

# Factors Determining the Duration of Temporary Disability and Return to Work in a Health District of Galicia

F.J. González-Barcala,<sup>a</sup> C. Cadarso-Suárez,<sup>b</sup> L. Valdés-Cuadrado,<sup>a</sup> M.E. Lado-Lema,<sup>c</sup> R. Bugarín-González,<sup>d</sup> C. Vilarinho-Pombo,<sup>e</sup> and X. Hervada-Vidal<sup>c</sup>

**Objective.** To determine the factors associated with the incidence and duration of temporary work incapacity (TWI) in a health district.

**Design.** Descriptive and retrospective study.

**Setting.** South health district of the province of Lugo, Spain.

**Participants.** A random sample of 1513 cases was selected among the total of episodes of TWI, during 3 years period.

**Main measures.** The main factors analyzed are, on the one hand, the socio-demographic characteristics of the patient, his or her social security (SS) scheme, diagnosis that justifies the TWD, and the prescription date; and, on the other hand, the age, sex, specialised training, time in the post and years in practice of the physician who prescribes the TWI. The comparison of the means was carried out using variance analysis and the Kruskal-Wallis test. The relative effect of each variable on the probability of returning to the work was estimated through Cox regression models.

**Results.** The mean duration of the episodes of TWI was of 74±103 days. The most frequent diagnoses were those of the bones-muscles and joints (BMAJ), injuries and poisonings (IAP), and respiratory diseases (RD). The probability of returning to work is reduced with the increase of the age, with agrarian and autonomous SS affiliates, with diagnoses of mental disease or diagnoses of the circulatory system, and in cases prescribed by older doctors or less time in the post.

**Conclusions.** The mean duration of the episodes of TWD is higher than that of other Spanish studies. The most influential factors in the return to work are the age of the patient, the SS scheme and the diagnosed illness.

**Key words:** Temporary work disability. Return to work. Determining factors.

DETERMINANTES DE LA DURACIÓN DE LA INCAPACIDAD TEMPORAL Y LA VUELTA AL TRABAJO EN UN ÁREA SANITARIA DE GALICIA

**Objetivo.** Determinar los factores asociados con la incidencia y la duración de la incapacidad temporal (IT) en un área sanitaria.

**Diseño.** Descriptivo, retrospectivo.

**Emplazamiento.** Área Sanitaria Sur de la provincia de Lugo.

**Participantes.** Una muestra de 1.513 episodios de IT seleccionada aleatoriamente entre el total de éstos, durante un período de 3 años.

**Mediciones principales.** Se analizaron las características sociodemográficas del paciente, el régimen de la seguridad social (SS), el diagnóstico que justifica la IT y la fecha de la prescripción; del médico prescriptor se analizaron la edad, el sexo, la formación especializada, la antigüedad en la plaza y los años de ejercicio. La comparación de medias se realizó mediante el análisis de la varianza y el test de Kruskal-Wallis. El efecto relativo de cada variable sobre la probabilidad de volver al trabajo se estimó mediante modelos de regresión de Cox.

**Resultados.** La duración media de los episodios de IT fue de 74 ± 103 días. Los diagnósticos más frecuentes fueron los del sistema osteomioarticular (SOMA), las lesiones y envenenamientos (LYE) y las enfermedades respiratorias (NML). Se reduce la probabilidad de volver al trabajo con el incremento de la edad, en los regímenes de seguridad social autónomos y agrarios por cuenta propia, en los diagnósticos de enfermedades mentales y del aparato circulatorio, y cuando el médico prescriptor es de mayor edad o menos antiguo en la plaza.

**Conclusiones.** La duración media de los episodios de IT es superior a la de otros estudios españoles. Los factores que más influyen en la reincorporación al trabajo son la edad del paciente, el régimen de la seguridad social y la enfermedad diagnosticada.

**Palabras clave:** Incapacidad laboral temporal. Vuelta al trabajo. Determinantes.

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<sup>a</sup>Pneumology Department, Santiago Hospital Complex, Santiago de Compostela, A Coruña, Spain.

<sup>b</sup>Department of Statistics and Operational Research, University of Santiago, Santiago de Compostela, A Coruña, Spain.

<sup>c</sup>General Manager of Public Health, Autonomous Government of Galicia, Spain.

<sup>d</sup>Deputy Manager of Primary Care. Autonomous Government of Galicia, Spain.

<sup>e</sup>Pneumology Section, Pontevedra Hospital Complex, Pontevedra, Spain.

Correspondencia:  
F.J. González Barcala.  
Servicio de Neumología. Complejo Hospitalario de Santiago.  
Urbanización San Sadurniño M, 1,  
3.º A. 15886 Teo. A Coruña.  
España.  
E-mail: fjbbarcala@telefonica.net

Manuscript received April 11, 2005.

Manuscript accepted for publication June 27, 2005.

This data forms part of the work presented for the Diploma in Health 2003 course, carried out in collaboration with the Autonomous Government of Galicia and National School of Health, defended by the student Fidel Fernández Álvarez.

## Introduction

In the last few years there has been an increase in the number of people who have had to restrict their work activity due to an illness, and 1 in every 5 adults declare a limitation due to this cause for longer than 10 days.<sup>1</sup>

Between 1988 and 1994, the cost increased by more 10% per year.<sup>2</sup> On auditing health spending of a health centre, half corresponded to temporary work incapacity (TWI), which almost doubles the drug spending and triples the spending on salaries.<sup>2,3</sup>

Despite the high level of this part of the spending, hardly anything has been done about it, if we compare it with other processes, such as drug spending or hospital admittances, over which measures are continually being put in place to rationalise them.<sup>4</sup>

In a recent publication, the Spanish Society of General Medicine analysed the problem of TWI and it establishes 2 large groups of causes which increase the risk of presenting with this: on the one hand, aspects derived from the characteristics of the worker, and on the other, factors depending on the health structure.<sup>5</sup> As regards the diagnosis groups which are the reasons for TWI, there are differences between the different authors<sup>1,6-8</sup>

But this provision also makes the doctor-patient relationship difficult and challenges the principle of justice and benefit, knowing that ethically it must outweigh the first due to its social aspect of safeguarding the common good, on the second, with a more individual effect.<sup>4,9</sup>

TWI is defined as the temporary or permanent impossibility to carry out work, totally or partially.

In this situation there is insurance owing to an illness, common or professional, or due to accident, whether it is from work or not.<sup>10</sup>

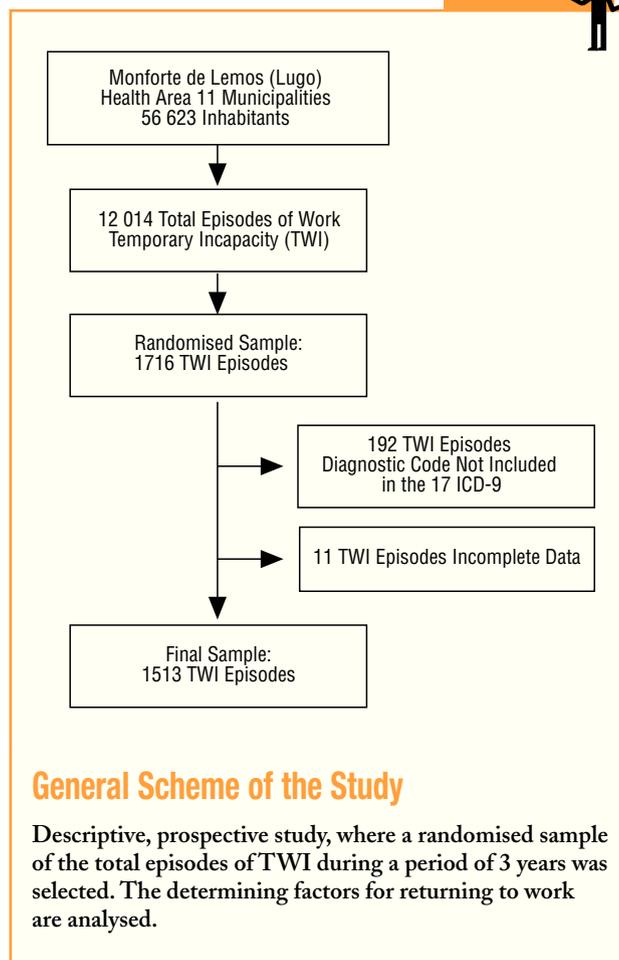
The objective of this study is to find out the factors associated with the incidence and duration of TWI in the Galicia health area.

## Participants and Methods

The study population belongs to the Monforte de Lemos health area (south of Lugo province), which has a total of 56 623 inhabitants, distributed in 11 predominantly rural municipalities, with 3 semi-urban centres. They belong to the active population group, which is composed of individuals affiliated to the Social Security, active, that is contributing, or in similar active situations, such as unemployed with the right to receive benefits. A random selection of 1513 processes was selected from the total record, a seventh of all the episodes.

A descriptive and retrospective study was carried out on a 3 year period, from the 1st June 2000 until 30th of May 2003. Information on the characteristics of the patient and the prescribing doctor was obtained from the TWI data base of the

Material and methods



health area of the study. The information collected on the patient was; date of birth, gender, home address, the cause which led to the work incapacity code according to the ICD-9 with 3 digits, the reason for signing off, the eventuality, the month and the year of prescribing TWI, the duration of the TWI, the total processes of TWI during the period analysed, the SS scheme to which the patient is affiliated. The 17 diagnostic groups of the ICD-9 with 3 digits, were reduced to 10 for the analysis, and the 9 most frequent, and the remainder, given their low incidence, were grouped into a single category. The date of prescribing the TWI was classified into 2 groups, one for summer, between April and September, another for winter between October and March.

The age, gender, specialised training, years in practice, time in the post, work category, and type of medical contract were evaluated in the prescribing doctor. For the analysis of the age of the doctors, they were classified into 2 groups, those older than the median value of the distribution and those younger than this value. As regards the years in practice and time in the post, these were also analysed in 2 groups depending on the median of each distribution, as in the age variable.

The means and the frequencies were calculated according to the variable type considered. A comparison of the means was also performed using variance analysis and the Kruskal-Wallis test.

**TABLE 1** Duration in Days of Temporary Work Incapacity by Diagnostic Groups\*

Diagnosis	Frequency, n (%)	Duration, Median, Days	Duration Mean±SD, Days	Total Days Lost, n (%)
Infections	56 (3.7)	11	33.16±78.36	1857 (1.65)
Mental	123 (8.1)	89	131.02±134.55	16,115 (14.34)
Nervous system	64 (4.2)	26.50	64.97±95.86	4158 (3.70)
Circulatory	48 (3.2)	101	154±159.15	7392 (6.58)
Respiratory	236 (15.6)	8.5	20.56±37.96	4853 (4.32)
Digestive	67 (4.4)	18	54.27±87.02	3636 (3.24)
BMAJ	474 (31.3)	50	88.23±108.73	41 820 (37.23)
Poorly defined	54 (3.6)	28	79.09±122.93	4271 (3.80)
IAP	294 (19.4)	39	68.40±82.60	20 111 (17.90)
Rest	97 (6.4)	47	83.69±103.58	8118 (7.23)
Total	1513	33	74.24±103.5	112 331

\*BMAJ indicates bones-muscles-and joints; IAP, injuries and poisoning; SD, standard deviation.

**TABLE 2** Factors Associated With the Duration of Temporary TWI

	Frequency, %	Duration Median, Days	Duration Median±SD, Days	P
Gender				.000
Males	880 (58.2%)	27	70.58±106.62	
Females	633 (41.8%)	44	79.34±98.86	
Age, years				.000
<25	145 (9.7%)	15	42.49±81.24	
26-35	327 (21.9%)	18	52.84±89.76	
36-45	392 (26.3%)	25	66.38±103	
46-55	335 (22.5%)	49	94.81±116.63	
≥56	293 (19.6%)	72	100.03±98.86	
Address				.000
Urban	894 (59.1%)	25	61.94±91.53	
Rural	619 (40.9%)	49	92.01±116.48	
SS Scheme				.000
General	1129 (74.6%)	19	55.6±90.01	
Freelance	142 (9.4%)	78.5	122.92±118.84	
Self-employed farm workers	224 (14.8%)	86	136±119.83	
Employed farm worker	12 (0.8%)	42	58±64.83	
Home workers	6 (0.4%)	78.5	158±195.28	
Contingency				.367
Common illness	1253 (85.8%)	32	75.78±106.2	
Non-work accident	178 (12.2%)	39	66.24±86.03	
Work accident	28 (1.9%)	23.50	47.21±71.41	
Professional disease	2 (0.1%)	15	15±0	
Period of sick leave				.004
Summer	773 (51.1%)	37	79.86±107.75	
Winter	740 (48.9%)	29	68.37±98.6	

**TABLE 2** Factors Associated With the Duration of Temporary TWI (continued)

Diagnosis	Frequency %	Duration Median, Days	Duration Median±SD, Days	P
Infections	56 (3.7%)	11	33.16±78.36	.000
Mental	123 (8.1%)	89	131.02±134.55	
Nervous system	64 (4.2%)	26.50	64.97±95.86	
Circulatory	48 (3.2%)	101	154±159.15	
Respiratory	236 (15.6%)	8.5	20.56±37.96	
Digestive	67 (4.4%)	18	54.27±87.02	
BMAJ	474 (31.3%)	50	88.23±108.73	
Poorly defined	54 (3.6%)	28	79.09±122.93	
IAP	294 (19.4%)	39	68.4±82.60	
Rest	97 (6.4%)	47	83.69±103.58	
Reason for signing off				.000
Cured	270 (17.8%)	21.50	39.26±47.64	
Inspection	171 (11.3%)	139	166.65±114.92	
Improvement	1010 (66.8%)	25	58.04±80.21	
Rest	62 (4.1%)	124	235.61±228.30	
Age of doctor				.262
Older	725 (47.9%)	35	79.04±108	
Younger	788 (52.1%)	32.5	69.83±99.05	
Years medical practice				.103
Longer	707 (46.7%)	36	79.7±106.88	
More recent	806 (53.3%)	31	69.46±100.26	
Years in medical post				.326
Longer	866 (57.2%)	35.5	76.8±106.03	
More recent	647 (42.8%)	33	70.82±100	
Medical level	Pending a new statistical study			.230
Permanent	510 (33.7%)	38.50	82.89±111.61	
Intern	736 (48.6%)	32	71.02±99.63	
Locum	233 (15.4%)	26	64.57±98.24	
Rest	34 (2.2%)	49	80.68±87.46	

\*BMAJ indicates bones-muscles-joints; IAP, injuries and poisoning; SD, standard deviation.

The relative effect of each variable on the probability of returning to work was estimated using Cox regression models.

## Results

A total of 1513 episodes of TWI have been collected, with a mean duration of 74 days, and a total of 112 331 lost days (Table 1).

The most frequent illnesses were, bone, muscle and joints (BMAJ), injuries and poisonings (IAP), and respiratory diseases (RD) (Table 1).

**TABLE 3**  
**Relative Effect on the Probability of Returning to Work\***

	Crude		Adjusted	
	RR (95% CI)	P	RR (95% CI)	P
Gender		.028		.147
Males	1			
Females	0.892 (0.804-0.988)		0.919 (0.820-1.030)	
Age, years		.000		.003
<25	1		1	
26-35	0.839 (0.690-1.020)		0.973 (0.793-1.193)	
36-45	0.701 (0.579-0.849)		0.825 (0.676-1.008)	
46-55	0.523 (0.430-0.636)		0.761 (0.618-0.936)	
≥56	0.479 (0.392-0.585)		0.734 (0.590-0.912)	
SS scheme		.000		.000
General	1		1	
Freelance	0.514 (0.431-0.613)		0.596 (0.495-0.719)	
Self-employed farm worker	0.463 (0.401-0.536)		0.545 (0.463-0.642)	
Employed farm worker	0.922 (0.522-1.629)		1.166 (0.655-2.074)	
Home worker	0.428 (0.191-0.955)		0.718 (0.316-1.632)	
Diagnosis		.000		.000
Infections	1		1	
Mental	0.302 (0.220-0.415)		0.330 (0.238-0.459)	
Nervous system	0.544 (0.380-0.779)		0.625 (0.431-0.906)	
Circulatory	0.267 (0.181-0.394)		0.362 (0.241-0.545)	
Respiratory	1.384 (1.033-1.854)		1.505 (1.110-2.041)	
Digestive	0.656 (0.460-0.936)		0.739 (0.510-1.070)	
BMAJ	0.414 (0.313-0.547)		0.581 (0.434-0.777)	
Poorly defined	0.467 (0.321-0.681)		0.639 (0.433-0.944)	
IAP	0.499 (0.374-0.664)		0.584 (0.433-0.789)	
Rest	0.436 (0.313-0.606)		0.466 (0.330-0.657)	
Reason for signing off		.000		.000
Cured	1		1	
Inspection	0.308 (0.253-0.375)		0.388 (0.314-0.479)	
Improvement	0.762 (0.666-0.873)		0.821 (0.711-0.947)	
Rest	0.166 (0.119-0.233)		0.220 (0.154-0.316)	
Age of doctor		.114		.000
Older	1		1	
Younger	1.085 (0.981-1.200)		1.226 (1.095-1.373)	
Years in post		.213		.044
Longer	1		1	
More recent	1.067 (0.963-1.182)		0.890 (0.795-0.997)	

\*BMAJ indicates bones-muscles-and joints; IAP, injuries and poisoning; RR, relative risk; CI, confidence interval.

As regards the lost days, the BMAJ illnesses and IAP continued to be the main causes, although followed, in this case, by mental problems (Table 1).

The duration of the TWI was significantly associated with the gender of the patient, the age, the address, the SS

scheme, the time of year, the diagnosis, and the reason for signing off. Thus, a longer duration was found in women, in the older age group, and in subjects with rural addresses, SS contributors as freelance, self-employed farm workers or home workers, during the summer period, and in the diagnosis of mental and circulatory system diseases.

No relationship was seen in our results between the duration of sick leave and the characteristics of the doctors analysed, such as age, years in practice, years in the same post or the permanency of this (Table 2).

On studying the relative effect of different variables on the probability of returning to work, it was observed that the influence of age, the SS scheme, the diagnosis and the reason for signing off, was significant. On the other hand, the gender of the patient did not have any significant effect on this analysis. The probability of returning to work is reduced with the increase in age. As regards the SS scheme, the freelancers, self-employed farm workers and home workers had a lower probability of returning to work than those of a general scheme.

As regards the diagnosis, the mental and circulatory system diseases were associated with a lower probability of returning to work, whilst those diagnosed with respiratory diseases had a higher probability of starting work again.

The TWI processes finalised by being signed off by a medical inspection were associated with a lower probability of returning to work than those signed off by being cured or by improvement (Table 3).

On studying the effect of each adjusted variable, we see that some of the characteristics of the doctor show their influence on the duration of the TWI. Thus, the fact of being

a younger doctor, or longer in the post, increases the probability of returning to work (Table 3).

On analysing the correlation of the possible causes of signing off, curing, inspection and basically improving, some differential characteristics were observed between the

**TABLE 4** Signed off by Medical Inspection. Relative Effect on the Probability of Returning to Work\*

	Crude		Adjusted	
	RR (95% CI)	P	RR (95% CI)	P
Gender		0.43		.005
Men	1		1	
Women	1.369 (1.010-1.855)		1.578 (1.150-2.164)	

\*RR indicates relative risk; CI, confidence interval.

signing off by inspection and the other causes. The older patients, with rural addresses, female gender, self-employed farm worker, with a diagnosis of BMAJ illness and the summer period appear to be associated with a more frequent intervention by medical inspection in the process of ending the TWI (data not shown). For this reason we studied this group of patients separately. In this case, the only variable which demonstrated a significant relative effect, in the crude and adjusted analysis, on the probability of returning to work is gender, this being increased in women (Table 4).

## Discussion

The illnesses which most frequently cause TWI are, in order, those of the BMAJ, IAP, and RD.

The majority of authors observed that these 3 diagnosis groups cause the greater part of TWI episodes, although cardiovascular, neoplastic, psychiatric, digestive system, and neurological diseases are presented as the most frequent in other studies.<sup>6-16</sup> With regard to the results of the national survey on health (NSH) of 1997, the lower influence of circulatory diseases merits mention, which was 3% in our sample as opposed to 9% in the NSH.<sup>1</sup>

The work days lost depended on the frequency, as well as the duration of the TWI episodes. The 3 diagnosis groups with a higher number of days lost are those of the BMAJ, IAP, and mental illnesses, and these three make up 65% of the total days lost. These results are similar to those observed in populations such as Cubans, where BMAJ illness is the main cause of TWI, followed by mental disorders and, in third place, the digestive system.<sup>13</sup>

In our geographical area, the mean duration of TWI episodes was 74 days, and the longest duration was for circulatory and mental illnesses. Other factors associated with a longer TWI have been, female gender, to be older, rural address, and the summer period. As regards the SS scheme, the episodes are longer for freelancers, farm workers and home workers. This could be due to the fact of not receiving benefit in TWI for short duration, therefore patients of this scheme may not apply for TWI benefit as they are anticipating starting work sooner. Other authors

Discussion  
Key points



### What Is Known About the Subject

- Progressive increase in the incidence of temporary work incapacity (TWI) and the costs arising from this.
- Differences in the diagnostic groups associated with TWI and other determining factors between different geographical areas.
- Negative effect of this feature on the doctor-patient relationship.

### What This Study Contributes

- The most common illnesses which lead to TWI are the bone-muscle-joints system, injuries and poisonings, and the respiratory system.
- The increasing age of the patient, the diagnosis of mental or circulatory diseases, as well as if the reason for signing off is due to medical inspection, are associated with a lower probability of returning to work.
- Workers in the general Social Security scheme have shorter periods of TWI than those of other schemes.
- Younger doctors and those longer in the post increase the probability of returning to work.

also refer to longer durations in freelance and farm worker schemes.<sup>6-18</sup> The mean duration is longer than that observed in other studies in our country and varies between 44.5 and 62.7 days, despite the age distribution and diagnostic groups being similar.<sup>11,15,16,18</sup>

On analysing the relative effects of the different variables available on the probability of returning to work, it is reduced with the increase in age, in the freelancer, self-employed farm worker, and home worker schemes, with the diagnosis of mental, circulation system illnesses, BMAJ, and IAP. On the other hand, the diagnosis of RD has a higher probability of returning to work. Different authors agree in the association between increasing age and a reduction in the probability of returning to work.<sup>17,19-22</sup> Other authors did not find a significant relationship between the probability of returning to work and age of the patient.<sup>23</sup>

As regards gender, some studies observe that women have shorter periods of TWI,<sup>23</sup> others longer,<sup>24</sup> and in other cases gender has no influence on the probability of returning to work.<sup>18,19</sup> In our population no significant effect of

gender on the probability of returning to work was observed, despite the shorter episodes of TWI in males.

The freelance and farm workers schemes are also mentioned in the literature as predictors of longer sick leave.<sup>17,18</sup>

Royo Bardono, as regards diagnosis groups, also obtained a higher probability of returning to work in RD and infections, and a lower probability of returning to work in psychiatric disturbances.<sup>18</sup>

Other factors not analysed in our health area have had an influence on the probability of returning to work, although in different socio-health situations, such as marital status, number of children, length of employment, and socioeconomic level.<sup>18,19,23,25-27</sup>

In a recent publication, the results of a program of controlling TWI by means of improved collaboration between medical inspection and primary care has been presented, where a significant reduction in the number of sick leaves is achieved, without changing the duration.<sup>28</sup> In our study, the TWI processes finalised by being signed off by medical inspection is associated with a lower probability of returning to work than those signed off by being cured or improving.

In this case, gender is the only variable which demonstrates a significant effect, in the crude and adjusted analysis, on the length of the TWI, and a return to work is more probable in women.

### Acknowledgements

To Dr F. Fernández Álvarez, Medical Inspector, for his help in the collection of data and technical assessment.

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## COMMENTARY

# Short-Term Unfitness: Surmounting Conflict Through Understanding

L. López-Lázaro

Pharmamar SAU, Colmenar Viejo, Madrid, Spain.

Temporary work incapacity (TWI) is defined, in Spain, by the Law 42/94 of the 30th of December on Complement to the Budget, as “that situation where workers are temporarily disabled to work due to a common or professional illness and accident whether or not at work, while they may receive health care of the Social Security, as well as periods of observation for professional disease in those prescribed sick leave from work during the same.”<sup>1</sup>

The question of TWI is of great economic importance. It is calculated that its cost takes up approximately 50% of the annual expense of a primary care team which attends to 18 000 inhabitants,<sup>1</sup> or from 1% to 5% of the GDP of a developed country in our environment.<sup>2</sup>

The subject involves several bodies with conflicting interests: the worker, the Social Security, the company, and the doctor who, as the one responsible to society for evaluating the unfavourable state of health which temporarily disables the carrying out of work (which the company loses or has to replace), which gives rise to substitute provision (which the Social Security has to cover), is found in a difficult situation as arbitrator. The diversity of views is reflected in the terminology of naming the worker in the TWI situation, to whom the company normally calls “employee,” the Social Security “beneficiary,” and the doctor “patient,” terms of a very different semantic charge. The diversity of interests (the patient may want to prolong or shorten the sick leave, the company and Social Security wish to limit its duration, the objective of the doctor is that the returning to work may happen when the work is compatible with the clinical state of the patient and its carrying out does not lead to danger of deterioration), and often causes conflicts.

The economic significance of TWI and the presence of conflicts of interest means that the attending doctor has to complete a series of documents to enable it to be monitored, which leads to an added work load. This administrative load contributes to the idea that TWI, although intrinsically being a medical prescription, may often be seen by doctors more like a bureaucratic-administrative act than in its technical-scientific objective.<sup>3</sup>

## Key Points

- A topic of great economic importance.
- A frequent source of conflict between the different interests involved.
- Only knowledge, expressed in protocols and consensus documents, can overcome the conflicts.
- Future investigations must examine the seasonal nature of temporary incapacity in more detail due to its importance in health planning.

In view of the previously mentioned conflicts, reflected in the frequent adjudication of TWI, which could be involved in more than 30% of the claims presented in our country,<sup>1</sup> and to optimise its management to reconcile interests and minimise global economic and non-economic costs for all concerned parties, the knowledge of the factors involved, like that contributed by the present article, is of vital importance.

The article examines the factors associated with the duration of TWI episodes and the probability of returning to work in a predominantly rural area.

The factors which were associated with a longer duration were, being female, older, rural address and in the freelance SS, self-employed farm worker or home worker schemes, the summer period, and the diagnosis of mental or circulation system illnesses. There was no relationship between the duration of the TWI and the characteristics of the doctor. The average duration was longer than in other studies, probably due to the higher proportion of rural population and belonging to the farm worker SS scheme, 2 factors which prolong the duration of TWI according to this same study. The effect of the summer season could be due to the lower proportion of sick leave due

to lower level of respiratory causes in that period, which corresponds to the minimum annual incidence of influenza, a causing factor to a greater extent of the seasonal nature of TWI.<sup>4</sup>

The factors which influence the probability of returning to work are the age of the patient (lower the older they are), the Social Security scheme (less if it is a farm worker, freelance or home worker scheme) and the causal illness (less if it is mental or circulatory). Signing off due to medical inspection is associated with a lower probability of returning to work, probably due to being more common in patients with risk factors of not returning to work, as supported by the results of the adjusted analysis, where only the females, with a higher probability of returning to work, maintained a significant effect.

The data presented makes an important contribution to future investigations and the preparation of consensus protocols and documents which could serve as a basis for improving management strategies and, thus limit the bureaucratic load and reduce the level of conflict and adjudication associated with TWI without decreasing patient care. Future investigations should place more emphasis in the design of control strategies (which should not be tak-

en as a criticism of the present article, which could be suitable as a preliminary phase of this task) and in the seasonal nature—important in the planning of care—and its underlying factors.

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