

Field Study

Risk factors for work-related stress and subjective hardship in health-care staff in nursing homes for the elderly: A cross-sectional study

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Abstract: Risk factors for work-related stress and subjective hardship in health-care staff in nursing homes for the elderly: A cross-sectional study: Carole PÉLISSIER, et al. Université Lyon 1, UMRESTTE (Joint unit IFSTTAR/UCLB), France—Objectives:

This study aimed to explore potential risk factors for work-related stress by, detailing working conditions and subjective hardship according to occupational category in health-care staff working with elderly patients. **Methods:** A cross-sectional descriptive survey was conducted in 105 nursing homes for the elderly in France. Data on nursing home working conditions were collected by occupational physicians. The study population was limited to those in direct contact with the elderly, who were divided into 3 occupational groups defined by qualifications and tasks: housekeepers (HKs), nursing assistants (NAs) and nurses (Ns). Employees answered a questionnaire on their perceived working conditions and vocational training courses. Psychosocial stress was assessed with the Siegrist questionnaire.

Results: The subjects included 706 HKs, 1,565 NAs and 378 Ns, and the findings showed confusion of tasks and responsibilities in the study population. Verbal abuse by residents was reported by 60.9% of HKs (versus 76.2% of NAs and 76.7% of Ns, $p < 0.001$). Physical attack by residents was more frequently reported by NAs (59.1%) than Ns (52.8%) or HKs (38.0%) ($p < 0.001$). Nearly 10% of employees reported clear effort/reward imbalance (10.4% of NAs, 9.2% of Ns and 7.0% of HKs, $p = 0.059$). Great hardship related to proximity to death was reported by 40.5% of HKs (versus 37.3% of NAs and 22.6% of Ns; $p < 0.001$).

Conclusions: To prevent stress related to insufficient

ability, nursing home workers should be encouraged to attend job training courses, which should cover knowledge of the specific care needs of elderly patients and of the authority/responsibility required to do their job. (J Occup Health 2015; 57: 285–296)

Key words: Health-care staff in nursing homes, Subjective hardship, Work-related stress, Working conditions

The increase in the number of elderly persons with multiple chronic conditions including neuropsychiatric disorders and high levels of dependence entails increased demand for professional care workers in long-term residential care settings, such as nursing homes, in many countries^{1–3}.

In France, medical retirement or nursing homes are designated “establishments for the accommodation of dependent elderly persons” (*Etablissements d’Hébergement pour Personnes Agées Dépendantes*: EHPAD). They provide collective accommodation and overall management for the elderly, including lodging, health care and dependence-related aid. Management is founded on a qualified multidisciplinary team notably comprising nurses, nursing assistants and housekeepers, who are under the supervision of physicians. Nurses usually ensure technical care and coordinate the work of the nursing assistants. As well as catering and accompaniment, nursing assistants are in charge of hygiene, comfort and preventive and curative care and are under the supervision of a nurse. Housekeepers carry out cleaning tasks, catering tasks and sometimes care tasks such as helping with meals.

Like other health-care workers, these workers are exposed to a variety of occupational risks⁴. Working with the elderly, however, may give rise to specific form of stress, such as having to deal with

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elderly persons suffering from behavioral disorders or confrontation with the death of their patients and caring for dying patients⁵⁻⁷). This stress may cause hardship at work and have a negative emotional and psychosocial impact. Thus, care-workers in nursing homes are exposed to potential risk factors for work-related stress^{8,9}).

Before developing prevention plans to improve working conditions and reduce stress levels for nonmedical nursing-home staff, working conditions need to be better identified, in particular according to occupational groups, such as nurses, nursing assistants and housekeepers.

For these reasons, we carried out a descriptive cross-sectional survey of 2,649 workers in 105 nursing homes for the elderly located in Rhône-Alpes, a region of France.

The main focus of this study was exploration of the potential risk factors for work-related stress by studying: perceived tasks and working conditions. A second aim was to identify any differences between 3 job categories: nurses, nursing assistants and housekeepers.

Materials and Methods

Sampling

The target population for the survey was employees working with elderly patients in nursing homes in the Rhône-Alpes Region of France. The region has a population of over 6 million (10% of the population of France). At the time of the survey, there were 677 nursing homes for the elderly, with a capacity of 50,535 residents.

The regional occupational physicians were asked to participate by the Regional Department of Businesses, Competition, Consumption, Work and Employment (DIRECCTE), a state organization providing control, advice and intervention for businesses. Volunteer occupational physicians were allowed to include the employees of only 1 or 2 of the nursing homes they oversaw; if they were involved in several establishments, only 2 study centers were selected, by randomization. The occupational physicians filled out a working conditions assessment questionnaire, and asked all employees meeting the inclusion criteria in the nursing homes which they oversaw to take part.

New recruits were excluded to avoid attributing problems that had more to do with a previous job to the nursing home.

Only employees who had been working with the elderly for at least 6 months on at least a half-time basis were included. Questionnaires were not allowed to be sent back late to the occupational physician, so as to avoid differences in data collection.

Ethical issues

Employees were free to agree or decline to participate. They were given an information leaflet explaining the study objectives. Approval by the French Ministry of Research (*Comité consultatif pour le traitement de l'information en matière de recherche dans le domaine de la santé*) was obtained before starting the study.

Survey variables

Between October 2009 and September 2010, socio-occupational data were collected from volunteer employees by self-administered questionnaire, including personal (age, gender, marital status and number of children) and occupational items (job title, relevant professional qualifications, perceived match between qualifications and job held, position, seniority in the establishment with years of experience, duration of experience of working with the elderly, number of elderly care facilities worked in, tasks and perception of job, job-related hardship, situations of physical assault, situations of verbal abuse, interpersonal relations at work, and vocational training). The questionnaire included visual analog hardship scales (1=no hardship, to 10=great hardship) related to premises (disrepair, stairs, clutter), lifting and carrying the elderly, patients' mental deterioration and physical deterioration, and proximity of death¹⁰⁻¹²). The choice of these particular categories was based on the literature¹³. Each hardship scale variable was recoded into three categories: slight hardship (score less than or equal to 3), moderate hardship (score between 4 and 7) and high hardship (score more than or equal to 8).

Quantitative seniority was transformed into an ordinal qualitative variable for statistical purposes. Two main models are currently used to evaluate psychosocial factors at work: the job strain model developed by Karasek, and the effort-reward imbalance (ERI) model using the Siegrist questionnaire¹²). Siegrist allowed a free access to the Siegrist questionnaire^{10,12}).

Psychosocial demands at work were assessed with the Siegrist questionnaire, comprising 3 scales: 2 measuring the extrinsic components "effort" (6 items) and "reward" (11 items covering the aspects of earnings, esteem and job security) and 1 scale measuring the intrinsic component "overcommitment" (6 items), scored according to the 2004 ERI model; the higher the extrinsic and intrinsic effort scores, the greater the effort, whereas the higher the rewards score, the lower the rewards^{10,12,14}). The rationale of the ERI model is that a working situation associating great effort to low reward will induce emotional and physiological reactions that may jeopardize health¹⁵). The French version of the Effort-Reward Imbalance model validated by Niedhammer *et al.*, was used in this study¹⁰).

Data analysis

A descriptive step was performed to characterize the population of employees according to training, work organization and working conditions.

For statistical purposes, the study population was limited to those in direct contact with the elderly, who were divided into 3 occupational groups defined by qualifications and tasks: housekeepers (mainly household and catering tasks and delivery of meals), nursing assistants (mainly non-nursing care), and nurses.

Frequencies were compared on χ^2 test. Depending on cross analyses performed, χ^2 trend tests were also performed. Mean values were compared between pairs of groups with the Student's *t*-test and between more than 2 groups by analysis of variance (ANOVA). All statistical analyses were performed with the SAS software, version 9.3. The standard level of significance was used to justify a claim of a statistically significant effect: i.e., 0.05.

The binary response of ERI was modeled in two steps:

- Firstly, all independent variables underwent univariate analysis;
- Secondly, variables with a *p* value ≤ 0.05 were included in a multivariate model by a step-forward procedure: the variable with the lowest *p* value was included in the model first, followed by the next lowest, and so on. Variables with *p* values ≤ 0.05 remained in the model, and the other variables were excluded.

We performed multivariate analysis in order to study links between the 3 occupational groups and several variables. Logistic regressions were used when the variable of interest was dichotomous, and polytonic logistic regressions with a cumulative logit model were used when a variable presented 3 responses categories. Regressions were adjusted based on age, work contracts and duration of work with elderly persons.

Results

The 78 occupational physicians recruited 2,649 employees in 105 nursing homes in the 8 administrative *départements* of the Rhône-Alpes Region. Of them, 229 workers who matched the inclusion criteria were ultimately excluded, and 61 workers refused to participate in the study, leading to a participation rate of 90.7%.

The subjects included 706 housekeepers, 1,565 nursing assistants and 378, and most of them were female (94.6, 92.9 and 92.3%, respectively). Significant differences between groups were found for the following items: age, seniority in the establishment and duration of work with elderly persons (see Table 1).

Tasks and working conditions

Household tasks were performed by housekeepers (89.9%), but also by nursing assistants (56.3%) and nurses (11.3%) ($p < 0.001$), as were catering tasks (83.6, 67.3 and 15.8%, respectively; $p < 0.001$). Nursing assistants were involved in feeding residents most frequently (87.4%), although housekeepers (76.6%) and nurses (66.8%) ($p < 0.001$) were also involved in this task. A large majority of nurses (97.3%) provided technical care (bed sore treatment, massage, anal bags, probes), but 78.0% of nursing assistants and 35.9% of housekeepers ($p < 0.001$) also provided this kind of care. Almost all nursing assistants (95.8%) provided personal care (washing, dressing, bathing, toileting), although 72.1% of nurses and 67.8% of housekeepers ($p < 0.001$) also did so. Residents were put to bed and helped to get up mainly by nursing assistants (95.4%), followed by housekeepers (70.5%) and nurses (62.6%) ($p < 0.001$). Administrative tasks were performed by 93.9% of nurses compared with 18.4% of housekeepers and 25.1% of nursing assistants ($p < 0.001$). Preparation of medications was performed by 91.7% of nurses, although 4.3% of nursing assistants and 1.4% of housekeepers also performed this task ($p < 0.001$). Delivery of medication was performed by 96.0% of nurses, 67.7% of nursing assistants and 31.5% of housekeepers ($p < 0.001$). Organization of activities for residents was performed by 73.3% of nursing assistants, 57.9% of housekeepers and 17.16% of nurses. Nurses, on average, routinely performed a greater variety of tasks per day (mean=7.0, SD=1.8) than nursing assistants (mean=6.3, SD=1.7) or housekeepers (mean=5.0, SD=2.2) ($p < 0.001$). Housekeepers made more beds (mean=8.9, SD=6.8) than nursing assistants (mean=8.2, SD=4.8) or nurses (mean=2.9, SD=4.4) ($p < 0.001$). Nursing assistants more frequently washed residents (mean=8.67 per day, SD=4.66) than housekeepers (mean=7.60, SD=3.54) or nurses (mean=1.89, SD=1.35) ($p < 0.001$).

Perception of work

The workforce was thought to be sufficient for the job by 20.8% of the respondents (independent of occupational group), and 71.1% of nurses, 75.3% of nursing assistants and 77.9% of housekeepers felt their work met the needs of the residents ($p = 0.048$).

Aggression

Nearly three-quarters of the respondents reported verbal abuse from residents, although this was reported less frequently by housekeepers (60.9%) than nursing assistants (76.2%) or nurses (76.7%) ($p < 0.001$). Nurses more frequently reported verbal abuse from residents' family members (46.9%, versus 20.2% for nursing assistants and 10.6% for house-

Table 1. Socio-occupational data by occupational group

		Housekeepers		Nursing assistants		Nurses		p-value
		n	%	n	%	n	%	
Gender	Men	38	5.4	111	7.1	29	7.7	0.23
	Women	668	94.6	1,454	92.9	349	92.3	
Age	<30 years	137	19.4	371	23.7	67	17.7	<0.001
	30–39 years	129	18.3	348	22.2	87	23.0	
	40–49 years	228	32.4	500	32.0	99	26.2	
	>50 years	211	29.9	345	22.1	125	33.1	
Perception of match between qualifications and job held by employees	Yes	506	76.1	1,351	89.4	367	98.6	<0.001
	No	159	23.9	161	10.6	5	1.4	
Work contract	Probationer	24	3.5	62	4.0	13	3.4	<0.001
	Permanent work contracts	457	66.1	1,197	77.0	324	85.7	
	Short-term work contracts	174	25.2	257	16.5	41	10.8	
	Other work contracts	36	5.2	38	2.5	0	0	
Seniority in the establishment (years of experience)	<1 year	96	13.9	252	16.4	69	18.5	<0.001
	1 year	77	11.2	182	11.8	59	15.8	
	2–4 years	164	23.8	311	20.2	94	25.2	
	5–9 years	144	20.9	341	22.1	80	21.5	
	≥10 years	208	30.2	455	29.5	71	19.0	
Duration of work with elderly persons	<1 year	47	5.8	76	4.9	24	6.4	0.001
	1–4 years	230	32.8	413	26.5	130	34.6	
	5–9 years	167	23.8	386	24.8	96	25.3	
	10–19 years	176	25.1	429	27.5	88	23.4	
	≥20 years	87	12.4	253	16.2	38	10.1	

% column: For each item, the sum of the percentages for each column is equal to 100%.

keepers; $p<0.001$) and colleagues (28.8%, versus 23.7 and 18.71%, respectively; $p=0.007$). Physical attack by residents was more frequently reported by nursing assistants (59.1%) than nurses (52.8%) or housekeepers (38.0%) ($p<0.001$); physical aggression by colleagues (0.9%) did not significantly differ between occupational groups. When verbal or physical abuse had occurred, 1,813 respondents (68.4%) reported sympathy on the part of colleagues.

Interpersonal relations

Most respondents (82.7%) were satisfied with their relations with the team (independent of group), and 74% were satisfied or very satisfied with their relations with management, although this percentage was lower for nurses (69.3%, versus 73.0% for nursing assistants and 79.5% for housekeepers; $p=0.001$). The percentage of respondents dissatisfied with their relations with management was highest in nursing assistants (9.3%), followed by nurses (8.2%) and house-

keepers (5.6%) ($p=0.001$).

Siegrist effort-reward imbalance model

Extrinsic and intrinsic effort and rewards differed significantly according to occupational group. Extrinsic and intrinsic effort scores were significantly higher in nursing assistants (respectively, mean=16.2, SD=4.3; mean=15.6, SD=3.9) than nurses (mean=14.5, SD=4.6; mean=14.9, SD=3.9) or housekeepers (mean=13.6, SD=4.5; mean=14.5; SD=3.9) ($p<0.001$; $p<0.001$). Reward scores were significantly higher for nurses (mean=20.4, SD=7.5) than nursing assistants (mean=19.1, SD=6.7) or housekeepers (mean=20.0, SD=7.3), ($p<0.05$). Nearly 10% of employees reported clear effort/reward imbalance: 10.4% of nursing assistants, 9.2% of nurses and 7.0% of housekeepers ($p=0.059$).

Table 2 presents the relationship between effort-reward imbalance -and other occupational factors by univariate analysis and multivariate analysis.

Table 2. Relations between prevalence of effort-reward imbalance and working conditions

		Prevalence of effort-reward imbalance		Univariate analysis		Multivariate analysis	
		n/N	%	RR	95% CI	RR	95% CI
Gender ^v	Men	8/155	5.16	0.53	0.27–1.06	—	—
	Women	209/2,164	9.66	1	—	—	—
Age	<30 years	45/516	8.72	1		—	—
	30–39 years	52/507	10.26	1.18	0.80–1.72	—	—
	40–49 years	75/728	10.30	1.18	0.83–1.68	—	—
	≥50 years	44/566	7.77	0.89	0.60–1.33	—	—
Occupational group ^v	Housekeepers	42/598	7.02	1		—	—
	Nursing assistants	144/1,384	10.40	1.48	1.06–2.06	—	—
	Nurses	31/338	9.17	1.31	0.84–2.04	—	—
Work contract	Probationer	5/86	5.81	1	—	—	—
	Permanent work contracts	175/1,745	10.03	1.72/	0.73–4.08	—	—
	Non permanent work contracts	35/469	7.46	1.28	0.52–3.18	—	—
Seniority in the establishment (years of experience) ^v	<1 year	24/358	6.70	1		—	—
	1 year	18/280	6.43	0.96	0.53–1.73	—	—
	2–4 years	55/513	10.72	1.60	1.00–2.53	—	—
	5–9 years	56/499	11.22	1.67	1.06–2.65	—	—
	≥10 years	59/642	9.19	1.37	0.87–2.16	—	—
Duration of work with elderly persons*	<1 year	4/124	3.23	1		—	—
	1–4 years	51/679	7.51	2.31	0.85–6.26	—	—
	5–9 years	67/573	11.69	2.50	1.30–9.43	—	—
	10–19 years	63/608	10.36	3.10	1.15–8.37	—	—
	≥20 years	31/327	9.48	2.87	1.04–7.95	—	—
Verbal abuse****	No	16/536	2.99	1		1	
	Yes	201/1,784	11.27	3.78	2.29–6.22	2.53	1.47–4.33
Physical assault*	No	72/1,155	6.23	1		1	
	Yes	145/1,165	12.45	1.99	1.52–2.62	1.36	1.03–1.79
Subjective hardship related to							
Mental deterioration of elderly residents****	Slight	24/569	4.22	1		—	—
	Moderate	48/761	6.31	1.50	0.93–2.41	—	—
	Great	144/964	14.94	3.54	2.33–5.40	—	—
Physical deterioration of elderly residents****	Slight	16/493	3.25	1		1	
	Moderate	38/771	4.93	1.52	0.86–2.69	1.22	0.68–2.19
	Great	163/1,035	15.75	4.86	2.93–8.02	3.12	1.82–5.36
Proximity to death*	Slight	37/699	5.29	1		1	
	Moderate	60/775	7.74	1.46	0.98–2.17	1.05	0.70–1.57
	Great	120/829	14.48	2.73	1.92–3.90	1.51	1.03–2.20

Relative risk, RR; confidence interval, CI. ^v p -value < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; **** p ≤ 10⁻⁴.

Hardship related to working conditions (see Tables 3, 4)

Hardship related to handling of residents, residents' mental deterioration, proximity to death and residents' physical deterioration differed significantly according to occupational group without and with adjustment on age, work contracts and duration of work with elderly persons.

Hardship related to proximity to death was reported as being great, moderate and slight by 36.2, 33.7, and 30.1% of respondents, respectively. Hardship related to proximity to death was considered great by 40.5% of housekeepers, versus 37.3% of nursing assistants and 22.6% of nurses ($p < 0.001$). Housekeepers most frequently reported becoming often or very often attached to residents (85.1%, versus 78.9% for nursing assistants and 73.9% for nurses; $p < 0.001$).

Respondents who rarely became attached to residents more often reported only slight hardship related to proximity to death. Respondents desiring training in palliative care and accompaniment of the dying reported elevated hardship related to proximity to death significantly more often than those who had received such training. Great hardship related to residents' mental deterioration was significantly more often reported by victims of verbal abuse from residents and by workers desiring to work in another establishment. Hardship related to residents' physi-

cal deterioration was associated with desire to work in another establishment, and was more frequently considered great by respondents desiring training in psychological approaches for elderly subject or in palliative care.

Training over the previous 5 years and desire for training (see Table 5)

Training over the previous 5 years and desire for training differed significantly according to occupational group and depending on the training module without and with adjustment based on age, work contracts and duration of work with elderly persons.

Discussion

In spite of increased demands on nursing home workers and a growing need for the care they provide to so many elderly persons, to our knowledge, data on their working conditions, some aspects of which may constitute risk factors for work-related stress, are sparse. In response to this situation, the present large-scale survey investigated various aspects of working conditions for 2,649 French nursing home workers in three occupational categories in daily contact with residents: nurses, nursing assistants and housekeepers.

Study of the task distribution according to the 3 occupational groups showed confusion of tasks and

Table 3. Subjective hardship related to working conditions according to occupational group

Subjective hardship related to		Occupational groups						<i>p</i> -value	*Adjusted <i>p</i> -value
		Housekeepers		Nursing assistants		Nurses			
		n	%	n	%	n	%		
Handling of residents	Slight	206	31.8	245	15.8	99	26.7	<0.001	<0.0001
	Moderate	225	34.7	523	33.8	148	39.9		
	Great	217	33.5	781	50.4	124	33.4		
Workplace	Slight	346	50.4	761	49.4	160	43.0	0.178	0.002
	Moderate	216	31.5	463	30.1	113	30.4		
	Great	124	18.1	316	20.5	99	26.6		
Mental deterioration of elderly residents	Slight	198	29.2	347	22.5	99	26.4	0.002	0.002
	Moderate	225	33.2	501	32.4	129	34.4		
	Great	255	37.6	697	45.1	147	39.2		
Physical deterioration of elderly residents	Slight	186	27.3	290	18.7	90	23.9	< 0.001	<0.0001
	Moderate	221	32.5	501	32.4	144	38.3		
	Great	274	40.2	758	48.9	142	37.8		
Proximity to death	Slight	207	30.5	451	29.1	130	34.6	< 0.001	<0.0001
	Moderate	197	29.0	522	33.6	161	42.8		
	Great	275	40.5	579	37.3	85	22.6		

*Adjusted based on age, work contracts and duration of work with elderly persons. % column: For each item, the sum of the percentages for each column is equal to 100%.

Table 4. Hardship related to work factors

		Hardship related to proximity to death						<i>p</i> -value
		Slight		Moderate		Great		
		n	%	n	%	n	%	
Attachment of health-care staff to elderly residents	Very often	128	24.48	140	26.77	255	48.76	<0.001
	Often	447	29.05	549	35.67	543	35.28	
	Several times	165	37.41	155	35.15	121	27.44	
	Seldom or never	4	47.62	27	32.14	17	20.24	
Palliative care training over the previous 5 years	No	506	29.42	565	32.85	649	37.73	0.039
	Yes	282	31.79	315	35.51	290	32.70	
Desire for training in palliative care	No	490	32.47	516	34.20	503	33.33	0.039
	Yes	298	27.14	364	33.15	436	39.71	
		Hardship related to mental deterioration of elderly residents						<i>p</i> -value
		Slight		Moderate		Great		
		n	%	n	%	n	%	
Desire to work in another establishment	No	460	26.21	584	33.28	711	40.51	0.019
	Yes	173	22.24	246	31.62	359	46.14	
Verbal abuse by residents	No	275	37.62	243	33.24	213	29.14	<0.001
	Yes	369	19.76	612	32.78	886	47.46	
Previous training in psychological approaches for elderly residents	No	427	26.28	541	33.29	657	40.43	0.217
	Yes	217	22.30	314	32.27	442	45.43	
		Hardship related to physical deterioration of elderly residents						<i>p</i> -value
		Slight		Moderate		Great		
		n	%	n	%	n	%	
Desire to work in another establishment	No	410	23.27	594	33.71	758	43.02	0.002
	Yes	145	18.64	244	31.36	389	50.00	
Desire for training in psychological approaches for elderly residents	No	391	23.26	551	32.78	739	43.96	0.035
	Yes	175	18.92	315	34.05	435	47.03	
Desire for palliative care training	No	356	23.64	485	32.20	665	44.16	0.020
	Yes	210	19.09	381	34.64	509	46.27	

% line: the sum of the percentages for each line is equal to 100%.

responsibilities in the study population. Several studies have found that competence and work tasks are mismatched in nursing home care¹⁶⁻¹⁸. In France, as in many countries, confusion of tasks and responsibilities might be explained by the fact that the proportion of nurses in the workforce in nursing homes is different from that found in other care settings, such as acute hospital care: nursing homes tend to have fewer registered nurses and a higher proportion of support workers. It may be also explained by the low absolute staffing levels, especially for nurses, usually observed in French nursing homes for the elderly; thus, only 20.8% of respondents in the present study

thought the workforce was sufficient for the job. For some authors, it is not necessarily the case that more staff (i.e., more staff hours per resident day) would mean better care. There are wide-ranging professional and policy debates about what constitutes “nursing” care and who is able to carry out nursing duties¹⁹.

Delegation of complicated tasks to staff without formal nursing training is common, and is reported to be associated with feelings of uncertainty in nursing staff¹⁷. Insufficient and inadequate competence regarding work tasks has been shown to be a source of strain and stress for nursing personnel²⁰. However, the confusion of tasks and responsibilities

Table 5. Training over the previous 5 years and desire for training differed significantly according to occupational group

Training over the previous 5 years		Occupational group						p-value	*Adjusted p-value
		Housekeepers		Nursing assistants		Nurses			
		n	%	n	%	n	%		
Receiving the elderly and activities	No	547	77.4	1,018	65.0	286	75.7	<0.001	<0.0001
	Yes	160	22.6	547	35.0	92	24.3		
Psychological approaches for elderly residents	No	524	74.1	919	58.8	227	60.0	<0.001	<0.0001
	Yes	183	25.9	646	41.2	151	40.0		
Hygiene	No	393	55.6	990	63.3	294	77.8	<0.001	<0.0001
	Yes	314	44.4	575	36.7	84	22.2		
Palliative care and accompaniment of the dying	No	566	80.1	974	62.2	216	57.1	<0.001	<0.0001
	Yes	141	19.9	591	37.8	162	42.9		
Handling of residents	No	360	50.9	632	40.4	213	56.3	<0.001	<0.0001
	Yes	347	49.1	933	59.6	167	43.7		
Other training	No	686	97.0	1,495	95.6	355	93.9	0.048	0.037
	Yes	21	3.0	70	4.5	23	6.1		

Desire for training		Occupational group						p-value	*Adjusted p-value
		Housekeepers		Nursing assistants		Nurses			
		n	%	n	%	n	%		
Receiving the elderly and activities	No	566	80.1	1,274	81.4	230	87.3	0.009	0.004
	Yes	141	19.9	291	18.6	48	12.7		
Hygiene	No	613	86.7	1,452	92.8	356	94.2	<0.001	<0.0001
	Yes	94	13.3	113	7.2	22	5.8		
Palliative care and accompaniment of the dying	No	446	63.1	888	56.7	208	55.0	0.007	0.006
	Yes	261	36.9	677	43.3	170	45.0		
Handling of residents	No	521	73.7	1,176	75.1	304	80.4	0.043	0.014
	Yes	186	26.3	389	24.9	74	19.6		
Other training	No	669	94.6	1,417	90.6	325	86.0	<0.001	<0.0001
	Yes	38	5.4	148	9.5	53	14.0		

*Adjusted based on age, work contracts and duration of work with elderly persons. (% column: For each item, the sum of the percentages for each column is equal to 100%).

described by the present respondents did not seem to be a source of hardship: the majority were satisfied with the match between qualifications and job held.

Nurses, on average, routinely performed a great variety of tasks per day, including them administrative tasks. In previous studies, care staff for the elderly reported lacking time to perform their care tasks, which may lead to a feeling of guilty conscience and to work stress^{16-18, 21-23}.

Most respondents were satisfied with their relations with their team, independently of the occupational group. These findings agree with those of Castle *et al.* for two rest homes in the USA, where

care staff were satisfied with their work and relations with colleagues²⁴. A care setting is an environment in which employees work and interact daily²⁵. The present results may be explained by people working in geriatric settings forming close ties because they share common issues at work, such as frequent death, low staff levels and uncooperative residents. Thus, most victims of verbal or physical abuse reported receiving sympathy from colleagues. Working on the same ward with the same team of colleagues for a long time may favor close relationships; about 60% of respondents had worked in the same establishment for 5 years or more. Many were also satisfied or

very satisfied with their relations with management, although this percentage was lower for nurses than the other two groups; this finding is not consistent with those usually reported in other studies, in which good relationships have been found mainly with direct peers and others working in the same ward²⁴). In a study of work stressors affecting nurses' aides in long-term care facilities and the factors related to work stressors, Lin *et al* found that, of the six types of work stressor distinguished, relationships with supervisors were the least stressful²⁶).

In the present study, psychosocial demands at work were assessed with the Siegrist questionnaire¹²); the rationale of this ERI model is that a work situation associating great effort with low reward will induce emotional and physiological reactions that may jeopardize health.¹⁵) Siegrist's ERI model is based on the assumption that there should ideally be a reciprocal relationship between work done and socially defined rewards²⁷). The employee's health is viewed in relation to work done and rewards received (salary, recognition, job security and promotion prospects). If there is an imbalance, associating high performance with low rewards, Siegrist regards it as a stressful situation, which increases the risk of stress-related disorders if it persists for some time (ERI hypothesis). Nearly 10% of respondents, and especially nursing assistants (10.4%), reported a clear effort/reward imbalance in our study. These results are similar to those observed in other European countries. The French SAMOTRACE study of 3,117 men and 2,229 women in a variety of job sectors found that 2.8% of men and 3.0% of women claimed effort/reward imbalance²⁸). The prevalence of ERI is higher in French care givers (8.8%)²⁹). In several European countries, effort and reward and the resulting imbalance differ substantially between different types of health-care institution. The European PRESST-NEXT study showed that, in German nursing homes, as many as 26.5% of employees were exposed to a high effort/reward imbalance, mainly due to an extremely high level of effort associated with low reward in terms of esteem³⁰). In France, nurses in nursing homes were at relatively high risk of ERI (12.5%), attributable to high levels of effort³⁰). In Italian nursing homes, a high rate of ERI (21.3%) was due to high levels of effort and low reward on all three reward components: esteem, status control and financial reward. In our survey, ERI was related by multivariate analysis to verbal abuse, physical assault, proximity to death, and physical deterioration for elderly residents.

Nearly three-quarters of respondents reported verbal abuse from residents. This especially concerned nurses, whereas nursing assistants were more frequently exposed to physical attack by residents than the other

two groups. The geriatric setting has been recognized as one of the most frequent sites of workplace violence in the health-care sector, including hospitals and other institutions providing health services. The risk of frequent violence against care workers, in homes, day-hospitals or consultation settings in 7 European countries, was highest in psychiatry (adjusted odds ratio (OR)=4.89 [3.82–6.25]), followed by emergency departments (adjusted OR=2.68 [2.1–3.44]) and long-stay geriatric facilities (adjusted OR=1.32 [1.05–1.65])³¹). According to Estryn-Behar, staff in nursing homes for the elderly are more often confronted by aggressive patients than in hospitals or facilities for the disabled³²). Nursing assistants in long-stay facilities experience the highest incidence of assault of all employees in the USA³¹). According to Camerino *et al.*, violence by patients or their families in a variety of care structures targets nursing assistants (24%) more often than nurses (22%) or chief nurses (21%)³³). This higher exposure of nursing assistants to risk of physically violent acts by patients observed in the present study and in the literature may be explained by closer and more personal contact (for example, during transfer to and from chairs, toilets, etc.) than is the case for other workers³⁴).

In the present study, proximity to death caused particular hardship for housekeepers (40.5%) as compared with nursing assistants (37.3%) and nurses (22.6%). This may seem surprising, inasmuch as housekeepers are basically supposed to perform household and catering tasks³¹). It was also noteworthy that, in all 3 groups, respondents from who rarely became attached to residents more often reported only slight hardship related to proximity to death. One of the major concerns of nursing home staff is emotional attachment to residents³⁵). Approaching death is a source of hardship for those working with the elderly and may contribute to increased stress³⁶). The need for training most frequently mentioned by nursing-home staff is how to manage end-of-life care, and training opportunities have been found to be an important factor for job satisfaction in these workers³⁵).

The physical and mental deterioration of elderly patients was more often perceived as a source of great hardship by nursing assistants, who spend most of their working hours in direct contact with the patients. Hardship related to mental deterioration was greater in those who had not had training in psychological approaches for elderly subjects; that related to physical deterioration showed a significant association with a desire for training in psychological approaches for elderly subjects or in palliative care, but not with a desire for training in lifting and carrying. Having to take care of residents with mental deterioration

who exhibit combative, uncooperative behavior and sometimes abuse workers was frequently mentioned as contributing to stress in the work environment. Consistent with this stress factor, the most frequently mentioned training need concerned managing dementia behavior³⁷). Ripich *et al.* found that nursing assistants frustrated by the difficulty of communicating with Alzheimer patients reported a definite benefit from communication training³⁸). In a study of 67 nursing assistants, some of whom had received training in feeding dementia patients and some of whom had not, Chang *et al.* found that the training provided benefited not only the personnel (improved knowledge and behavior) but also the patients³⁹). Moreover, poor or nonexistent training in areas such as managing residents with a memory disorder has been identified as a key factor in certified nursing assistant job dissatisfaction⁴⁰). These findings combined indicate a positive impact of such training on both job satisfaction and the conditions and quality of work with elderly patients showing mental deterioration.

There are some limitations to this study. First, extrapolation should be performed with caution. Care workers in nursing homes are not a homogeneous professional group, as in different countries, organization and tasks differ. Second, it is important to emphasize that the present study did not measure objective indicators in the work environment: e.g., to assess physical and emotional strain. Third, although this applies to most questionnaires, it is critical to note that our study described participants' perceptions of given indicators in their work, mostly via closed questions. Finally, the cross-sectional design of this study precludes any cause-and-effect conclusions regarding the study variables. Nevertheless, our sample size of nursing homes and workers was relatively large, and was representative of the population of Rhone-Alpes Region nursing homes, so the study provides a large amount of information about the working conditions of the three main occupational groups involved in nursing home residential care.

This study highlighted some potential risk factors for work-related stress in the care of elderly people among care workers working in nursing homes. Future research needs to further examine the relationship between effort-reward imbalance and working conditions.

The results showed that there was substantial confusion of tasks between the three occupations categories and that nursing home workers were exposed to verbal abuses and physical assaults, and experienced hardships, particularly when there was a lack of training in an area (such as when caring for residents approaching death). We suggest that necessary measures have to be initiated and implemented by

nursing home administrators. To prevent insufficient ability stress, nursing home workers should be encouraged to attend job training courses, which should cover knowledge of elderly patient-specific care needs and the authority/responsibility to do this job. To reduce heavy workload stress of nurses, adequate staffing should be considered of utmost importance. To prevent stress due to resident violence, resident death, dying or provision of end-of-life care, a section on caring and coping skills to deal with residents and a course aimed at managing aggression and preventing violence should be added to job training. Faced with the trend of an elderly population and increased care demand year after year consideration of nursing home workers' needs is essential for managers to keep their personnel on the job in the nursing home. Hence, appropriate measures, consisting of education and support, might facilitate nursing home workers' feelings of work satisfaction.

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