

INTERACTIONS BETWEEN QUALITY AND HUMAN FACTORS IN HEALTH CARE. - FACTORS LINKED TO NURSES'S FEARS OF MAKING ERRORS

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Introduction

In 2000, Reason postulated two approaches to the problem of treatment errors: the person approach, which focuses on the errors of individuals, and the system approach, which concentrates on the conditions under which individuals work and try to build defenses to avert errors or mitigate their effects. The NEXT study investigates the reasons for, the circumstances of and the consequences surrounding premature departure from the nursing profession. This longitudinal study began with a questionnaire sent to all nursing staff in participating health care institutions in autumn 2003. They were found to experience uncertainty regarding treatment and to worry about making errors. It thus seemed important to study the relationship between their fear of making errors and their personal characteristics as well as their health and their physical and psychological working conditions. In addition, work post organization, work schedules, seniority and team support, time pressure, responsibility and autonomy were also examined with respect to the fear of making errors.

Methods

In order to represent the various work situations in ten European countries, a sample of the different kinds of institutions was selected to represent the diversity of HCWs. In 10 participating countries (39.898 HCWs) filled in the questionnaire. In this paper, we focused on 23.584 state registered nurses (SRN) and 4,933 specialized nurses (SSRN) with no management responsibility, from 7 countries having usable data concerning occupational level (total sample: 28,517). We use the term registered nurses (RNs) to mean the whole sample.

We used SPSS 12.0 software for the data analysis. Binomial logistic regression test was used to assess the impact of a set of predictors upon the fear of making mistakes.

In our model, we used different validated scales constructed with the single variables: social support (Van der Heijden et al., 2003), burnout (Kristensen &

Borritz, 2001), and uncertainty regarding treatment. They are all presented the first data about the NEXT study (Hasselhorn et al., 2003).

Results

We found that 16.9 % of RNs declared themselves “often” and 8.6% “always worried” about making mistakes.

We conducted two multivariate analyses (Table 1). The first one includes worries about making errors sometimes, frequently and very frequently. The second one concentrates frequent and very frequent on worries about making errors.

Personal characteristics and health

Female RNs worry sometimes or frequently more than male RNs about making errors (OR = **1.25**).

Burnout is highly linked to worries about making errors and all the more so for nurses who are frequent worriers, with more worries found for those whose burnout score is higher (medium burnout OR = **1.49**; high burnout OR = **2.05**).

Work schedule and work duration

Part time work seems protective. RNs working 35 hours per week or more have more worries and more frequent worries (OR = **1.57**).

Quality of information transmission and quality of team work

High uncertainty regarding how to use equipment is highly linked to frequent worries about making errors (OR = **2.31**).

Relationships with ward sisters and colleagues appear to influence worries in the opposite sense. Medium quality of relationship with ward sisters (as opposed to a hostile one) or colleagues who are very willing to help are linked to high uncertainty regarding treatments (declaring medium relations with ward sister (OR = **1.19**; 95 % CI 1.06-1.34) for frequent worries about making mistakes; colleagues very willing to help seems (OR = **1.39**) for sometimes and frequent worries but not significant for only frequent worries. This willing to help seem, in fact, to reflect a context with continuous interruption and insufficient knowledge about specific equipment, or, also, insufficient discussions about what to answer to patient's questions.

Department and work organization

RNs working in old people's homes or departments worry less about making errors than do those in medical or surgical wards (OR = **0.64**; 95 % CI 0.55-0.74). Too much work is clearly a risk factor for being worried about making errors. Often, or always having an unevenly distributed workload, is a major factor for frequent worries (OR = **2.09**). Often or always lacking time to complete one's own work is more clearly linked to sometimes and frequent worries than only frequent worries (OR = **1.41**).

Occupational level

Good bases, acquired by a year of education and a respected diploma, leading to a fixed work post where the acquired skills are used, is very protective. State

registered nurses worry more than do specialized nurses and even more for only frequent worries (OR = **1.47**).

Analysis by country

There is no really differences between the seven countries. Principal risk factor linked with worries about errors are the same for each countries.

Table I Factors associated with worries about errors among Registered and specialised nurses

Factors associated with worries about errors (Reference)		Logistic regression for worries about mistakes (sometimes +often) N worried = 12 793 / 18165					Logistic regression for worries about mistakes (often) N worried =4 639 / 18165			
		N	Odds Ratio	95% CI		p	Odds Ratio	95% CI		p
				low	high			low	high	
Seniority (< 5 years)	5 - 14 years	7069	0.827	0.744	0.920	.000	0.968	0.870	1.077	NS
	15 - 24 yrs	5782	0.743	9.665	0.830	.000	0.921	0.823	1.031	NS
	25 years +	2540	0.716	0.629	0.816	.000	0.916	0.799	1.050	NS
Gender (Male)	Female	16027	1.247	1.121	1.386	.000	1.048	0.935	1.176	NS
Burn out (Low)	Medium	5841	1.428	1.298	1.571	.000	1.494	1.355	1.647	.000
	High	2184	1.743	1.507	2.017	.000	2.049	1.796	2.337	.000
Fatigue (seldom)	1-2 days /w.	5985	1.238	1.131	1.355	.000	1.233	1.099	1.385	.000
	3 + days/ w.	8301	1.125	1.009	1.253	.033	1.227	1.077	1.397	.002
Work we(<35)	35 hours +	12568	1.210	1.120	1.307	.000	1.571	1.437	1.717	.000
Schedule (Day w reg)	Day w.irreg	2057	0.921	0.805	1.054	NS	0.988	0.844	1.157	NS
	Night sh.	692	1.477	1.193	1.828	.000	1.361	1.098	1.686	.005
	Shift wo no night	3140	1.088	0.959	1.234	NS	1.118	0.969	1.290	NS
	Shift wo & nights	10041	.910	0.815	1.017	NS	0.961	9.845	1.093	NS
Departments (Medic-surg)	Intensive care	4672	1.169	1.048	1.305	.005	0.994	0.895	1.103	NS
	Community C	1448	1.007	0.864	1.174	NS	1.002	0.848	1.183	NS
	Ped.mater	2828	0.937	0.830	1.059	NS	0.798	0.699	.0910	.001
	Old people d.	1735	0.819	0.715	0.938	.004	0.639	0.549	.0744	.000
	Others	4195	1.116	1.000	1.247	.051	1.006	0.901	1.123	NS
Uncertain regard equipmt (Never)	Sometimes	11415	1.653	1.529	1.788	.000	1.350	1.228	1.484	.000
	Frequently	1988	2.589	2.234	3.002	.000	2.306	2.025	2.626	.000
Not know what to tell patient (Never)	Sometimes	10073	1.185	1.086	1.292	.000	0.917	0.826	1.019	NS
	Frequently	4487	1.464	1.308	1.639	.000	1.258	1.118	1.416	.000
Sat. psy. sup. (Yes)	No	9643	1.133	1.055	1.218	.001	1.192	1.105	1.287	.001
Relations - ward sister (hostile)	Medium	4459	1.144	1.012	1.292	.032	1.188	1.056	1.336	.004
	Friendly	10827	1.131	1.037	1.235	.006	1.058	0.966	1.159	NS
	No answer	515	1.244	1.013	1.526	.037	0.936	0.734	1.192	NS
Supervis. ready to help (little willing)	Medium	4786	0.998	0.905	1.102	NS	0.959	0.867	1.061	NS
	Very willing	8240	1.094	0.992	1.206	NS	1.089	0.985	1.203	NS
Colleague ready to help (little willing)	Medium	3327	1.280	1.096	1.495	.002	1.036	0.886	1.213	NS
	Very willing	13644	1.393	1.209	1.606	.000	1.067	0.925	1.232	NS
Work unevenly	Sometimes	7472	1.210	1.112	1.317	.000	1.405	1.265	1.561	.000

distrib piles up(no)	Often-Always	6062	1.472	1.333	1.627	.000	2.091	1.872	2.335	.000
Lack of time tasks (Never)	Sometimes	8257	1.176	1.080	1.281	.000	0.958	0.866	1.058	NS
	Often-Always	5761	1.406	1.270	1.555	.000	1.141	1.024	1.270	.000
Freq interrupt.(no)	Yes	12435	1.112	1.029	1.202	.043	1.237	1.131	1.353	.000
Have a say wh type Tasks (Inaccurate)	Partly accurate	6360	1.208	1.105	1.320	.000	0.995	0.909	1.089	NS
	Accurate	6293	1.142	1.039	1.255	.006	1.056	0.953	1.169	NS
Can decid hw fulfil tasks (inaccurate).	Part.accurate	5767	0.973	0.877	1.078	NS	0.873	0.791	0.965	.008
	Accurate	8709	0.671	0.607	0.741	.000	0.749	0.676	0.830	.000
Tasks not qualified Enough (less 1/wk)	1-5/week	2890	1.189	1.074	1.317	.001	1.126	1.024	1.238	.015
	1-5/day +	1783	1.124	0.988	1.278	.074	1.136	1.013	1.274	.029
O.level (spec nurs)	S.R.. nurs.	14953	1.126	1.030	1.230	.009	1.471	1.325	1.633	.000

Discussion

Broadbent et al (1982) argue that cognitive overload can lead to cognitive failure and subsequent error making proneness. Nurse staffing levels and patients outcomes has become a significant topic of discussion. Dugan et al (1993) showed a relatively strong relationship between stress and the occurrence of patients' incidents, and between staff turnover and stress.

The major part of burnout and stress is also underlined by Bissoondial (2002) who consider that there is no doubt that stress enhances the probability of cognitive failure. The relationships between overwork, tiredness, job satisfaction, stress and clinical performance may need teasing apart section be section.

To the two dimensions, technical and relational, a third, called organizational can be added. This organizational dimension is taking on more and more importance: managing the ward with colleagues, sharing equipment, scheduling admissions and discharges, lab tests and patient care.

Preventing errors occurs by reinforcing the "collective sense" of work and by using most experienced healthcare professionals as "mentors" to their close colleagues. This fact interests managers who tend currently to develop flexible assignments and working schedules. The recognized work stress associated with some work positions and specific hours has led to proposals of organizational affectations and alternating hours with the goal of dividing up difficult conditions. However, we have observed that the support of one's colleagues and of one's nurse manager, specific knowledge about how to use certain equipment and about how to respond to questions about a patient are favorable conditions for improving the safety of healthcare workers and the quality of the work they are carrying out.

We conclude, together with Kaissi et al (2003) that substantial reduction in health care errors will not come until more attention is given to human solutions, such as improving teamwork and communication in health care team.

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