

## تأثير بعض العوامل البيئية على وظائف الرئة

خلاصة:

لغرض القاء الضوء على تأثير بعض العوامل البيئية على كفاءة الجهاز التنفسي تمت باقات فحص مراجعي وحدة وظائف الرئة في مدينة الطب للفترة ٨١ - ١٩٨٣ حيث تـ ٥٨٪ من المراجعين مصابين بالنقص الانسدادي في كفاءة الرئة. لقد تبين وجود فارق احـ قيمة المعنوية اقل من ٠٠١) بين المصابين من سكنة الريف وسكنة المدينة، في حين مـ ارق الاحصائي لم يظهر بين المصابين من مهن مختلفة. كما اظهرت الدراسة وجوـ صائي بين المصابين من المدخنين وغير المدخنين من سكنة المدينة في حين مثل هذا الفاـ ر عند سكنة الريف.

### TRACT:

The vitalographic study showed that (58.9%) of the lung function unit's (LF) patients in the Medical City (MC) over three years (81 - 83) were having lung impairment (Obstructive type). It also showed that there was a statistical significance ( $P < 0.01$ ) between impaired people from rural areas and others in Urban areas whereas there was no significant impairment among the v

the state of lung functioning . It has been used in many field studies due to its portability and uncostliness. This apparatus enabled research on the extent of the different environmental factors which can affect the functioning of people working in different occupations. Thus, it was found that weaving and textile workers suffered from lung impairment (observed) while asbestos workers suffered from different lung impairment (observed) (4). Smokers also suffered from lung impairment (5).

This method proved also that in many occupations there were factors that could affect lung functioning such as heat source (6), tea (7) dusts (8) and (9).

The vitalograph is still in use on wide scale to obtain first - hand data about the effect of some factors on lung functioning. However, deeper studies on the effect of those factors will need more sophistication. Therefore, this study has been conducted only to determine on a preliminary basis the effect of some environmental factors on the sample population at the Medical City Unit. The study based itself on the FEV1 % using

**METHODS:**

ter Ceter (NCC) where they were programmed. This equation was adopted in identifying the normal and the impaired.

#### THE EQUATION:

EV1

$$\frac{EV1}{VC} \times 100 \dots\dots (Harrison - 1976)$$

VC

The reason for not applying other more accurate methods was the unavailability of complete information in the cards on blood gases, TLCO (transpulmonary volume) and closing volume. Based on the above information (W equation), if the percentage was 75 then the case would be considered within the normal range of lung function. If the percentage was less than that the case would be considered impaired.

Preliminary analysis showed that there were 29 different occupations that could not be categorised under any international or local classifications.

This prompted us to integrate the similar ones into six occupations.

The sample was divided into groups: Group 1 ...

at their impairment could be ascribed to numerous reasons apart from the above.

No explanation was given due to the unavailability of information on the materials handled by those people during their daily life. The results showed that 58.9% were considered as impaired; the remaining 41.1% were considered as normal. Statistical significance was found ( $P < 0.001$ ) and 41.1% of the attendants were excluded (Table 1).

**Table 1: Distribution of normal and impaired people attending the Unit in Medical City Teaching Hospital according to the different occupations.**

| Occupations    | Normal |      | Impaired |      | Total | %    |
|----------------|--------|------|----------|------|-------|------|
|                | No.    | %    | No.      | %    |       |      |
| Workers        | 116    | 15.2 | 299      | 20.9 | 345   | 18.5 |
| Farmers        | 28     | 3.6  | 73       | 2.6  | 101   | 5.4  |
| Office holders | 360    | 47.2 | 276      | 25.2 | 636   | 34.2 |

0, unvers 0000 0000 0000

Table 2 which includes 1094 attendants shows a statistical significant difference (01) between the rural group (292) and the Urban group (802) using the two way analysis. This indicates the probability of some environmental

Table 2: Distribution of impaired people in rural and urban areas according to the different occupations.

| Occupations    | Urban | %    | Rural | %    | Total | %    |
|----------------|-------|------|-------|------|-------|------|
| Workers        | 157   | 19.2 | 72    | 24.6 | 229   | 20.9 |
| Farmers        | 12    | 1.4  | 61    | 20.8 | 73    | 6.6  |
| Office holders | 74    | 30.7 | 29    | 9.9  | 276   | 25.2 |
| Drivers        | 24    | 2.99 | 12    | 4.1  | 36    | 3.2  |
| Retired        | 117   | 14.5 | 36    | 12.3 | 153   | 13.9 |
| House wives    | 245   | 30.5 | 82    | 28   | 327   | 29.8 |
| Total          | 802   | 100  | 292   | 100  | 1094  |      |
| %              | 73.3  |      | 29.9  |      | 100   |      |

Analysis of Variance - Two way analysis

Term

Table 3 of the Urban smokers shows a statistical significance ( $P < 0.05$ ) which adds the effect of smoking up to the environmental factors of urban area in the resulting lung impairment, while such significance was not found among smokers and non-smokers of the rural areas.

Table 3: Distribution of smokers and non-smokers impaired people in Urban area according to the different occupations.

| Occupations    | Smokers |      | Non-smokers |      | Total | %    |
|----------------|---------|------|-------------|------|-------|------|
|                | No.     | %    | No.         | %    |       |      |
| Workers        | 101     | 30.6 | 56          | 12.8 | 157   | 20.4 |
| Office holders | 67      | 20.3 | 180         | 41.2 | 247   | 32.2 |
| Retired        | 88      | 26.6 | 29          | 6.6  | 117   | 15.2 |
| House wives    | 74      | 22.9 | 171         | 39.2 | 245   | 31.9 |
| Total          | 330     | 100  | 436         | 100  | 766   |      |
| %              | 43.0    |      | 57.0        |      | 100   |      |

Table 4: Distribution of smokers and non-smokers employed people  
Rural area according to different occupations.

| Occupations | <u>Smokers</u> |      | <u>non-smokers</u> |      | Total | % |
|-------------|----------------|------|--------------------|------|-------|---|
|             | No.            | %    | No.                | %    |       |   |
| Workers     | 56             | 44   | 16                 | 13.6 | 72    |   |
| Farmers     | 47             | 37   | 14                 | 11.9 | 61    |   |
| Retired     | 6              | 4.7  | 23                 | 24.7 | 29    |   |
| House wives | 18             | 14.1 | 64                 | 70   | 82    |   |
| Total       | 127            | 100  | 117                | 100  | 244   |   |

53.0

47.0

100

Analysis of Variance

which emphasises the importance of the L.F.U. .

The residence factor had clear effect in causing lung impairments; the effect of smoking was also clear in urban areas.

Based on the above conclusions the study recommends:

- 1- Undertaking further examinations to identify the environmental factors affecting lung functioning.
- 2- Recording full information on unit's attendants, specially their occupational handled materials and smoking habits.
- 3- Conducting epidemiological study on lung functioning of normal Iraqis.
- 4- Conducting epidemiological study on the effects of different occupational factors on lung functioning.

### **ACKNOWLEDGEMENT:**

The study team is deeply indebted to all those who contributed to the realization of this study. A special word of thanks and appreciation should be extended to the staff of the Computer Centre as well as to the staff of the LFU of the Medical College.

- 4 - Morgan and Seaton, occupational lung disorders P(6-20, 274)
- 5 - P C Elmes,. Relative importance of cigarette smoking in occupational lung diseases. Brit. J. Indust. Med., 38:1, 1981.
- 6 - occupational exposure and 12 years spirometric changes among area workers, Brit. J. Indust. Med. 39:221-232, 1982.
- 7 - Y. S. AL-Zuhair, C. J. Whitaker and F. F. Cinkotai, ventilatory function in workers exposed to tea and wood dust, Brit. J. Indust. Med., 38:339, 1981
- 8 - James E. Fish occupational Asthma J. of Society of occupational medicine vol. 24, No. 5, 1982.
- 9 - James G. R. Predfoot A. T. and Hall J. I. Pulmonary effects of acute exposure to Nitrous fumes, Thorax 28, 61, (1973)8