergy could occur due to rose and/or its pollen. Symptoms mainly affect the **upper airways**. Further studies in the rose handlers, florists and workers of the rose industry would help elucidate the occurrence of rose allergy.

SONUÇ VE YORUM

- Tarım kesiminin kendine göre riskleri var. Bu durum coğrafi bölgelere göre farklılık gösteriyor.
- Astım için sonuçlar çelişkili.
- Rinit genelde sık rastlanan bir problem.
- Deri sorunları ayrı bir başlıkta incelenmeli.
- Aşırı duyarlılık pnömonisi ve benzeri durumlar.
- Korunma ve eğitim önemli.