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The role of job alienation in work ability deterioration and unhealthy ageing

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Abstract. The main purpose of this study is to illustrate how, within the nursing profession, work ability can be deteriorated by a job alienation mechanism which acts differently according to age. From the total number of nurses participating in the NEXT Study, a sample of 27,146 nurses was selected. In addition to age, "Job demands", "Job control" and "Harassment at work" were considered as determinants of job alienation. "Overcommitment", "Uncertainty about patients' treatment" and "Work meaning" were used as symptoms of job alienation. Finally, "Work Ability Index" (WAI) was employed as the outcome variable. A structural equation model was used to test the job alienation hypothesis. The model demonstrated a good fit with the data. Overcommitment, uncertainty about patients' treatment and work meaning had a direct effect on WAI. High job demands, high harassment at work, low job control and age had both direct and indirect effects (via overcommitment, uncertainty about patients' treatment and work meaning) on WAI. Low work ability in older nurses is due to ageing and to an increase in overcommitment yielded by perceived high demands, low job control and high harassment at work. On the contrary, among the nurses under 50 years old, decrease of WAI turned out to be more associated with higher uncertainty about patients' treatment and lower work meaning, which both affect the possibility to reach more professional competence and develop occupational expertise. © 2005 Elsevier B.V. All rights reserved.

Keywords: Nursing; Job alienation; Aging; Work ability; Structural equation modeling

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1. Introduction

According to our theoretical framework, job alienation may be considered as a reiterated impairment in decision-making at work due to a lack of both proper information and time for adequate processing, which can result in a feeling of lost ownership on one's own well-being and future life perspectives. Impaired decision-making may occur in relation to adverse working and organizational conditions such as poor work community, high job demands and low job control and can result in a reduction of individuals' work ability and employability, which can determine premature departure from the profession. Particularly in nursing, job alienation should be avoided in order to reverse the process of staff shortage that heavily affects this profession nowadays. Building a good employability orientation, i.e. the attitudes and behaviours of the employees towards their own employability, becomes of crucial importance in order to cope with current labour market demands [1].

As time goes by, earlier individuals' life and work choices can result as optimal and support longevity. On the contrary, they may result as scantly functional, exposing an individual to poor adjustment and to a rapid decline in health. Specifically, a person–work environment unfit can determine premature ageing through competence loss and worsened mood states. Among these, "brooding over" is a major issue for those who are interested in studying the relationships between stress and pathology, since it describes a condition of alienation that is accompanied by chronic resentment and rage.

From a neurobiological point of view, "brooding over" may be associated with the effects yielded by glucocorticoids on the loss of hippocampus neurons (memory consolidation and explication) and with the secretion of catecholamines with increased risk of cardiac or cerebral infarction episodes.

In our model, "brooding over" is a crucial symptom of job alienation and is hypothesized as being an important risk factor for lowered work ability and employability. Moreover, we assume that "brooding over" bears negative effects which increase with age and may reduce job security and confidence in development possibilities at work.

Analysis of this article was performed on data from the NEXT Study (Nurses' Early Exit Study) and has been undertaken in order to answer to one of the main questions posed by the NEXT: "Which nurses' groups are more at risk for premature departure from the profession?"

In the present contribution we then considered the *age-related* vulnerability to job alienation and the effects that unfavourable working conditions yield on future work ability through job alienation itself.

2. Methods

In Fig. 1, the study model is shown. From the total number of nurses participating in the NEXT Study (39,689), a sample composed by only female registered and specialised nurses

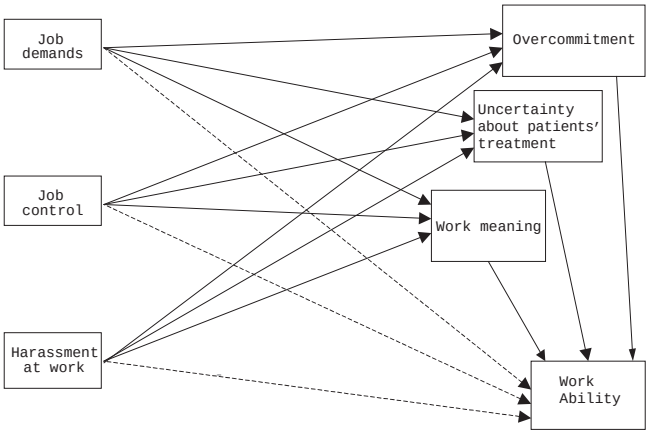

Fig. 1. Path diagram of the hypothesized job alienation model. Arrows indicate the causal relationships between model variables. The broken arrows refer to the direct effects of job demands, job control and harassment at work on work ability.

from nine European countries was selected (n=27,146). Prevalence of nurses from our sample was higher in the age group 30–49 years old (range: 19–71). Job alienation was measured by "Job Demands" [2], "Job Control" [2] and "Harassment at work" (created by the NEXT Group), while symptoms of job alienation were assessed by "Overcommitment" [3], "Uncertainty about patients' treatment" [4] and "Work meaning" [2]. Overcommitment was used as a measure of "brooding over", as this concept is well described by the contents of the scale. "Harassment at work" was used in the place of "Social Support" (included in the original Demand–Control–Support model) with the purpose of maximizing the predictive power of the model. Finally, the "Work Ability Index" [5] was used as the outcome variable measure. The relation between WAI and ageing, and the higher variability of WAI scores among ageing workers is widely known [6,7]. Psychometric properties of the WAI brief version used in this study are available in Hasselhorn et al. [8]. In order to show prevalence by age for the worst score categories, all study variables were categorized by quartile. Multi Sample Analysis (MSA) was performed using LISREL 8.30 in order to verify the age-related differences in job alienation.

3. Results

Prevalence of all model variables by age is reported in Table 1. Job demands, harassment at work and treatment uncertainty were higher among the youngest nurses; job control and work meaning were lower among middle-aged nurses, while higher overcommitment and

Table 1
Prevalence (%) by age of subjects reporting lowest values for study variables

Age (years)	Job demands	Job control	Harassment at work	Over-commitment	Uncertainty about patients' treatment	Work meaning	Work ability
16–29 (n=4386)	29.9	22.3	23.4	18.5	30	16.6	22.8
30–39 (n=9280)	25.6	29.8	23.2	19.9	28.5	22.7	24.4
40–49 (n=9178)	24	27.3	20.2	22.4	22.6	20.7	23.9
>50 (n=4302)	21.8	23.9	16.6	24.4	17.7	15.7	26.4

Table 2
Correlations between model variables

	1	2	3	4	5	6	7	8
1. Age	1							
2. Job demands	−.09*	1						
3. Job control	.04*	−.17*	1					
4. Harassment	−.08*	.38*	−.19*	1				
5. Over-commitment	.04*	.31*	−.13*	.23*	1			
6. Uncert pats treatment	−.11*	.38*	−.15*	.33*	.24*	1		
7. Work meaning	.03*	−.08*	.49*	−.19*	−.08*	−.15*	1	
8. WAI	−.14*	−.24*	.23*	−.28*	−.34*	−.22*	.24*	1

* Coefficient is significant at $\alpha<.001$.

lower work ability were observed among the oldest. To allow for international comparison, prevalence of lowest WAI scores according to standard categorization were: 1.6% for the age group 16–29, 3% for 30–39, 4.3% for 40–49, and 7.6% for >50. In Table 2, the correlation matrix between model variables is shown.

The hypothesized model was found tenable in each of the four age groups. More in detail, overcommitment, uncertainty about patients' treatment and work meaning directly affected WAI. High job demands, low job control and high harassment at work had both direct and indirect effects on WAI via overcommitment, uncertainty about patients' treatment and work meaning. However, some little differences between age groups were observed regarding the strength of these effects. Results of LISREL analysis are shown in Table 3. The three groups of estimated parameters were: 1) regression coefficients linking work characteristics (job demands, job control and harassment at work) to symptoms of job alienation (overcommitment, uncertainty about patients' treatment and work meaning); 2) regression coefficients

Table 3
Results of multi-sample analysis

Variables	Age groups			
	16–29 years	30–39 years	40–49 years	>50 years
Job demands →WAI	−.07	−.08	−.07	−.07
Job control→WAI	.07	.06	.09	.09
Harassment→WAI	−.14	−.14	−.16*	−.10
Job demands→Overcommitment	.25	.25	.25	.26
Job control→Overcommitment	−.09	−.09	.05	n.s.
Harassment→Overcommitment	.11	.13	.13	.14
Job demands→Uncertainty	.29	.27	.29	.32
Job control→Uncertainty	−.05	−.07	−.06	−.07
Harassment→Uncertainty	.17	.23*	.20	.22
Job demands→Work meaning	n.s.	.02*	.07	.07
Job control→Work meaning	.46	.47	.47	.50
Harassment→Work meaning	−.11	−.13	.12	−.07*
Overcommitment→WAI	−.25	−.25	−.23	−.27*
Uncertainty→WAI	−.09	−.07	.08	−.06
Work meaning→WAI	.15	.15	.15	.13

Regression coefficients of job alienation symptoms and WAI on determinants of job alienation by age.
* Regression coefficients which are significantly different according to age ($p<.05$).

linking symptoms of job alienation to WAI; 3) regression coefficients linking work characteristics to WAI. Regression coefficients are shown for each age group. Among the 30- to 39-year-old nurses, increased harassment at work was associated to higher levels of uncertainty about patients' treatment compared to the other age groups. The same association strength was not observed in the youngest nurses. High job demands were related to increased overcommitment in all age groups, while the negative effect yielded by overcommitment on WAI resulted as worse in the elderly.

Job control acted as a moderator of high overcommitment in the youngest but not in the oldest nurses. The impact of harassment at work on work meaning resulted as lower among the oldest nurses. Nevertheless, higher harassment at work was associated to lower WAI in the age group 40–49, this effect decreasing in the oldest nurses.

4. Discussion and conclusions

In the present contribution, the hypothesized job alienation model resulted tenable and similar in all nurses' age groups, even if some significant age-related differences in the effects were observed.

Uncertainty about patients' treatment was found to be more associated to harassment at work among nurses between 30–39 years old compared to the other age groups. In these years, family obligations can reduce resources to be devoted to work and hence foster conflicting relationships within the staff, with a consequent loss in information available for quality-based patients' assistance. However, the same association strength was not observed in the youngest nurses, as probably during training periods harassment at work can be perceived as a stimulus for professional development or, if experienced as a threat, may have already led nurses to leave their institutions before the NEXT study has been initiated. Harassment at work also resulted as affecting work meaning more in the youngest than in the oldest nurses, as the latter have probably strengthened work meaning during their job experiences. In synthesis, it can be said that, among nurses under 50, job alienation exerts its effects mainly by means of harassment, which constitutes a hindrance to the acquisition of information and to the development of meaning in their work activities.

As to the oldest nurses, the main finding was that the effects of high job demands and harassment at work on overcommitment and consequent WAI deterioration were stronger compared to the younger ones, giving support to the initial hypothesis of a long-term effect of overcommitment on lowered WAI. In the nurses' age group 40–49, WAI was also directly affected by increased harassment at work, while a lower effect was observed in the 50s, probably for a selection process favoured by the early retirement facilities which were easily available during the past years in some European countries. As for job control, while in the youngest nurses it acted as a protective factor against high overcommitment, we could not observe the same buffering effects among their older counterparts.

In conclusion, our results showed that all female nurses belonging to different age groups are equally exposed to adverse working conditions. In all groups, high overcommitment, high uncertainty about patients' treatment and low work meaning were observed, leading to consequent reduction of perceived work ability. While nurses below 50s are more susceptible to relational aspects, on which they ground both the construction of work meaning and the development of their work experiences, the oldest are more

vulnerable to all those cognitive or objective hindrances that directly affect overcommitment and indirectly their work ability. This supports the necessity of age-based intervention approaches aimed at nurses' retention.

Although the well-known phenomenon called "ecological niche" generally lead workers to be more change-resistant [9], difficulties encountered by nurses at the workplace may induce early exit: in the nurses below 50 years old, toward new jobs inside or outside the profession, while in the nurses over 50, toward different types of retirement (old age, retirement, disability or early pension). This situation may discourage young people to enter nursing. Also considering the typical age distribution of workers in the European labour market, this may explain the relatively low number of nurses in the youngest and the oldest age groups. Accordingly, in order to recruit and maintain nurses in their profession, it could be of higher importance to take age-related differences into account as evidenced by our results.

As for the study limitations, causal effects are only tentative owing to the cross-sectional nature of the data. Moreover, the impact of age on outcome variables can be biased by the birth cohort effect.

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References

[1] B.I.J.M. van der Heijden, The measurement and development of professional expertise throughout the career. A retrospective study among higher level Dutch professionals, PhD thesis, University of Twente, The Netherlands, Enschede: University of Twente, 1998.
[2] T.S. Kristensen, A New Tool for Assessing Psychosocial Factors at Work: The Copenhagen Psychosocial Questionnaire, National Institute of Occupational Health, Copenhagen, 2000.
[3] J. Siegrist, Adverse health effects of high effort–low reward conditions at work, Journal of Occupational Health Psychology 1 (1996) 27–43.
[4] P. Gray-Toft, J.G. Anderson, The nursing stress scale: development of an instrument, Journal of Behavioural Assessment 3 (1981) 11–23.
[5] K. Tuomi, J. Illmarinen, A. Jahkola, et al., Work Ability, Second edition, Finnish Institute of Occupational Health, Helsinki, 1998.
[6] J. Illmarinen, J. Rantanen, Promotion of work ability during ageing, American Journal of Industrial Medicine 36 (Suppl. 1) (1999) 21–23.
[7] J. Pokorski, J. Nitecki, J. Ilmarinen, Work ability index in fire-fighters and medical doctors, in: J. Ilmarinen, S. Lehtinen (Eds.), Past, Present and Future of Work Ability. People and Work. Research and Work, vol. 65, Finnish Institute of Occupational Health, Helsinki, 2004, pp. 106–113.
[8] H.M. Hasselhorn, P. Tackenberg, B. Mueller, Investigating premature departure from the nursing professions in Europe—the European NEXT-Study, in: H.M. Hasselhorn, P. Tackenberg, B. Mueller (Eds.), Working Condition and Intent to Leave the Profession Among Nursing Staff in Europe. Working Life Research in Europe, National Institute for Working Life, Stockholm, 2003, pp. 9–18, Report no 7.
[9] J.H. Kaufman, Is territoriality definable? in: A.H. Esser (Ed.), Behaviour and Environment, Plenum Press, New York, 1971, pp. 36–40.