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Sick leave certification: a unique perspective on frequency and duration of episodes - a complete record of sickness certification in a defined population of employees in Malta

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Abstract

Background: In Malta, sickness certificates are needed from the first day of illness, and are issued by family physicians (FPs) either employed by the government primary health care system, self-employed in private practice, or employed by an employer for this purpose alone. The latter system, when applied by the employer, is compulsory. In order to contribute to the debate on the role of the FP in this context, electronic data collected by a group of company-employed FPs was used to study the phenomenon of sickness certification. This database is a complete record of the selected employees' sick leave certification during the study period.

Methods: Data collected by company-employed FPs from a defined population was used: all employees of selected Maltese companies served by a group of FPs. The database included episode-based data from home visits over three years (01/01/1997 – 31/12/1999), by 9 company-appointed FPs regarding 421 employees of five companies.

Results: 3015 episodes of sickness absenteeism, with an average duration of 2.9 days, were documented. Employees who did intensive manual work had relatively higher rates. Furthermore, a relatively higher incidence of work injury, sprains and strains, anxiety and depression and low back pain as found in manual workers, and in male workers. This trend was shown to be statistically significant.

Conclusions: The frequency of sick-leave certification in Malta is comparable to that in other European countries, but the average duration of certificates is much less than reported in other studies that generally did not include data on short-term illness and certification. This has important implications on future research in the field. A number of common disorders were found to be significantly more prevalent causes of sickness certification in manual workers, amongst them anxiety and depression.

Background

Sick leave certification is an important element of family physicians' (FPs') day-to-day work, contributing significantly to their workload, as is certainly the case in Malta

[1–7]. Certification of sick leave is a reflection of the burden of illness in the community, and of the influence of national, cultural and social characteristics. Notwithstanding the importance of sickness leave certification,

which may exceed as a financial burden on society even the costs of drug prescribing [5,6], relatively little discussion of it is available in the literature. The FP's certification practice has been the subject of relatively little research as compared to studies focusing on absence from work because of sickness itself and on the extent to which the working environment contributes to health problems resulting in sickness certification.

In order to contribute to the debate on the role of the FP in this context, data was collected from Maltese FPs' sickness certification practice in a fixed population of employees, analysed in an episode-oriented * model. Employees in Malta may obtain a sickness certificate from their personal self-employed FP, from a Government-employed FP in a health centre, or from the company-employed FP if the company provides one. It was impossible, although desirable, to collect usable data from Government-employed FPs due to the lack of patient records, very poor continuity of care inherent in the system, and inconsistent record-keeping systems in the Government health centres. Data from private self-employed FPs was collected in a separate study (referred to in Table 4). The data collected by company-employed FPs, presented here, is of specific unique interest as it represents a complete longitudinal episode-based sickness certification record of a fixed employee population.

The fact that in Malta certification of sickness by a doctor is necessary from the first day of illness, is part of the heritage of the Islands' socialist political background. *Agius Muscat et al* observed that the amount of clerical work in Maltese general practice is significantly higher than in other countries [1]. Although not an affluent country, Malta ranks very high in the World Health Report 2000 [8]. This is a reflection of local equality in access to relatively high quality health care for a relatively low price.

Employees can work from the age of sixteen to the age of 61. The employer pays the first three days of sick leave in full for all full-time employees and participates in payment, with the Social Security system, for the rest of the sick leave entitlement (varies from 15 to 30 days on full pay). Injury on duty qualifies an employee for sick leave on full pay for up to one year. A Maltese employer has the right to appoint an FP as a company doctor, and may choose to honour only certification by him or her. This system of company-employed FPs is commonly found, and it is obligatory for the employee to report sick to the company FP, who will in turn visit him on the first day of sickness.

The data collected was used to answer three specific research questions:

1. What are the observed patterns of morbidity in employees who report sick to the FP from the first day of illness?
2. Do these patterns differ, especially in diagnostic title and length of episodes, from previous studies where sickness certification was not studied from day one?
3. The higher incidences of certain diseases (injury on duty, sprains and strains, low back pain, and anxiety/depression) evidently associated with manual type of work in the dataset prompted the systematic investigation of this phenomenon.

Methods

The database contains data from home visits over three full years (1997–1999) to a defined, stable population of 421 employees of five selected Maltese companies, performed by a group of 9 company-appointed FPs.

All employees who reported sick were seen by an FP at home, and the data returned to the author for reporting. Each episode of certification got a free text label diagnostic title, but no classification system or diagnostic guidelines were applied. The last diagnosis was used in the analysis: (e.g. if the original "URTI" label was eventually changed to "bronchitis" by the FP over two or more encounters for the same sickness episode, the entire episode's diagnosis was taken to be 'bronchitis'). Data was collected and stored in a customised Microsoft Access database. Data entry was done by the author personally and re-validated against written records at the end of every month. During analysis and data tabulation, rates of sickness certification were standardised to events per 1000 employees per annum.

To analyse the statistical significance of trends in sickness certification by diagnosis and type of work, odds ratios were calculated (exposure taken as manual against desk type of work, disease taken as being ever certified in three years with the particular diagnosis) for all workers, for male and for female workers, and significance measured as a p-value by applying the chi-squared test (Fisher's exact test used when small numbers precluded use of chi-square).

Results

In the three-year period the 9 company-appointed FPs performed 3423 visits to the population of 421 employees, for 3015 episodes of sickness for which 8869 days sick were prescribed. Thus the average sickness certification was 7.02 days and 2.39 episodes per employee per annum (7,020 days and 2,390 episodes per 1000 employees per annum), and the average duration of an episode of sickness was 2.9 days. The number of episodes of a specified duration is displayed in Figure 1, and it can be seen that

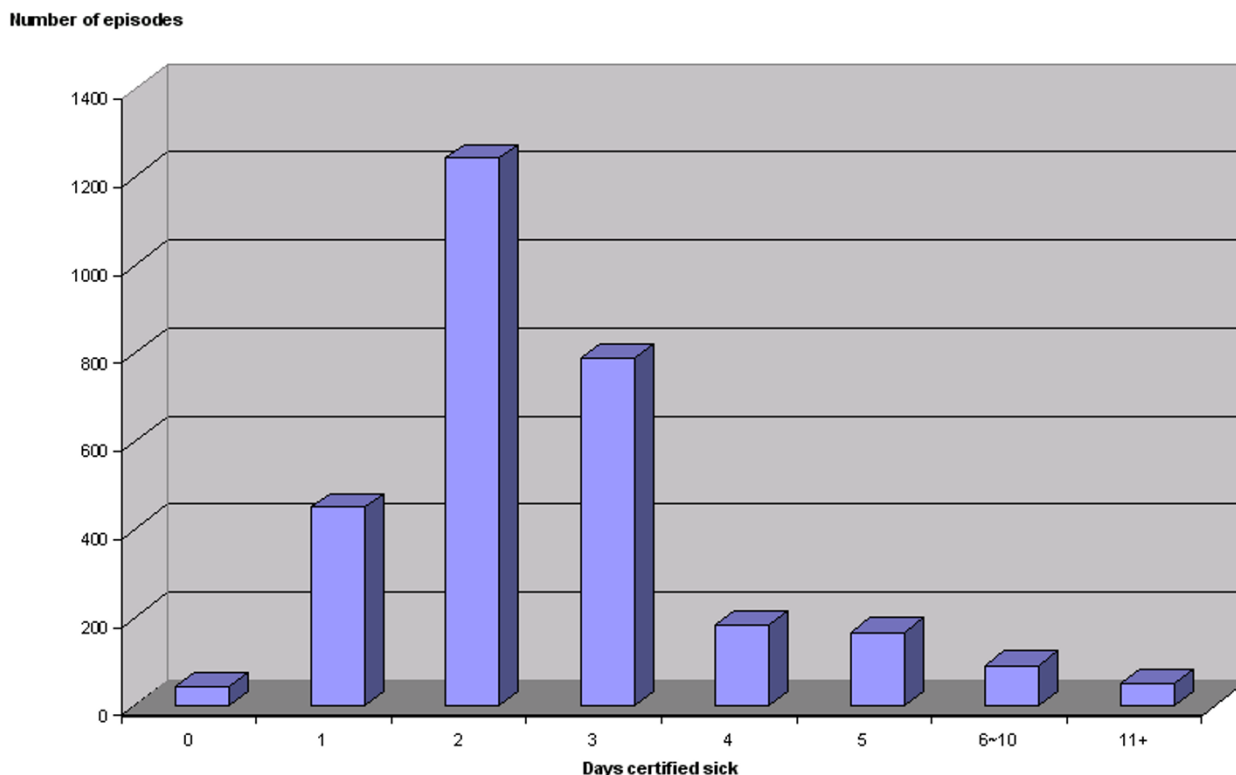


Figure 1
 Number of episodes of a specified duration in days. X-axis – number of days certified sick Y-axis – number of episodes of specified duration in days

the distribution is, as expected, skewed to the right. The data per company is presented in Table 1: companies D and E, where employees did intensive manual work, had relatively high overall sickness certification rates. Whereas the rates of episodes and days sick for injury on duty, strains and sprains and low back pain were also higher in companies D and E, the figures for upper respiratory tract infections showed no such trend.

The three most common episodes were upper respiratory tract infections, sprains and strains, and gastro-enteritis (data not tabulated). It is notable that these Maltese workers relatively seldom received sickness absenteeism certification because of depression or anxiety.

In Table 2, the annual averages of episodes and days sick are presented by diagnostic title, broken down by category of employee (sex and type of work). The data collected allowed the opportunity to look in more detail at why sickness certification rates were higher in manual workers. It

is clear that the sickness rates of injury on duty, sprains and strains, low back pain and psychological diagnoses are higher for male and manual workers, while the rates for URTI show no trend for sex or type of work. This trend was found to be significant for male and manual workers, as tabulated in Table 3. It is probable that the trend was not found to be significant for female workers due to the small number in the study population.

Discussion
 The global rates of sickness certification measured were almost identical to those subsequently reported from private companies in a concurrent but independent study on sick leave by the Malta Employer's Association, which therefore supports my results. The rates for employees in Government employment, which were not accessible for study as the Government does not routinely provide the services of a "company" FP, were reported to be much higher [9]. However, the companies and employees included in this study are not necessarily representative of

Table 1: Number (Episodes) and average duration (Days) of episodes by company (A to E); rates per 1000 employees per annum for selected diagnoses and for all diagnoses totalled.

Company		A	B	C	D	E
Episodes	Injury on duty	10	29	17	167	200
	Sprains/Strains	71	310	517	904	692
	Low back pain	17	29	200	180	100
	Anxiety / Depression	4	24	0	44	38
	Upper respiratory tract infection	531	1,070	667	1,020	938
Total	All diagnoses	1,140	2,680	2,400	3,740	3,580
Days	Injury on duty	236	148	50	1,220	996
	Sprains/Strains	170	652	1,300	2,220	1,760
	Low back pain	44	91	667	952	304
	Anxiety / Depression	8	267	0	132	446
	Upper respiratory tract infection	1,290	2,660	1,870	2,760	2,380
Total	All diagnoses	3,030	6,870	6,880	12,950	10,280

Company A: a goods distributor/agency with 175 mostly young employees, 56% male, 80% with desk jobs; Company B: a car dealership with 70 employees, 67% males, 55% with desk jobs; Company C: a sports complex, 20 employees, 80% males, 85% manual work; Company D: an animal fodder processing plant, 76 employees, 70% male industrial workers, Company E: a steel fabrication plant, 80 male employees, heavy manual work.

Table 2: Episodes of sickness and days sick by employee category; rates per 1000 employees per annum.

Episodes	N	Total	Injury on duty	Sprains/strains	Low back pain	Psychological	URTI
Female manual workers	19	1,754	0	351	53	18	526
Male manual workers	207	3,277	153	692	135	35	879
Female desk workers	78	1,893	9	73	13	0	893
Male desk workers	117	1,245	3	108	6	9	613
Days sick	N	Total	Injury on duty	Sprains/strains	Low back pain	Psychological	URTI
Female manual workers	19	4,105	0	772	123	53	1,333
Male manual workers	207	10,293	910	1,720	565	230	2,283
Female desk workers	78	4,231	21	145	38	0	2,171
Male desk workers	117	3,570	291	248	14	145	1,558

Legend: N = number of employees in each category Total = rate of sickness episodes per employee, for each category (total for all diagnoses) URTI = upper respiratory tract infection, including colds, sinusitis, flu, but excluding otitis media and chest infections

Maltese companies and employees, and no correction for employees' age and health status was possible. Furthermore no attempt at independent validation of doctors' diagnostic labelling or sick leave prescription was made.

The commonest diagnostic labels for sickness certification were found to be similar to those reported in the international literature [2,3,6,7]. However, the average duration of episodes of sickness absenteeism in Malta appears to be

considerably less than what is reported in other European countries, even though the frequency of certification is similar (Table 4). Especially when compared to the Scandinavian countries and the UK, the amount of work that has to be compensated because of sickness in Malta is considerably less [10,11]. It always has been one of the core responsibilities of family physicians to be aware of the economical, political and social conditions in which their patients live, and these also dictate the system in which

Table 3: Odds ratio and relative risk of manual against desk workers having one or more episode of specified reasons for sickness certification in three years, with Chi-squared (Mantel Haenszel or Fisher's exact test) and P-value.

		Injury on duty	Anxiety/depression	Sprains and strains	Low back pain	URTIs
Total	Odds Ratio (95% C.I.)	19.03 (6.81 – 73.18)	6.68 (1.52 – 60.81)	7.46 (4.63 – 12.03)	7.89 (3.23 – 23.10)	0.79 (0.47 – 1.35)
	Chi-squared (Mantel Haenszel)	53.18	8.18	83.04	27.92	0.82
	p value	< 0.001	0.004	< 0.001	< 0.001	N.S.
Male	Odds Ratio (95% C.I.)	25.47 (6.46 – 218.18)	3.97 (0.88 – 36.57)	6.54 (3.74 – 11.48)	9.84 (3.01 – 50.58)	0.91 (0.48 – 1.73)
	Chi-squared (Mantel Haenszel)	38.46	3.78	53.38	19.89	0.09
	p value	< 0.001	0.05	< 0.001	< 0.001	N.S.
Female	Odds Ratio (95% C.I.)	0.00 (0.00 – 22.55)	Undefined	4.20 (1.16 – 14.60)	3.00 (0.23 – 28.08)	0.38 (0.10 – 1.41)
	Chi-squared (Mantel Haenszel)	Fisher's exact test	Fisher's exact test	Fisher's exact test	Fisher's exact test	Fisher's exact test
	p value	N.S.	N.S.	0.021	N.S.	N.S.

Legend: Total = data for all employees calculated as one group Male/Female = data for males/females calculated separately Injury on duty = injury on duty (at workplace) Sprains and strains = muscular sprains and strains Low back pain = low back pain (excluding myalgia of the back, included in category above) Anxiety/depression = anxiety, depression, and other psychological diagnoses URTIs = upper respiratory tract infection, including colds, sinusitis, flu, but excluding otitis media and chest infections Odds ratio = odds ratio of disease in manual against desk workers Chi-squared = Chi-squared (Mantel Haenszel) or Fisher's exact test as calculated in Epi-Info, with appropriate P-value

Table 4: Certification in various European countries, described by researcher colleagues [12], reported in previous studies [2,7,13,14] or studied using Maltese doctors' electronic patient records [15]. Where data on sickness certification was not available, data on the total number of administrative procedures is used instead.

Country	Sickness certificates (when specified – administrative procedures)	Doctor's certificate needed when?	Re-certification needed after what time?	Coding of diagnostic title on certificates?
Austria		> 3 days	varies with diagnosis	not coded
Flanders	5.4% of interventions, 17.9% of encounters [13]	day 1	every month	not coded
France		day 1	FP may certify for long periods	not coded
Germany		> 2 days	one month	ICD-10
Hungary		3 days self-certification once in a year	1 st week, then every two weeks	ICD-10
Israel	0.8% of interventions were administrative procedures [13] 11% of consultations [2]	1 st day self-certified up to 3–4 times a year	Varies, few days (FP) to some months (specialist)	ICD-9 or (9-CM)
Italy	3.6% of reasons for encounter by patients were sick certificate requests [13]	day 1	1 week	not coded
Malta	5.7% of all reasons for encounter in new episodes were for administrative procedures; the latter requested in 8.2% of all new episodes; 4.7% of interventions; certificates issued in 11.7% of encounters and 11.3% of episodes [15]	day 1	one week	not coded
Netherlands	0.09% of encounters [14]	self-certification	social security physician, variable time	FPs not involved in certification process
Norway	12–17% of encounters [2]	> 3 days	weeks	ICPC
Poland	2.0% of interventions [14]	day 1	up to six months	ICD-10
Portugal		day 1	every month	not coded
Slovenia		day 1	every month	ICD-10
Sweden	8.8% of encounters [7]	day 8	weeks	not coded
United Kingdom	18–35% of consultations [2]	> 5 days	FP may certify for long periods	not coded
Wallonia	3.6% of reasons for encounters were for administrative procedures [13]	day 1	every month	not coded

loss of income because of sickness is compensated. The explanation for this paradox may therefore be that it is a local phenomenon, but it is more likely that other studies may have ignored the important contribution of short-duration episodes of sickness. The observation that sickness certification episodes may be actually shorter on average than previously reported, when one takes into account sickness certification from day one, has important implications for further research in the field.

As expected, the frequency and total duration of episodes of injury on duty, low back pain and sprains and strains were higher in manual workers. However, the fact that the same appears true for anxiety and depression was not previously reported in the literature. This trend may become apparent as one considers short duration episodes of certification, as did the apparent paradox noted in the paragraph above. Possibly this trend may also be a local or even Mediterranean characteristic. However researchers and policy-makers alike should be made aware that manual workers may be more prone not only to excess physical but also psychological illness due to the strains and stresses of their work. Further research in this area is clearly needed, and the important contribution of short-duration episodes should be taken into account in all future studies. Since in many European countries certificates are not need from the first day of illness, this may pose difficulties in study design that may be difficult to overcome in such countries.

The striking number of work related problems (injuries on duty) and the significant differences in certification patterns between manual and non-manual workers, are indications of the relative lack of prosperity in Malta in comparison to many West-European countries. On the other hand, compared to data from other countries it is evident that Maltese workers relatively seldom receive sickness absenteeism compensation because of mood disorders, neurasthenia, long standing fatigue etc. It will be interesting to see how these patterns will change as Malta joins the European Union and changes its laws and regulations to comply with European standards.

Conclusions

The frequency of sick-leave certification in Malta is comparable to that in other European countries, but the average duration of certificates is much less than reported in other studies that generally did not include data on short-term illness and certification. This has important implications of future research in the field. A number of common disorders were found to be significantly more prevalent causes of sickness certification in manual workers, amongst them anxiety and depression.

List of abbreviations

FP – Family Physician

URTI – Upper Respiratory Tract Infection

Competing interests

None declared.

Glossary

* Episode-oriented model: the database was structured so that subsequent periods of sickness in one individual, judged to be due to one illness event, were "joined" together to make one episode of sickness of a total duration of the sum of all days sick certified for that illness event, and given one diagnostic title.

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