

Nurses' work schedules, work content, and well-being in seven European countries. A comparative study within the NEXT project.

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Abstract

Aim: The European NEXT project looks at reasons for premature leaving of the nursing profession. This paper deals with working conditions, shift work organisation and job satisfaction. **Method:** In 10 participating countries almost 40,000 nurses returned the anonymous questionnaire (51% response rate). Present analysis covered registered and specialised nurses only, from seven countries (n=14482). The data gathered concerns personal characteristics, work load and organisation, quality of work and family life. **Results:** Weekly working time differed from 22.4 hours in The Netherlands to 38.2 hours in Poland. Various shift systems were employed. In France alternating shift system without nights and fixed night work were more frequent than elsewhere. In total sample 49.9% nurses worked nights (70.6% in Slovakia as against 35.1% in France). Generally the percentage of disadvantageous shift schedules was high, resulting in physical and psychological stress and intent to leave the profession. **Conclusion:** To retain nurses and improve their well-being they must be given the possibility to influence their rotas. The personal lives of nurses and work organisation (e.g. overlapping of shifts) must be taken into consideration.

Key words: nurses, shift-work, working conditions, job satisfaction

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Introduction

The Nurses' Early Exit Study (NEXT)¹ was undertaken in order to analyse and understand the reasons for and circumstances of the premature departure of health care workers from their professions. The study used a comprehensive questionnaire to analyse the personal situation and working conditions of healthcare workers (HCWs) in 10 European countries (Hasselhorn et al. 2003). The first part of this prospective, longitudinal study, carried out in the last quarter of 2002, made it possible to identify factors associated with health, working conditions and organizations which were related to either satisfaction or the wish to leave the profession prematurely. We also compared results by country. The second part of data, not analysed yet, was collected in the first quarter of 2004, in the 10 countries.

Women in healthcare have been targeted in studies on the effects of work schedules and night work on sleep disturbances, affective problems, fatigue, pregnancy, and performance (e.g. Barton and Folkard 1991; Gold et al. 1992; Lee 1992; Estryn-Béhar 1997). Dissatisfaction with work schedules may have a great influence on the intent to leave the profession in the context of a lack of available HCWs for most jobs and even more of state registered and specialized nurses. The Night Work Convention (No. 171) and Recommendation (No. 178) of the International Labour Organization, in 1990, both of which apply to both sexes, prescribed a variety of actions to improve the quality of the working life of night and shift workers (Kogi and Thurman, 1993; Knauth, 1993). Do working schedules make better use of current knowledge to moderate the adverse effects of shiftwork for both sexes, since 1990? Did this 12 year period, after the convention, provide an opportunity to examine starting times and compensation for night work seriously? Was sufficient attention

paid to work-related problems, in particular those related to safety, health and job content (Estryn-Béhar 1996, 2001)? Did faculty and hospitals promote a better balance between professional and personal life in terms of part time work, weekend work and the possibility to choose work schedules?

2. Methods

2.1. Description of the "basic questionnaire"

The basic questionnaire was developed by a group of experts, drawing on earlier research results, interviews with nursing staff in three countries and 6 pre-tests in three countries. Finally, a core version was agreed upon and then was used by the participating countries. Each team was allowed to add a limited number of additional items. The final version has about 260 questions. Free text responses were allowed for a few questions. The size of the questionnaires in the participating countries ranged from 24 to 37 pages (Hasselhorn et al. 2003). The questionnaire covers occupational biography, work demands, work organisation, social work environment, individual resources and future occupational plans. Moreover, the questionnaire inquired about relevant private circumstances such as living conditions and additional caring obligations. Some questions were descriptive, single items (e.g. "How often in one month do you have to get up before 5 o'clock in the morning to go to work?"). Other items belonged to scales which describe a certain aspect of work (e.g. "social support"). Twenty-two validated established scales were used to assess relevant aspects. Most of the descriptive, single items and four scales were developed by NEXT.

2.2. Selection of institutions

In each country, the national NEXT teams recruited healthcare institutions for the investigation (hospitals, nursing homes,

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homecare institutions and, in Poland and Finland, institutions for out-patient care). The selection was designed to, as far as possible, reflect the national distribution of HCWs working in the different types of institutions and to cover different regions. Usually, an agreement of the employers and of employee representatives was reached. In each institution, a "field manager" was identified. He organised the assessment(s) and kept in close contact with the national NEXT team throughout the study.

2.3. Distribution of the basic questionnaire

Different procedures for distributing of the anonymous questionnaire were used. Direct posting from the national NEXT teams to the participant's home address was one solution. This was possible in some countries, after agreement of all parties involved. In some instances, the institutions posted the questionnaire themselves to avoid handing out addresses of employees. This was the case for all institutions in France. In other cases, questionnaires were sent to participants via the institution's internal mail.

In all countries (except Belgium), completed questionnaires were returned to the national research institution by post using a pre-paid envelop. In Belgium, questionnaires were personally collected by the researchers at the institutions.

2.4. Analyses of shift work organisation and perceptions of well-being and satisfaction

In the interest of clarity, since the ranks and responsibilities of HCWs are very different in each of the countries studied, we limited our comparison to state registered nurses (SRN) and specialized nurses (SSRN) with no management responsibility (total sample: 14 482). They are henceforth referred to as "nurses". The totals in the tables vary according to the response rate for each specific question. Only seven countries with clear information on rank and respon-

sibilities could be used for this comparison. We present the results using the countries' codes: Belgium (BE), Germany (D), Finland (FIN), France (FR), the Netherlands (NL), Poland (PL) and Slovakia (SLK). For work shift analysis, the percentages concerning less than 30 SRNs and SSRNs will be excluded. This is the case for SRNs and SSRNs working night shifts only in NL, PL and SLK and day work irregular hours in SLK.

Analysis was carried out with SPSS 10.0 and 11.0 software. Pearson's chi square test was used to compare populations. The level of significance was fixed at .05, but the preliminary results presented here concentrate on very significant results (with a level of .001).

2.5. Socio-demographic characteristics of the sample

In most countries, female SRNs and SSRNs constituted the vast majority of the sample (from 88.5% in Germany to 98.6% in Poland). The mean age was between 37.32 years (± 9.0) in Belgium and 41.87 years (± 9.83) in Finland. The mean number of years worked for present employer was 4.36 (± 1.09) in the total sample and it was between 4.20 years in France and 4.77 years in Slovakia. The mean number of years in the nursing profession was less than 15 in BE, D, FR and NL (respectively, 13.98 years, 12.83 years, 14.55 years and 14.19 years) and over 15 for Finland, Poland and Slovakia (respectively, 15.5 years, 20.42 years and 19.08).

3. Results

3.1. Description of the work schedules of registered and specialized nurses in relation to gender and family situation

The shortest mean contractual work week declared by nurses was in The Netherlands (22.41 hours ± 9.07); the longest were in Finland (36.62 ± 4.78), Slovakia (33.87 ± 11.70) and Poland (38.16 ± 6.30) (Table 1). Differences between European

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Table 1. Mean work week duration, part time work, and work schedules according to gender and family situation of registered and specialised nurses in seven EU countries.

Country code	BE	D	FIN	FR	NL	PL	SLK	Total	p
Gender									
Number females	2,992	1,846	3,055	2,361	1,027	726	1,254	13,261	<0.001
Number males	245	352	173	306	60	10	23	1,169	
Mean work hours/week									
contract	30.13	30.70	36.62	34.06	22.41	38.16	33.87	32.41	<0.001
Standart deviation	7.61	10.13	4.78	5.23	9.07	6.30	11.70	8.63	
Sample size	3,126	2,069	2,971	2,462	1,063	564	1,052	13,307	
Mean work hours/week / gender									
female	29.64	29.69	36.53	33.85	21.78	38.16	33.91	32.10	<0.001
male	36.20	35.85	37.67	35.62	32.94	39.75	35.19	35.99	
Part time and classes of work duration [%]									
<35hrs	58.3	41.8	11.9	17.7	85.8	5.3	11.8	33.7	<0.001
35h-37h30	2.2	2.5	2.7	51.3	11.0	18.6	6.9	14.1	
37h30-39h	39.6	46.1	69.6	1.6	16.1	14.2	30.1	37.8	
Work schedule in total sample [%]									
day work regular hours	18.9	9.3	18.1	18.0	16.0	19.6	15.4	16.6	<0.001
day work others	9.2	6.3	3.4	3.6	13.1	5.0	1.8	5.9	
only night shift	4.7	7.7	2.5	15.8	2.1	0.1	0.1	5.9	
shift work without nights	35.6	21.1	19.4	43.4	30.2	12.5	12.2	27.6	
shift work with nights	31.6	55.5	56.6	19.3	38.6	62.7	70.5	44.0	
Men [%]									
day work regular hours	6.6	6.1	6.5	17.7	18.3	20.0	31.8	10.6	<0.001
day work others	4.9	6.6	4.7	5.6	8.3			5.7	
only night shift	8.6	2.3	5.9	15.1				7.4	
shift work without nights	26.7	14.5	18.2	40.3	10.0	30.0	9.1	24.2	
shift work with nights	53.1	70.5	64.7	21.3	63.3	50.0	54.5	52.2	
Women [%]									
day work reg. hours	19.9	9.8	18.8	18.0	15.9	19.6	15.2	17.1	<0.001
day work others	9.6	6.3	3.3	3.3	13.3	5.1		5.9	
only night shift	4.4	8.8	2.3	15.8				5.8	
shift work without nights	36.2	22.3	19.5	43.9	31.3	12.1	12.3	27.9	
shift work with nights	29.9	52.9	56.1	19.0	37.2	63.0	70.8	43.3	
Work schedules of nurses living as only adult with children [%]									
day work reg. hours	17.2	14.8	21.9	21.8	25.6	24.0	22.8	20.3	<0.001
day work others	10.1	6.0	3.1	5.7	18.6	4.0		5.8	
only night shift	7.7	11.4	3.1	20.7				8.3	
shift work without nights	35.5	20.1	19.1	37.3	30.2	6.0	17.8	25.5	
shift work with nights	29.6	47.7	52.7	14.5	23.3	66.0	57.4	40.1	
Work schedules of nurses living as two adults with children [%]									
day work reg. hours	21.9	10.9	19.6	19.6	14.1	19.8	14.6	18.1	<0.001
day work others	8.5	7.3	3.3	3.5	12.9	4.0		5.8	
only night shift	5.9	14.2	2.1	19.0				7.3	
shift work without nights	37.8	25.6	19.2	42.5	35.2	11.5	10.8	28.8	
shift work with nights	26.0	42.0	55.8	15.4	35.2	64.6	72.8	39.9	

Work schedules of nurses living alone [%]									
day work regular hours	8.3	6.3	12.9	14.4	14.0	18.2	18.4	11.0	
day work others	7.4	5.9	3.0	2.0	8.0	6.1		4.6	
only night shift	3.7	2.0	3.9	11.5				4.6	<0.001
shift work without nights	28.1	17.8	15.2	45.9	17.0	21.2	10.5	24.9	
shift work with nights	52.4	68.0	65.1	26.3	61.0	54.5	68.4	54.8	
Work schedules of nurses living as two adults without children [%]									
day work reg. hours	16.6	8.0	17.7	15.7	19.7	15.3	14.2	15.3	
day work others	11.4	5.4	3.9	4.1	14.5	8.8		6.7	
only night shift	1.9	2.3	2.2	9.6				3.2	<0.001
shift work without nights	33.8	17.9	21.5	45.4	24.8	15.3	15.6	27.1	
shift work with nights	36.2	66.3	54.7	25.3	39.0	60.6	68.8	47.8	

countries are clear: BE, D and NL have, respectively, 58.3%, 41.8% and 85.8% of nurses working part time (less than 35 hours per week), whereas FIN, FR, PL and SLK have less than one-fifth nurses working part time (respectively, 11.9%, 17.7%, 5.3% and 11.8%). Poland and Slovakia have a very high percentage of nurses working over 39 hours per week (respectively 73.6% and 39.5%). All differences between countries were highly significant ($p < .001$).

In fact, part time work (less than 35 hours/week) concerns the vast majority of nurses in the Netherlands and in Belgium (85.8% and 58.3% respectively), 41.8% of German nurses and less than 20% in Finland, France, Poland and Slovakia.

Different shift systems were used to provide 24-hour service (Table 1). In four countries, the majority on worked alternating shifts with nights (Germany 55.5%, Finland 56.6%, Poland 62.7% and Slovakia 70.5%). In two countries, one third of nurses worked alternating shifts with nights, and another third alternated shift without nights. Only in France did the work organisation limit the stress of night work to a smaller group of SRNs and SS-RNs, but these nurses are highly exposed: 15.8% work fixed night shifts and most of them work alternating shifts without nights (43.4%). Many more nurses in other countries were involved in night work (49.9% of the total sample; 70.6% in Slovakia vs. 35.1% in France; $p < 0.001$). Only 16.6% of

nurses in the total sample work regular day shifts (e.g. „8–16 hours”) as does the general population, with a minimum of 9.3% in Germany and a maximum of 19.6% in Poland. Atypical schedules are widespread in this profession, mostly in the form of alternating shifts.

Moreover, night shifts or alternating shifts with nights are not associated with a great reduction of work time. In the total sample, the mean contractual work week declared by nurses is 34.3 ± 8 hours for shift work with nights and 29.2 ± 8.7 hours for night shifts only, whereas it is 32.1 ± 8.5 hours for day work with regular hours. Only in Germany do nurses working only night shifts declare working nearly 10 hours less than average. In the other countries, nurses working nights only work one to three hours less than the average working week. The average work time for nurses doing shifts with nights is generally longer than the average work week of other nurses in their country (34.3 ± 8 versus 32.4 for the total sample). In Belgium and Germany, nurses working shifts with nights declare working three hours more than average.

It seems on the whole, in the seven countries studied, that male nurses are more frequently employed than women in alternating shifts with nights (52.2% of men work alternating shifts with nights vs. 43.3% of women). This is true in every country except PL and SLK. Male nurses also work more often in systems with fixed

nights (7.4% of men work fixed night shifts vs. 5.8% of women). This is particularly true in BE and D. Men work day schedules less often than women (10.6% vs. 17.1%). In France, there is less variation in schedules according to gender.

Nurses with children try to avoid alternating shifts with nights (40.1% of them work alternating shifts when they are single parents; 39.9% of them work alternating shifts when they live with another adult and have children vs. 54.8% of nurses who live alone and 47.8% of nurses who live with another adult without children). They try to obtain day work with regular hours (20.3% of them work day shift with regular hours when they are single parents and 18.1% of them do when they live with another adult and children vs. 11% of nurses who live alone and 15.3% of nurses who live with another adult and no children). Some seem to prefer fixed night shifts rather than alternating shifts with nights when they cannot obtain day work (8.3% of them work fixed night shifts when they are single parents and 7.3% of them when they live with another adult and children vs. 4.6% of nurses who live alone and 3.2% of nurses who live with another adult and no children). This trend is particularly obvious in France (20.7% work fixed night shifts when they are single parents and 19% when they live with another adult and children vs. 11.5% of nurses who live alone and 9.6% of SRN and SSRN who live with another adult and no children). The differences in work schedules practised according to family situation are highly significant ($p < 0.002$) in every country except PL and SLK.

3.2. Description of the work schedules of registered and specialized nurses in relation to age

In every country except Slovakia, there is a clear reduction in mean contractual work week after age 30 (in the total sample, on average: 35.33 hours for nurses under 25 years of age; on average: 34.6 hours for 25

to 29 year olds; and always under 33 hours for various older age groups) (Table 2). In Finland this difference is limited (from 37.4 hours for nurses under 25 years old to 35.7 hours for nurses over 55 years old). This is also the case in France (from 35.3 hours for nurses under 25 years old to 33.3 for nurses over 55). In the Netherlands, where the mean work week is already low, we found a great reduction with age (from 29.7 hours for nurses under 25 years old to 22.6 for nurses over 55). This is also the case in Belgium (from 35.5 hours for nurses under 25 years old to 25.6 for nurses over 55 years old). In every country, men work a slightly longer week than women. In Finland, France, Poland and Slovakia, the difference in the mean work week is only slightly less than two hours. But in Belgium, Germany, and the Netherlands the difference in the mean work week between men and women exceeds 6 hours; this figure reaches 11 hours in the Netherlands.

In the total sample, there is only a slight trend towards decreasing the practice of night work with age: 53.9% for nurses under 24 years old, 56.7% for age 25–29, 52.4% for age 30–34, 50.5% for age 35–39, 49.5% for age 40–44, 46.1% for age 45–49, 43.3% for age 50–54 and 38.4% for nurses 55 and over. However, in France, where night work concerns fewer nurses already, the frequency of night work decreases after 40 years of age: 38.9% of nurses under 24 years of age, 36.2% of nurses aged 25–29, 42.9% of nurses aged 30–34, 39.8% of nurses aged 35–39, 32.6% of nurses aged 40–44, 29.2% of nurses aged 45–49, 27.5% of nurses aged 50–54 and 19.2% of nurses 55 and over.

It seems that nurses try to avoid night work as they grow older. However, it is possible to detect an interesting trend. In all 7 countries, the percentage of nurses working permanent nights increased from 1.9% of those under 24 years old, to 2.6% of those aged 25–29, 6.6% of those aged 30–34, 6.7% of those aged 35–39, 7.2% of those

Table 2. Mean work hours/week, work schedules according to age and organisation of work shifts.

Country code		BE	D	FIN	FR	NL	PL	SLK	Total	p
Mean work hours/week/age										
< 25 y		35.45	36.68	37.41	35.32	29.70	36.00	35.36	35.33	
25–29 y		34.42	34.78	37.25	35.26	25.96	39.35	33.74	34.61	
30–34 y		30.71	29.67	36.36	33.87	20.63	38.36	33.50	32.04	
35–39 y		28.17	27.43	36.11	32.35	18.77	39.04	33.92	30.52	
40–44 y		27.18	28.20	36.24	33.60	20.74	38.66	34.18	31.23	<0.001
45–49 y		28.37	30.22	37.10	34.10	22.97	36.71	34.18	32.64	
50–54 y		26.99	31.05	37.13	34.61	21.69	37.67	34.01	32.84	
> 55 y		25.57	32.04	35.67	33.30	22.60	29.67	35.63	32.38	
Certain work schedules according to age [%]										
age < 25 y	day work regular hrs	15.0	3.3	7.1	3.5	4.2		12.1	8.4	
	only night shift	0.6		1.8	9.9				1.9	<0.001
	shift work with nights	34.3	74.8	72.3	31.0	64.2	100	72.7	52.0	
age 25–29 y	day work regular hrs	12.1	3.2	11.6	10.4	7.3	13.3	13.2	9.8	
	only night shift	0.5	2.4	1.1	7.8				2.6	<0.001
	shift work with nights	47.7	71.8	70.1	28.4	52.8	60.0	75.5	54.1	
age 30–34 y	day work regular hrs	16.0	6.2	14.9	12.1	10.7	19.5	16.3	13.1	
	only night shift	4.5	8.5		17.6				6.6	<0.001
	shift work with nights	33.2	58.7	56.0	25.3	51.1	64.6	72.6	45.8	
age 35–39 y	day work regular hrs	23.1	10.6	18.5	16.0	16.7	16.3	12.6	17.2	
	only night shift	4.9	9.2	3.1	21.5	1.8	0.6		6.7	<0.001
	shift work with nights	27.6	53.2	56.3	18.3	37.5	69.3	74.8	43.8	
age 40–44 y	day work regular hrs	20.5	13.3	20.3	20.8	18.4	16.2	15.2	18.4	
	only night shift	7.3	13.3	1.6	17.7			0.5	7.2	<0.001
	shift work with nights	29.8	46.9	55.4	14.9	31.8	67.1	71.0	42.3	
age 45–49 y	day work regular hrs	20.8	14.8	18.9	26.7	19.5	25.0	19.7	20.9	
	only night shift	10.7	8.7	2.6	18.4				7.4	<0.001
	shift work with nights	23.2	42.4	56.0	10.8	31.6	54.6	63.9	38.7	
age 50–54 y	day work regular hrs	26.5	13.8	21.4	29.9	23.7	28.4	16.8	23.3	
	only night shift	5.9	8.6	3.0	14.8	3.4			5.9	<0.001
	shift work with nights	18.9	37.9	54.1	12.7	23.7	50.7	64.3	37.4	
age > 55 y	day work regular hrs	29.2	19.3	22.9	27.6	30.2	40.0	27.3	24.8	
	only night shift	5.6	14.0	5.5	15.8				7.2	<0.001
	shift work with nights	11.2	31.6	43.5	5.3	17.0	20.0	36.4	31.2	
How often get up before 5 o'clock? [%]	never	89.1	52.1	86.0	75.0	98.4	59.1	34.9	74.7	
	1–2/month	2.2	3.9	4.2	2.6	0.8	5.4	3.1	3.1	
	3–5/month	2.3	10.1	2.3	3.1	0.4	4.3	7.9	4.1	
	6–10 times	3.3	18.3	3.8	12.1	0.2	22.5	36.2	10.9	<0.001
	>10 times	3.0	15.6	3.7	7.3	0.2	8.7	17.9	7.2	
	Sample size	3,218	2,174	3,208	2,619	1,082	724	1,241	14266	
How often split shift? [%]	never	64.7	83.0	87.4	86.1	79.2	65.9	35.2	75.6	
	1–2/month	18.9	6.4	6.5	4.8	8.3	18.0	8.7	10.0	
	3–5/month	7.6	4.8	4.6	4.1	7.0	6.2	11.5	6.0	
	6–10 times	5.6	3.1	0.9	3.2	3.2	6.2	18.6	4.6	<0.001
	>10 times	3.1	2.7	0.6	1.9	2.4	3.7	26.1	3.9	
	Sample size	2,766	1,962	2,490	2,359	917	696	873	12063	
Weekends work per month [%]	0	5.6	3.6	19.5	18.2	19.6	17.8	10.3	12.8	
	1	8.0	14.6	9.9	14.3	16.3	13.6	6.5	11.4	
	2	79.8	72.7	28.0	54.7	58.0	31.7	18.0	53.6	<0.001
	3	5.9	7.8	39.7	11.1	4.9	31.0	41.4	18.6	
	4	0.6	1.2	2.8	1.7	1.3	5.9	23.8	3.6	

aged 40–44, 7.4% of those aged 45–49, 5.9% of those aged 50–54 and 7.2% of those 55 and over. Furthermore, in France, the country with the highest proportion of nurses working fixed night shifts, we observed that nurses between 30 and 50 years old and who have their children at home, work the most fixed night shifts. Of those under 24 years old, 9.9% work fixed night shifts; 7.8% of those aged 25–29 work fixed night shifts; 17.6% of those aged 30–34, 21.5% of those aged 35–39, 17.7% of those aged 40–44, 18.4% of those aged 45–49, 14.8% of those aged 50–54 and 15.8% of those aged 55 and over.

In the total sample, nurses working during the day but with irregular schedules remain between 5.3% and 6.9% for the different age groups (results not shown). They are more numerous only in the Netherlands, between 12.5% and 20.3% in the different age groups after 35 years old. In the total sample, nurses working shifts without nights remains between 26% and 27% of the different age groups between 35 and 55 years old and close to 30% of younger and older nurses (results not shown). They are more numerous only in France, and Belgium. In France, we observed a regular reduction from 53.5% to 36.3% with older age groups except after 55 years old, a very small group among which 46.1% work shifts without nights. In Belgium, we observe the lowest proportion at age 26–29 (30%) and between 35% and 44.9% of the nurses aged 35–39 to 44.9% of those 55 and over.

3.3. Starting time, split shifts, week-end work and overtime work

Rising before 5 o'clock in the morning is a frequent occurrence for nurses working morning shifts, either fixed or alternating (Table 3). More nurses in Germany, France, Poland and Slovakia have to wake up before 5 o'clock in the morning 6 times per month or more (respectively, 33.9%, 19.4%, 31.2% and 54.1%) than in the other three countries. In these four countries, where alternat-

ing shifts concern the majority of SRNs and SSRNs, it means that morning shifts start very early.

Split shifts are more often reported in Belgium and Slovakia (respectively, 35.3%, and 64.8% of nurses work split shifts vs. 22.6% in Finland and 23.9% in France). This difficult work organisation for nurses remains quite frequent. This is linked with the number of nurses in each country working in nursing homes or home care. Nearly half of the SRNs in the Belgian sample work in home care or nursing homes (1195 vs. 1571 in hospitals). The differences in split shifts frequency according to institutions are highly significant (17% among the 8579 nurses working in hospitals, 26.5% among the 1353 nurses working in nursing homes and 62.7% among the 1513 nurses working in home care; $p < 0.001$). This trend is observed in every country except Slovakia where split shift are frequent even in hospitals.

Weekend work is a problem for the healthcare profession. Of SRNs and SSRNs, 75.8% have to work two weekends or more per month (Saturday or/and Sunday). Moreover, 42.5% of Finnish SRNs and SSRNs, 36.9% of Polish nurses and 65.2% of Slovak nurses work three weekends or more per month. The Belgian, German, French and Dutch systems favour working both days of the weekend to have more free week-ends; in other countries nurses rest during one of the two days of the weekend. On the other hand, in FIN, FR, NL and PL, nearly one fifth of nurses do not work on week ends.

In the total sample, a third of nurses declare working overtime (8.8% working overtime not paid or compensated and 23.7% working overtime paid or compensated). In Belgium, France and Germany nurses are the more numerous to work overtime not paid or compensated (respectively 15.7%, 14.9% and 8.1% vs. less than 4% in the four other countries; $p < 0.001$). Nearly half of nurses in Germany and France declare working overtime.

More than half of nurses in Germany and France declare that they are dissatisfied with handover shifts (53.6% and 60.5% respectively vs. 19.7% to 33% in the other five countries).

3.4. Influence of nurses on their work schedules and satisfaction about it

More Belgian, French, Polish, and Slovakian nurses declare „not having any influence on the organization of their schedules and rhythm of work” (respectively, 24.1%, 43.6%, 24.5% and 38% have no influence vs. 4.2% of the German, 6.2% of the Finnish and 5.4% of the Dutch nurses; $p < 0.001$) (Table 3).

When a personal need arises, less than half of the nurses have the possibility of swapping their shift with a colleague; this is even more difficult for nurses in France and Poland where about one quarter say that this is impossible.

Necessity to take over shift on short notice is declared at least three times per month by 14.8% of German SRNs and SS-RNs, by 12.2% of French nurses and by 11.9% of Dutch SRNs and SSRNs. This is declared less by nurses in Poland and Slovakia (2.8% and 3.5%). Organizing their personal life becomes more difficult. Sports and leisure activities are not often practised by nurses, except those in Finland and the Netherlands (only 12.6% in FIN and 17.7% in NL declare these activities no more than once a month). In Poland, Slovakia, France and Germany a high proportion of nurses state that they do not have more than one leisure activity per month (respectively 63%, 45.7%, 35.4% 35.2% not have more than one leisure activity per month; results not shown).

More than 10% of all nurses in five countries studied would „absolutely” want to change their work schedule and more than 30% would „perhaps” want to. German, French and Slovakian nurses are more numerous to declare that they would absolutely like to change present shift (respec-

tively 12.8%, 11.3% and 12% would absolutely like to change present shift vs. 5.9% of Polish nurses).

With regard to their well-being, 70.8% of nurses are satisfied with their schedules. This is a little less the case in Germany, France, Poland and Slovakia where, respectively, 37.1%, 33.1%, 35.1% and 36.3% of nurses are dissatisfied with their schedules for their well-being versus 8.9% in the Netherlands. With regard to their private life, 61.9% of nurses are satisfied. This is less the case in Germany, Finland and Slovakia where more than 42% of nurses are dissatisfied with their schedules for their private life versus 17.1% in the Netherlands.

Intent to leave nursing profession is clearly linked to satisfaction with work schedule when well-being is taken into consideration. Nurses dissatisfied are twice as much declaring frequent intent to leave (thinking of it several times per month or more). This is highly significant ($p < 0.001$) in every country except Poland. Intent to leave nursing profession is also clearly associated with satisfaction of work time with respect to private life. Nurses dissatisfied are twice as much declaring frequent intent to leave. This is also highly significant ($p < 0.001$) in every country except Poland. It seems that in Poland nurses' intention to leave job is strongly modified by the general situation on the labour market, i.e. high unemployment rate and difficulty in finding a new job.

As already demonstrated by several authors, night and shift nurses do not get sufficient sleep. In the total sample, 63.2% of nurses working only night shifts do not get sufficient sleep, 45.4% of those in shift work without nights and 56.9% of those in shift work with nights versus 36.2% of those in day work with regular hours. The differences are highly significant ($p < 0.001$) between shifts in the same country and between countries for each shift. The quality of sleep is very bad or rather bad for 28.3% of nurses working only night shifts and for

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Table 3. Influence of registered and specialized nurses on their work schedules and satisfaction about it.

Country code	BE	D	FIN	FR	NL	PL	SLK	Total	p
Influence planning rota [%]									
no	24.1	4.2	6.2	43.6	5.4	24.5	38.0	20.3	
little	30.6	24.3	39.2	25.0	13.4	27.6	31.0	29.1	
moderate	34.9	50.6	36.3	20.7	33.1	30.8	28.3	34.2	<0.001
considerable	9.6	16.5	15.7	7.4	38.0	9.4	1.8	13.2	
decide myself	0.7	4.4	2.5	3.2	10.1	7.7	0.9	3.2	
Sample size	3204	2159	3116	2617	1042	662	1023	13823	
Opportunities to swap shifts? [%]									
no	16.2	5.8	10.2	23.3	19.5	24.0	5.3	14.4	
swapping = difficult	41.3	45.3	41.2	41.5	31.2	42.0	53.5	42.1	<0.001
swapping = easy	42.5	48.8	48.6	35.1	49.3	34.0	41.2	43.4	
Take over shift on short notice [%]									
never	31.0	12.0	32.1	33.8	31.7	47.6	27.0	29.5	
1-2/month	62.6	73.1	62.3	54.0	56.4	49.6	69.5	61.8	<0.001
3-5/months	4.7	12.4	4.4	9.5	8.6	2.2	2.9	6.8	
>5/month	1.7	2.4	1.1	2.7	3.3	0.6	0.6	1.9	
Work overtime [%]									
not paid or compensated	15.7	8.1	2.5	14.9	3.6	1.5	3.9	8.8	
paid or compensated	21.9	38.7	13.7	33.5	21.1	2.7	21.0	23.7	<0.001
no overtime declared	62.4	53.2	83.8	51.6	75.3	95.8	75.1	67.6	
Satisfied with handover shifts? [%]									
no	32.7	53.6	29.5	60.5	28.7	24.3	19.7	38.8	<0.001
yes	67.3	46.4	70.5	39.5	71.3	75.7	80.3	61.2	
Like to change present shift? [%]									
no	56.0	49.7	57.3	57.9	59.9	73.8	60.5	57.2	
perhaps	33.8	37.6	32.0	30.8	30.8	20.3	27.5	32.1	<0.001
absolutely	10.1	12.8	10.7	11.3	9.4	5.9	12.0	10.8	
Satisfied with work time? - well-being [%]									
no	22.7	37.1	30.2	33.1	8.9	35.1	36.3	29.2	<0.001
yes	77.3	62.9	69.8	66.9	91.1	64.9	63.7	70.8	
Satisfied with work time? - private life [%]									
no	34.4	46.9	44.3	36.6	17.1	30.7	42.5	38.1	<0.001
yes	65.6	53.1	55.7	63.4	82.9	69.3	57.5	61.9	
Intent to leave nursing according to satisfaction of work time with respect to well-being [%]									
not satisfied	20.9	28.7	24.6	23.0	22.5	11.7	15.7	22.9	<0.001
satisfied	6.8	14.1	10.6	12.4	5.8	10.1	8.7	9.8	
Intent to leave nursing according to satisfaction of work time with respect to private life [%]									
not satisfied	16.9	26.5	20.0	21.2	15.4	12.2	16.2	20.0	<0.001
satisfied	6.6	13.1	11.1	13.0	5.6	9.8	8.4	9.8	
Work periods: get sufficient sleep? - 'definitely not' or 'not quite' [%]									
day work regular hours	34.7	37.3	39.4	39.9	14.4	44.8	31.2	36.2	<0.001
day work others	35.6	48.8	42.8	52.6	15.7	36.1		37.8	<0.001
only night shift	65.8	54.5	45.5	70.4				63.2	<0.001
shift work without nights	45.0	47.1	44.3	53.4	21.7	40.0	37.3	45.4	<0.001
shift work with nights	65.0	61.6	53.8	55.9	27.7	54.8	65.6	56.9	<0.001
Work periods: sleep quality? - 'very bad' or 'rather bad' [%]									
day work regular hours	8.4	13.7	14.1	11.1	5.2	8.6	18.1	11.0	<0.001
day work others	10.2	26.0	11.8	23.1	5.0	25.0		14.5	<0.001
only night shift	25.0	31.5	26.9	29.2				28.3	<0.001
shift work without nights	11.7	20.2	18.4	16.6	5.9	14.4	10.5	14.8	<0.001
shift work with nights	18.7	23.4	22.4	19.3	7.7	16.4	28.3	20.5	<0.001

20.5% of those in shift work with nights versus 11% of those in day work with regular hours. The differences are highly significant ($p < 0.001$) between shifts in the same country, for every country except NL and PL, and between countries for each shift.

3.5. Nurses' work content according to work schedules in the different countries

Some of the characteristics of SRNs and SSRNs' work are presented here, in order to show some remarkable differences. Physical stress varies according to work schedule (Table 4). Nurses in alternating shifts with nights state more often that they have to make beds and to transfer patients at least six times per day. From 32.7% to 53% of nurses working alternating shifts with night declare bedding patients more than 6 times a day and 33.1% to 52.2% of nurses working only night shifts as oppose to 3.3% to 24.6% of nurses working day work regular hours. Similarly, nurses in alternating shifts with nights state more often that they have to maintain uncomfortable postures frequently. The upright posture is continued six hours or over by more than 65% of the nurses in alternating shifts with nights in all the countries studied except the Netherlands. The upright posture is continued six hours or over by more than 55% of nurses in fixed night shifts in Belgium, Finland, Germany and France. Day nurses are much less exposed to physical strain.

More than a quarter of the nurses in Belgium, Germany, Finland, France and Poland declare they have „seldom enough time to talk to patients”. This complaint is more frequent from the fixed afternoon shifts and alternating shifts in the majority of the countries studied, although this is less the case for fixed night shifts (Table 4).

Worries about making mistakes “often” or “always” are significantly more frequent among nurses working alternating shifts with nights than among those working regular day shift in each of the seven countries ($p < 0.001$).

3.6. Social support, influence at work, uncertainty concerning treatment and work conflicting family, according to shift and countries

In the total sample, mean value of “social support from colleagues” is high for each shift work schedule, but slightly lower for nurses working only night shifts. The mean value of “social support from superior” is lower than support from colleagues for each shift schedule. It is important to underline that nurses working only night shifts or shiftwork with nights have lower indices of support from superior (respectively, 47.7 ± 24.6 and 53.5 ± 23.2) than day workers, both regular and irregular (56.7 ± 23.5 and 57.0 ± 23.5 respectively). This is true for nurses working only night shifts in every country but less important in NL, PL, and SLK where the numbers of nurses in these schedules are insufficient (Table 5).

Index of influence at work is lower for nurses working alternating shift with nights than day nurses (46.2 ± 19.6 vs. 53.0 ± 21.7). Nurses working only night shifts have the highest influence at work. They have the highest autonomy because of less supervision and less medical presence. But nurses working only night shifts declare the highest uncertainty concerning treatment, followed by nurses working alternating shift with nights (34.5 ± 18.5 and 34.2 ± 18.8 vs. 26.5 ± 18.0 for nurses working only day with regular hours). The highest differences in uncertainty concerning treatment is in France: nurses working only night shifts (37.6 ± 17.9), nurses working alternating shift without nights (35.3 ± 18.2) and nurses working alternating shift with nights (34.6 ± 17.6) versus 25.8 ± 18.6 for nurses working only day with regular hours

Alternating shifts with nights are linked with the highest score of the „work conflicting family” index (46.3 ± 24.9 vs. 31.3 ± 23.8 for nurses working only day with regular hours). The highest difference in the „work conflicting family” index is in Belgium: nurses working alternating shift with nights

Table 4. Physical and psychological nurses' work content according to shift.

	day work regular hours	day work others	only night shift	shift work without nights	shift work with nights	p
Bedding patients >6 times a day [%]						
BE	24.6	31.4	33.1	37.5	48.3	<0.001
D	19.7	31.6	35.2	31.8	32.7	
FIN	3.3	13.3	36.4	32.7	50.6	
FR	19.5	31.1	42.6	29.6	33.9	
NL	6.3	11.9	52.2	28.0	53.0	
PL	22.6	33.3		20.4	39.3	
SLK	8.2	41.2		11.5	35.3	
Transferring patients >6 times a day [%]						
BE	30.1	42.7	14.7	38.3	33.2	<0.001
D	26.9	35.1	30.1	31.6	33.1	
FIN	6.5	22.2	39.7	38.1	52.8	
FR	20.2	34.1	16.7	26.2	26.4	
NL	18.7	21.2	56.5	34.7	59.7	
PL	28.6	27.3		22.8	36.6	
SLK	6.5	27.8		9.4	21.3	
Uncomfortable postures >6 times a day [%]						
BE	16.8	25.2	33.1	26.8	33.5	<0.001
D	39.5	59.1	46.6	54.5	59.6	
FIN	11.7	34.3	44.2	41.4	51.6	
FR	19.6	33.0	38.3	33.7	36.7	
NL	9.1	13.6	17.4	21.7	28.6	
PL	33.3	33.3		27.8	45.9	
SLK	29.5	29.4		24.1	32.9	
6 hours or more standing position/day [%]						
BE	38.7	57.1	58.0	40.6	68.3	<0.001
D	54.7	56.2	73.5	60.4	71.7	
FIN	9.4	35.8	59.5	42.7	66.5	
FR	47.7	51.6	74.3	71.0	79.4	
NL	15.2	21.9	17.4	23.3	45.1	
PL	38.0	51.4		37.9	68.5	
SLK	27.6	52.4		36.4	64.2	
Enough time to talk to patients 'never' or 'seldom' [%]						
BE	23.6	30.5	24.5	32.3	43.2	<0.001
D	32.9	41.4	21.9	39.7	41.2	
FIN	19.8	21.8	12.6	29.4	32.9	
FR	17.6	23.2	18.8	31.7	29.4	
NL	8.2	18.7	13.0	17.1	20.5	
PL	27.3	27.8		25.2	36.0	
SLK	29.7	31.8		18.7	18.7	
Worried about making mistakes 'often' or 'always' [%]						
BE	11.4	13.1	23.2	15.2	26.7	<0.001
D	13.5	15.6	15.7	15.8	16.9	
FIN	9.6	18.1	6.4	15.2	14.8	
FR	40.6	48.9	42.1	43.6	52.3	
NL	4.7	5.0	8.7	5.8	7.7	
PL	40.7	40		44.7	41.6	
SLK	5.3	4.5		15.2	11.7	

(53.8 ± 22.3) versus 32.2 ± 20.6 for nurses working only day with regular hours.

4. Discussion

The comparison of job satisfaction indices and well-being of nurses in seven EU countries shows some differences that seem to be linked to work content and organisation.

Certain characteristics of work schedules, such as the need to work during the night and/or weekends, as well as the need to wake up early are factors unanimously recognized as increasing work-related stress. This was confirmed in this analysis, in every country. But the magnitude of the stress was increased when autonomy in planning rota was low and when duration of work week, frequency of split shifts, overtime work, physical load, and uncertainty regarding treatments were high.

The broad reorganisation taking place in the health care systems does not reduce the necessity to work in atypical hours. Only less than one fifth of nurses work regular day shift. For nurses the reduction of the mean stay duration of patients in a hospital and the intensification of care lead to increase of the percentage of nurses working in acute care departments. The opening of day care centres for surgery did not counteract this phenomenon sufficiently.

It appears that working time schemes do not offer, following the adoption of the 1990 ILO Night Work Convention, a better use of the actual knowledge in moderating the adverse effects of shift work on health and well-being in registered and specialised nurses. The knowledge about health effects of night and shift work (Harrington 1978; Tepas and Carvalhais 1990; Estry-Béhar 1996, 1997; Queinnec et al. 1998; Costa and Pokorski 2000; Boisard et al. 2003) did not receive a high level of attention during the actual process of reorganising hospital functioning in the different countries. In the recent period the intensity of work in-

creased. Indeed, reducing patients' length of stay of in acute care hospitals was the rule. Also, in long-stay hospitals, the development of assistance to maintain elderly people in their homes resulted in the hospitalisation of only highly invalid patients.

The intensity of the workload in nursing, and the fear of making errors (Hasselhorn et al 1999; Vicar 2003) were not taken enough into account. A maximum amount of consideration was paid to employment and economic factors.

Night work, whether fixed or alternating, involves a high proportion of nurses in the oldest groups, contrary to the scientific recommendations (Queinnec et al. 1998; Costa and Pokorski, 2000).

The regularity of fixed nights is more compatible with family life, for which the women still have the responsibility. They accept it in spite of the chronobiological effects of night work on health and safety. But it is not a reason for not implementing reduction in mean working hours and suppression of more than 3 nights in a row. These sacrifices of mother nurses are less necessary in the Netherlands, and Belgium where most nurses work part time.

Rising before 5 o'clock in the morning is nearly as stressful as working a night shift: it reduces the restorative part of sleep. This is a frequent occurrence for nurses working early morning shifts, either fixed or alternating. It means that morning shifts starts very early and/or that commuting time is very long for SRNs and SSRNs. Patients associations complain about too early waking up of patients in hospitals. This could be improved by a later start in morning shift for nurses, and would be beneficial for both patients and nurses.

Split shifts concern nearly the quarter of the sample. It exposes the same people to the two most physically stressful periods of a 24-hour day: getting patients out of bed and putting patients back to bed. Moreover, communication between the different shifts is more difficult with split-shifts, and team

Table 5. Mean indices of social support, influence at work, uncertainty concerning treatment and work conflicting family, according to shift and country in registered and specialised nurses.

Co- untry code	Work shift	Social support from superior	Social support from colleagues	Influence at work	Uncertainty concerning treatment	Work conflicting family
BE	day work regular hours	62.76 ± 19.77	64.97 ± 16.3	56.13 ± 18.46	31.15 ± 16.88	32.2 ± 20.63
	day work others	60.95 ± 20.31	63.5 ± 16.21	54.48 ± 19.92	32.14 ± 15.97	42.1±23.1
	only night shift	54.12 ± 24.28	58.45 ± 18.96	57.59 ± 21.49	34.02 ± 19.72	41.97 ± 22.46
	shift work without nights	60.76 ± 20.95	64.2±16.9	53.44 ± 18.23	34.32 ± 18.02	41.97 ± 23.14
	shift work with nights	57.72 ± 22.51	63.6 ± 17.25	47.65 ± 17.33	38.73 ± 18.74	53.76 ± 22.32
	Sample size	3,127	3,133	3,175	3,056	3,217
D	day work regular hours	55.06 ± 25.28	60.49 ± 20.89	41.55 ± 23.35	29.59 ± 19.67	33.9 ± 25.58
	day work others	54.78 ± 25.91	61.67 ± 19.83	42.33 ± 22.67	36.27 ± 20.59	45.2±26.9
	only night shift	54.46 ± 22.16	61.4 ± 18.65	54.46 ± 21.96	31.62 ± 18.75	35.33 ± 24.18
	shift work without nights	58.88 ± 22.98	63.28 ± 18.14	50.49 ± 20.81	37.47 ± 18.28	41.21±25.6
	shift work with nights	54.83 ± 23.92	62.72 ± 17.77	51.13 ± 19.65	37.92 ± 19.59	47.41 ± 23.58
	Sample size	2,155	2,155	2,171	2,043	2,175
FIN	day work regular hours	53.42 ± 22.23	62.6 ± 16.94	48.39 ± 19.87	24.36 ± 15.38	26.21±23.5
	day work others	53.81 ± 24.04	66.07 ± 16.78	40.15 ± 21.36	28.15±15.8	37.11 ± 24.94
	only night shift	49.68 ± 23.65	63.14 ± 17.55	51.14 ± 22.55	27.2 ± 14.48	39.56 ± 27.88
	shift work without nights	52.43 ± 22.43	64.36 ± 15.94	43 ± 18.41	29.87 ± 15.76	39.17±25.3
	shift work with nights	51.86 ± 22.04	64.42 ± 15.03	41.84 ± 17.48	34.16 ± 16.96	44.95 ± 24.73
	Sample size	3,169	3,167	3,179	2,952	3,192
FR	day work regular hours	56.66 ± 25.97	65.66 ± 20.61	58.19 ± 23.33	25.81 ± 18.55	39.62 ± 24.01
	day work others	52.33 ± 27.05	63.7 ± 23.25	49.21 ± 21.17	29.03 ± 16.46	50.51 ± 24.08
	only night shift	42.86 ± 24.81	62.13 ± 19.74	53.83 ± 19.75	37.6 ± 17.89	45.48 ± 24.28
	shift work without nights	52.46 ± 24.29	65.85±18.3	51.77 ± 20.67	35.26 ± 18.23	50.23 ± 24.01
	shift work with nights	51.84 ± 24.05	67.18 ± 17.89	49.61 ± 19.3	34.62 ± 17.63	54.82 ± 23.73
	Sample size	2,624	2,612	2,645	2,529	2,648
NL	day work regular hours	57.82 ± 21.49	64.53 ± 18.25	58.71 ± 16.54	19.09 ± 14.84	19.67 ± 20.56
	day work others	57.44±22.5	65.9 ± 17.24	55.13 ± 18.38	20.9 ± 14.56	23.02 ± 19.84
	shift work without nights	54 ± 21.41	67.87 ± 15.39	52.63 ± 16.41	22.99 ± 15.87	21.46 ± 18.28
	shift work with nights	54.46 ± 20.68	67.74±14.2	52.12 ± 16.05	26.5 ± 13.49	28.2 ± 19.58
	Sample size	1,061	1,065	1,082	967	1,074
	PL	day work regular hours	51.5 ± 28.39	63.24 ± 23.94	51.79 ± 26.42	30.7 ± 24.47
day work others		55.89 ± 26.9	63.6 ± 21.95	49.8 ± 21.62	30.29±19.2	25.04±25.7
shift work without nights		48.78 ± 24.68	61.97 ± 21.32	53.57 ± 24.61	27.36 ± 21.29	28.15 ± 26.33
shift work with nights		50 ± 26.82	63.73 ± 20.76	45.59 ± 23.08	38.14 ± 22.32	35.5 ± 26.32
Sample size		699	694	704	640	701
SLK		day work regular hours	52.78 ± 23.44	55.01±21.1	51.77 ± 23.93	17.84 ± 16.21
	shift work without nights	55.49 ± 25.79	57.63 ± 21.54	48.49±24.3	16.76 ± 17.67	32.7 ± 26.04
	shift work with nights	52.75 ± 23.02	61.32 ± 18.56	41.68 ± 22.64	24.7 ± 18.28	47.61 ± 25.37
	Sample size	1,201	1,186	1,151	1,043	1,199
Total	day work regular hours	56.73 ± 23.48	63.21 ± 19.02	53 ± 21.72	26.51 ± 17.96	31.28±23.8
	day work others	57.04 ± 23.54	63.91 ± 18.26	49.67 ± 21.48	29.94 ± 17.45	39.23 ± 25.35
	only night shift	47.74 ± 24.56	61.57 ± 19.16	54.35 ± 20.81	34.45 ± 18.51	41.57 ± 24.66
	shift work without nights	55.76 ± 23.06	64.64 ± 17.57	50.72 ± 19.87	32.73 ± 18.29	41.55 ± 25.15
	shift work with nights	53.54 ± 23.16	63.94 ± 17.16	46.17 ± 19.55	34.21 ± 18.84	46.26 ± 24.88
	Total	54.54 ± 23.39	63.87 ± 17.79	49.25 ± 20.41	32.39 ± 18.66	41.78 ± 25.34
Sample size	14,036	14,012	14,107	13,230	14,206	

support is less effective. Lastly, there is more of a work/family imbalance, due to the absence of the parent during the principal meals most of the days. As recommended, split shift should be absolutely avoided.

We observe that in the total sample a third of nurses declare working overtime. In nursing it is not possible to leave the ward without transmitting to the following shift the major problems of the patients. According to Virginia Henderson's principles (Henderson 1966, 1969), it would also be necessary to discuss the holistic approach to each patient, taking into account observations made by each shift. However, to convey this information to the following shift requires staff to stay on after work for a while. And, because it is seen as fundamental by SRNs and SSRNs, they even work overtime when they know that these hours will not be paid or compensated. The French SRNs and SSRNs, followed by the German nurses, are the most dissatisfied with staff handovers. In France, the reduction of working time to 35 hours per week contributed to the detriment of this overlap.

Irregular working hours, long working hours and reduction of the predictability of working days have a significant, negative impact on personal, family and social lives of workers (Estry-Béhar, Bonnet 2000; Estry-Béhar et al. 2001; Härmä and Kandinlin 2001; Kageyama et al. 2001; Poissonnet et al. 2001; Lipscomb et al. 2002; Hoffman and Scott 2003; Ruggiero 2003).

We have shown that these risk factors were significantly related to the intention to leave the profession ($p < .000$). More than double nurses want to leave when they are dissatisfied about work schedules for their health and their well-being.

The difference between longest and shortest mean work week exceeds 11 hours. This is in accordance with the data on the duration of the working week in European countries obtained from other sources, such as the ILO and the European Foundation For the Improvement of Living and Working

Conditions (Boisard et al. 2003). These differences generally reflect national legislation pertaining to working time and to the medical and medico-social sector in particular. Moreover, these results are influenced by the large number of part-time employees in the Nurses population in many of the countries included in this study.

Physical load and standing posture is more frequent for night and shift nurses except in the Netherlands. Part-time jobs can explain this phenomenon in Dutch nurses. But also a lot of technical and architectural improvements in health care institutions have been settled, these last years, in the Netherlands.

The night nurses have generally more time to talk to patients, but the uncertainty concerning treatment is higher for them, as they do not have enough information transmission from other teams who are present when medical decisions are taken. For teams alternating between nights and fixed nights, uncertainty about what to say to patients is more frequent. Fear of making errors is generally more frequent with these schedules of work. The reduction of handover time has led to lack of satisfaction because important technical and psychological aspects about patients cannot be discussed. Memory and reasoning impairments have been demonstrated linked to sleep deficit which is particularly frequent in women working fixed night shift. These two difficulties are the most frequent among French nurses.

The majority of nurses were, according to our study, dissatisfied with overlap time allowed for discussing patients' conditions.

The personal life of the nurses must be taken into consideration to understand why female nurses accept certain schedules: they do it in order to be able to reconcile their private and professional life and this in spite of the health hazard (even more for single parents).

These difficulties must be given serious attention by health-care policy makers at a time when fewer students are entering nursing schools and an insufficient number of health care workers is a serious prospect.

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