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b. The statistical significance of differences between frequency distributions for two or more groups can be tested simply by the chi-square test.

c. A sample of employees can be selected for clinical interview on the basis of the relationship of each member's record to the absence being studied.

d. It can identify the cause of sickness absence in a way that a study of average sickness absence rate cannot.

Froggat 1967 and Taylor 1967 found the spells of sickness absence or days of sickness absence incurred by individuals in any one period tend to follow the negative binomial distribution (N.B.D) and not poisson distribution (P.D) and accordingly the direct comparison of the resultant is strictly valid, while the average rates can not be used for comparing industrial sickness absence.

No previous sickness absence studies in Iraq show the type of sickness absence distribution, N.B.D. or P.D, exist among Iraqi industrial population.

This study asks the following questions:
Do the spells of sickness absence occur at random (i.e. Poisson distribution) among Iraqi State Establishment for Textile employees or do they occur in a unequal fashion (Negative binomial distribution) as they do among industrial population in other countries.

METHOD

from all the employees employed by the Iraqi State Establishment for Textile during two years (from 1.4.1977 to 31.3.1979) two groups were selected (Kadhim 1980):

Group one:

2378 employees were selected as they were continuously worked throughout the first year of the study (from 1.4.1977 to 31.3.1978).

Group Two:

2405 employees were selected as they were continuously worked throughout the second year of the study (from 1.4.1977 to 31.3.1979).

In order to answer the question it was necessary to test if the observed frequency distribution of spells of sickness would fit the P.D or the N.B.D . The observed frequency distribution was to be tested against the expected frequency distribution derived from each of the above distributions. Using Chi-square (goodness of fit) test in order to examine whether there is a significant difference between the observed and expected distribution.

Note:

* The population of each group does not classified according to age, sex, occupation because other studies (Taylor 1967, Jamil 1978) show

Table 1 - The distribution of spells of sickness absence among the employees who were in continuous employment throughout the years (1977-1978 and 1978 - 1979) observed (O) and those expected on N.B.D. and P.D.

No. of spells	Number of employees					
	Group One			Group Two		
	O	P.D	N.B.D	O	P.D	N.B.D
0	304	157.2	330.2	243	128.0	248.8
1	488	427.0	488.9	446	375.4	445.6
2	513	580.0	473.2	476	550.6	485.8
3	395	525.0	377.1	439	538.4	416.2
4	274	356.7	268.2	329	394.9	307.9
5	151	193.8	177.1	184	231.7	206.2
6	87	87.7	110.8	120	113.3	128.5
7	70	34.1	66.7	74	47.5	75.8
8	33	11.6	38.9	38	17.4	42.8
9	28	3.5	22.1	20	5.7	23.3
10	15	1.0	12.3	22	1.7	12.4
11	10	0.2	6.8	8	0.4	6.4
12	8	0.1	3.7	4	0.1	3.2
13	2	0.01	2.0	2	0.02	1.6
Total	2378	2378	2378	2405	2405	2405
χ^2		2628.44	25.29			
d.f.		12	12		917.9	15.26
P.		0.001	0.01		12	12
					0.001	0.1
Mean = 2.716				Mean = 2.933		
K = 3.255				K = 4.600		

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no effect of such variable on the type of frequency distribution.

* Spell, mean the absence of a worker from work for at least one full day which can be due to sickness or accident, all spells irrespective of their length of duration were included in this study.

* The data was analysed by the national computer centre after making a programme for N.B.D. and P.D.

RESULT AND DISCUSSION

The result of frequency distribution (Table 1) for the first year of the study (1.4.1977 to 31.3.1978) show that 12.8% (304) of the total employees have no spells of sickness absence, 20.5% (488) have one spell, 21.6% (513) have two spells, 16.6% (395) have three spells and 6.9% (166) have more than seven spells in the year. From this (Table 1) one can select the employees who get seven spells and more for example in one year and interview them to know the real cause behind their sickness absence. This also mean that number of employees who are prone to take high number of spells of sickness absence comprise of the lowest number of employees; similar pattern is found

in the second year of the study (Table 1).

The observed frequency distribution of spells of sickness absence for two groups is applied to the theoretical model of P.D. and N.B.D.

The P.D. for the expected number of employees is different from the observed ones for the two groups at probability level of 0.001 while the N.B.D. is found fit for the two groups at probability level of 0.01 and 0.1 respectively. Therefore the distribution of sickness absence for the two groups follows the pattern of N.B.D. (Fig. 1&2). This is similar to Taylor's (1966) finding among refinery employees and Jamil (1978) finding among national health service employees. However, it may be concluded that the employees of Iraqi State Enterprise for Textile do not differ from their Colleagues in the other country who have been shown to follow the N.B.D. (Taylor 1967, Ferguson 1973).

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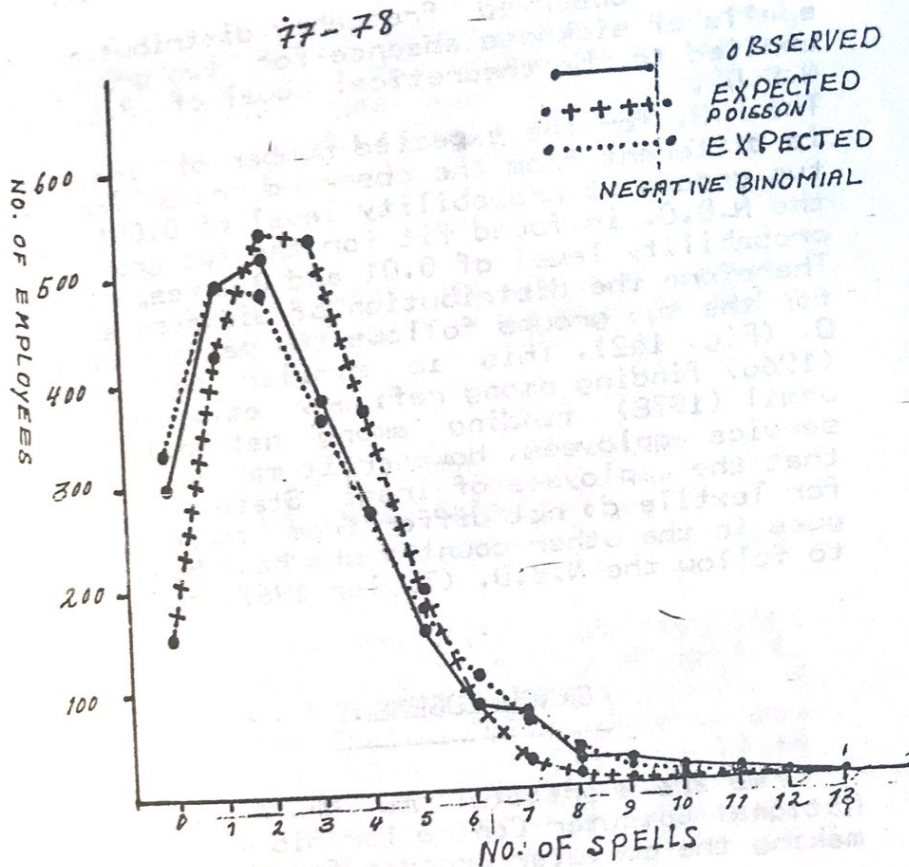


FIGURE 1. FREQUENCY DISTRIBUTION OF EMPLOYEES HAVING 0, 1, 2, 3, etc. SPELLS OF ABSENCE WITH EXPECTED POISSON AND NEGATIVE BINOMIAL DISTRIBUTION GROUP ONE (1.4.77-31.3.78)

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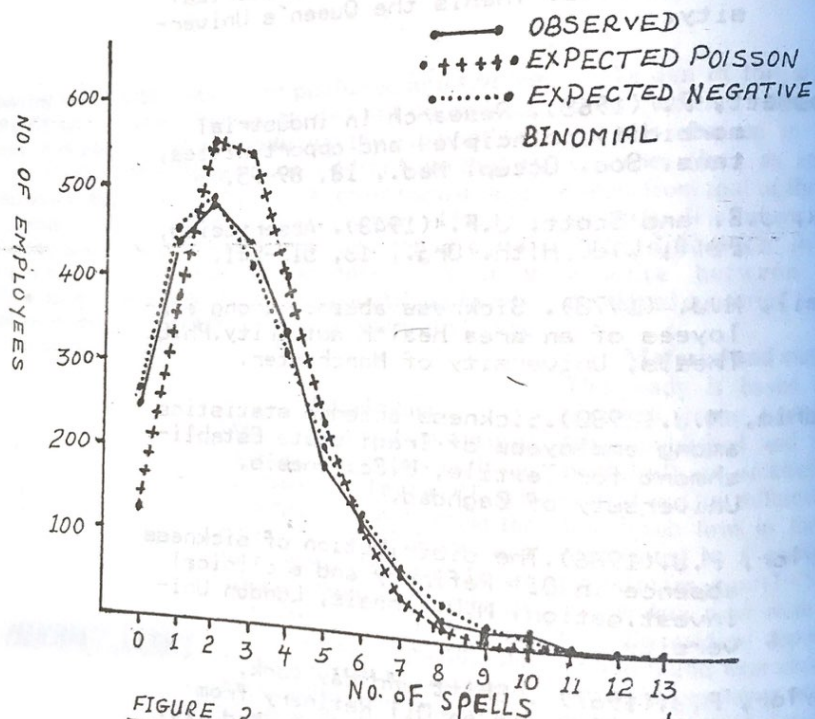


FIGURE 2

FREQUENCY DISTRIBUTION OF
EMPLOYEES HAVING 0, 1, 2, 3 etc
SPELLS OF ABSENCE WITH
EXPECTED POISSON AND NEGATIVE
BINOMIAL DISTRIBUTION GROUP TV
(1.4.78 - 31.3.79)

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