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Well-being and self-assessed health among different groups of female personnel in geriatric care

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Abstract. Educational qualifications are reliable predictors of women's self-assessed health.
Aims: To study possible inequalities in health among women with different educational backgrounds working in geriatric care and to find groups that might need special public health measures.
Methods: In this cross-sectional questionnaire reaching throughout Iceland, the participants were employees in 62 geriatric nursing homes and geriatric hospital wards with 10 or more employees. A total of 1,886 questionnaires were distributed. The 84-item questionnaire included questions on demographic and work-related factors, health and life style. Age-adjusted odds ratios (OR) were calculated for work-related psychosocial, physical and health factors, and confidence intervals were set at 95% (95% CI). Registered nurses were taken as a reference category.
Results: The response rate was 80%. Registered nurses accounted for 16%, practical nurses 21%, unskilled attendants 44%, cleaning personnel 8% and others 12%. The practical nurses, unskilled attendants and cleaning personnel assessed work as more physically difficult, and more monotonous both physically and mentally, than did the registered nurses, who enjoyed more physical and mental well-being than the others. However, the registered nurses visited doctors as often as the other groups did.
Conclusions: Personnel groups in geriatric care have different physical and psychosocial workloads. The results provide opportunities to guide public health measures for people employed in geriatric care and possibly in other settings, such as hospitals and health care institutions.

Keywords: Women, nurses, practical nurses, unskilled, geriatric care, education

1. Introduction

Socioeconomic position refers to an individual's situation with reference to variables such as income, wealth, educational attainment, status, and occupation. It is said to determine an individuals access to resources [8]. The relationship between the socioeconomic position of individuals and populations and their health is well established and constitutes one of the most consistent findings in public health research. Those who are better-off in terms of socioeconomic factors rate higher in most aspects of health [13,15]. The traditional measurement of socioeconomic position has been assessed on an individual basis, with reference to a single variable such as education, occupation, or income, all of which have their advantages and disadvantages [10,13]. In spite of the inherent limitation

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of these indicators, however, epidemiological evidence shows their importance as health determinants [1,13].

It may, however, not be an occupation and its rewards, per se, that determine health, but rather the characteristics of the job (e.g. job strain, little control, heavy demands), limited psychological and social resources, or perceived hostility and discrimination [15]. Occupation seems to be a less accurate indicator of health among women than among men [14,17], whereas educational qualifications are particularly strong predictors of women's self-assessed health [2]. Women at higher levels of education and income are freer from chronic and communicable diseases than women of lower socioeconomic attainment, while women with low income are more likely to describe themselves as being in fair or poor health than women with middle or higher incomes [15].

Investigation into the employment and work conditions of assistant nurses, nurses' aides, and home helpers engaged in care of the elderly in Sweden showed that overall work was perceived as independent and rewarding, but mentally and physically straining [6]. Fahlström's studies on work satisfaction among assistant nurses and unskilled attendants showed a mixed picture, the assistant nurses often being less content at work than the unskilled attendants [6]. However, a study on cancer risk among health care personnel in Finland demonstrated that the relative risk of breast cancer among registered nurses was twice that of practical nurses, while the risk of lymphomas, leukemia, and primary liver carcinoma was low among registered nurses and high among practical nurses [18]. Thus, the association between socioeconomic position and disease or health in general is quite complex.

Nursing, per se, is seen as a stressful occupation. Therefore, the International Labor Organization (ILO) has published a working paper on how to combat stress among hospital nurses, as well as other nurses [5]. Contributing to work strain among nurses are factors such as dealing with death and dying, conflict with other personnel, inadequate preparation for handling the emotional needs of patients and their families, workload, etc. Workplaces connected to the health care system are hierarchical institutions with complex social structures, where registered nurses, assistant nurses, and unskilled attendants are ranked in authority and wages. This invites tension among them, according to Franssén [7]. Moreover, the job strain model, as conceptualized by Karasek and Theorell, postulates that a combination of high psychological demands and little control at work leads to mental and physical illness [9], so that variations in health among the different groups working in the system should be expected. Given this, it is interesting to study the health of separate personnel groups in a relatively homogenous sector of the health care system, i.e. in geriatric inpatient care. Distinctions found in such a study should add value to the discussion of socioeconomic position and health, especially concerning women.

Therefore, our objectives were twofold: on the one hand to study possible inequalities regarding health in a population of women with different educational backgrounds and on the other hand to locate groups employed in geriatric care that might need special public health measures.

2. Material and methods

We used data from a nationwide study on the health, well-being, and work environment of personnel in geriatric care. The design was a cross-sectional, self-administered survey. All personnel of nursing homes and geriatric hospital wards with 10 or more employees were invited to participate. A total of 1886 questionnaires were distributed during the time spanning from the morning shift on November 1, 2000 until the morning shift on November 2, 2000. Sixty-two nursing homes and geriatric hospital wards were involved. As there are a number of non-Icelandic speakers working in this field, the questionnaires were in both Icelandic and English.

The 84-item questionnaire, which had three and four facets, covered demographic variables, musculoskeletal symptoms, psychosocial factors, the workplace environment, health behavior, and prior medical history. Detailed questions on musculoskeletal symptoms were based on a standardized Nordic questionnaire [11], while questions on psychosocial factors were based on the General Nordic Questionnaire for psychological and social factors at work [12]. In addition, there were questions on perceived well-being and health, work environment, and visits to the doctor during the past year. Distributed in the workplace, the questionnaires were collected by designated persons at the workplace, who subsequently returned them to the Department of Research and Occupational Health at the Administration of Occupational Safety and Health.

The personnel were divided into five groups: registered nurses, licensed practical nurses, unskilled attendants, cleaning personnel, and others, the "others" being a miscellaneous group of kitchen staff, drivers,

office personnel, etc. Registered nurses have completed either three or four years of education at a nursing school (diploma) or a four-year university program (B.Sc.). Some might have additional university degrees. Practical nurses have different training in different countries, being sometimes called assistant nurses, auxiliary nurses, enrolled nurses, and even nurse aids. Licensed practical nurses in Iceland have completed two or three and a half years training after compulsory school and belong to a certified profession. Unskilled attendants do not have education in nursing but might have some other education.

The level of significance was set at 95%. The analysis was performed using the software Statistical Package for the Social Sciences 7.5.1 [19].

The difference in proportion was assessed using chi-square, and difference in the mean was assessed by one-way analyses of variance. Binominal logistical regression, adjusting for age as a continuous variable, was used to calculate odds ratios (OR) for assorted factors, with registered nurses serving as the reference group. No additional correction was made in regard to multiple testing. Based on this, all the associations are presented as OR. The Icelandic National Bioethics Committee approved the study.

3. Results

The total response rate was 80% ($n = 1515$). The majority of respondents were women, or 96% ($n = 1432$). Registered nurses accounted for 16%, practical nurses 21%, unskilled attendants 44%, cleaning personnel 8% and others 12%. About 55% of those responding had worked five years or less in geriatric care, whereas 27% had worked 10 years or longer in this sector. As the men numbered very few (4%), they were omitted from subsequent analyses, as were the 4% who answered in English. After these restrictions the group comprised 1378 women, of whom 1215 answered the question on job title and were thus eligible for this study. Of those remaining, the unskilled attendants were most numerous, at 45%.

Two individuals were younger than 16 years, 17 were younger than 18 years, and six were older than 70.

The mean age was highest among registered nurses, while the unskilled attendants were youngest (Table 1). Even though there was no difference in weight among the groups, a significant difference was found in height, with the registered nurses being tallest (Table 1). Fourteen percent of the registered nurses had an advanced degree beyond the basic university degree (B.Sc.), as did 1% of the practical nurses, 1% of the unskilled attendants, and 2% of "others", but none of the cleaning personnel. A higher percentage of the unskilled attendants were single, a higher percentage of the registered nurses were divorced, and a higher percentage of the cleaning personnel were widowed, compared to the other groups. There were differences in the complaints on environmental factors at work, with the highest percentage of the others complaining about dry air, stuffy air or unpleasant odor. In terms of life style factors, a higher percentage of the unskilled and of the cleaning personnel did not exercise on a regular basis; furthermore, smoking was nearly twice as common among the unskilled attendants as among the registered nurses, whereas total abstinence from alcohol was more common among the cleaning personnel as compared with the registered nurses (Table 1).

The practical nurses and the unskilled attendants were more exposed to every physical risk factor than were the registered nurses; this applies partly to the cleaning personnel as well (Table 2). The practical nurses, unskilled attendants and cleaning personnel assessed work as more monotonous and physically difficult than did the registered nurses: OR = 2.8, 2.3, 5.7 respectively. Even the group "others" felt it had more physically monotonous work than the registered nurses: OR = 2.9 (Table 2).

Concerning employment-related psychosocial factors, all the other groups assessed their work as more monotonous than did the registered nurses, and the former groups felt they were not sufficiently consulted about their work (Table 3). Nevertheless, unskilled attendants and cleaning personnel were significantly less often exposed to harassment at work than were the registered nurses.

As to differences in medical conditions for which personnel stated they had sought medical treatment, distinctions were generally small. The only condition that was more common among the practical nurses and the unskilled attendants than the remainder of the staff members was sleeping problems (Table 4). Physical and mental well-being rated somewhat higher among registered nurses, especially compared to unskilled attendants, but satisfaction with work was similar for all the groups (Table 5).

4. Discussion

This study shows that practical nurses, unskilled attendants, and cleaning personnel in geriatric care ex-

Table 1
Distribution of various demographic and work-related factors among different groups of personnel in geriatric care ($n = 1215$); standard deviation in brackets

	Registered nurses	Practical nurses	Unskilled attendants	Cleaning personnel	Others
Physical factors					
Mean age	46.7 (10.0)	45.6 (10.5)	43.0 (14.8)	46.3 (13.7)	46.6 (13.1)
Df=4 $F = 4.87$ $p < 0.001$					
Mean height	167.4 (6.1)	166.2 (5.8)	165.9 (6.0)	164.4 (7.2)	165.3 (6.6)
Df=4 $F = 4.18$ $p = 0.002$					
Mean body weight	72.4 (12.9)	71.3 (11.8)	70.0 (12.7)	71.1 (15.8)	71.0 (14.2)
$F = 1.30$ $p = 0.27$					
			Percentages (%)		
Education					
Higher university degree	14	1	1	0	2
Marital status					
Married	75.6	79.8	67.3	71.1	72.9
Single	8.1	9.2	19.5	15.5	14.3
Divorced	13.2	9.9	8.9	5.2	7.5
Widowed	3.0	1.1	4.2	8.2	5.3
Work-related environmental factors					
Dry air	29.5	19.6	22.5	25.0	37.0
$\chi^2 = 14.3$ $df = 4$ $p < 0.001$					
Stuffy air	24.0	16.0	22.0	19.7	35.1
$\chi^2 = 14.3$ $df = 4$ $p = 0.0006$					
Unpleasant odour	28.5	17.5	18.3	21.1	37.6
$\chi^2 = 23.2$ $df = 4$ $p < 0.001$					
Lack of space	42.1	33.0	39.5	48.2	56.4
$\chi^2 = 16.4$ $df = 4$ $p = 0003$					
Factors of lifestyle					
Exercise on a regular basis (never)	13.8	13.0	25.0	31.6	23.7
$\chi^2 = 45.0$ $df = 16$ $p < 0.0001$					
Smoke	23.2	31.1	42.6	31.5	28.5
$\chi^2 = 58.2$ $df = 16$ $p < 0.0001$					
Consume alcohol (never)	79.9	74.4	76.4	59.3	71.0
$\chi^2 = 15.3$ $df = 4$ $p = 0.004$					

Table 2
Age-adjusted odds ratios (OR) and 95% confidence intervals (95% CI) for work-related physical factors among different groups of personnel in geriatric care ($n = 1215$); registered nurses as reference category

Physical risk factors at work	Registered nurses	Practical nurses	Unskilled attendants	Cleaning personnel	Others
Physical monotony	1	2.8 (1.8–4.3)	2.3 (1.6–3.4)	5.7 (3.3–9.9)	2.9 (1.8–4.8)
Physical difficulty	1	3.5 (2.2–5.4)	3.7 (2.5–5.4)	0.9 (0.5–1.5)	0.7 (0.4–1.0)
Physical exhaustion after shift	1	2.8 (1.8–4.1)	2.3 (1.6–3.3)	1.0 (0.6–1.7)	0.8 (0.5–1.2)
Work posture with twisted trunk	1	3.2 (2.1–4.9)	2.2 (1.5–3.3)	1.8 (1.0–3.5)	0.8 (0.5–1.5)
Work posture with bent trunk	1	5.0 (3.2–7.8)	3.3 (2.3–4.8)	3.1 (1.6–6.0)	1.0 (0.6–1.7)
Work posture squatting	1	5.2 (3.3–8.1)	4.2 (2.9–6.3)	3.0 (1.6–5.7)	0.9 (0.5–1.6)
Heavy lifting standing upright	1	3.9 (2.5–5.9)	3.5 (2.4–5.2)	0.3 (0.1–0.9)	0.9 (0.5–1.5)
Heavy lifting with curved back	1	3.1 (2.1–4.8)	3.1 (2.1–4.5)	0.3 (0.1–0.8)	0.6 (0.3–1.0)

perienced much greater physical workloads than did registered nurses, besides finding their work more monotonous. Registered nurses enjoyed greater physical and mental well-being than the others; however, they visited doctors as often (with only one exception) as did members of the other groups. The results should point to channels for providing public health guidance for those working in geriatric care and possibly in other settings at hospitals and care institutions.

In higher and middle-income countries, education level correlates with a number of features of women's lives: their relative poverty or privilege growing up, their likely occupational standing and marriage prospects, their access to information and their cognitive ability [15]. Based on these connections, one might have expected that registered nurses in geriatric

Table 3
Age-adjusted odds ratios (OR) and 95% confidence intervals (95% CI) for work-related psychosocial factors among different groups of personnel in geriatric care ($n = 1215$); registered nurses as reference category

Psychosocial risk factors at work	Odds ratios (95% confidence intervals)				
	Registered nurses	Practical nurses	Unskilled attendants	Cleaning personnel	Others
Mental monotony	1	7.3 (4.5–12.0)	5.0 (3.2–8.0)	15.6 (8.4–29.1)	8.1 (4.6–14.1)
Mental difficulty	1	1.1 (0.7–1.6)	1.0 (0.7–1.6)	0.2 (0.1–0.3)	0.3 (0.2–0.5)
Mental exhaustion after shift	1	1.2 (0.8–1.7)	0.9 (0.6–1.3)	0.4 (0.2–0.6)	0.4 (0.3–0.7)
Disapproval of supervisors	1	0.8 (0.4–1.5)	0.9 (0.5–1.5)	0.7 (0.3–1.7)	0.9 (0.4–1.8)
Insufficient flow of information	1	1.0 (0.7–1.6)	0.9 (0.6–1.3)	0.6 (0.3–1.2)	1.4 (0.8–2.2)
Insufficient consultation on work	1	2.5 (1.7–3.6)	3.1 (2.2–4.4)	1.9 (1.1–3.3)	1.9 (1.2–3.0)
Lack of solidarity at work	1	1.4 (0.9–2.3)	1.8 (1.2–2.8)	2.5 (1.4–4.5)	2.1 (1.2–3.6)
Dissatisfaction with work	1	0.9 (0.4–1.9)	0.9 (0.5–1.7)	1.6 (0.7–3.8)	0.6 (0.2–1.7)
Harassment at work	1	0.9 (0.6–1.3)	0.6 (0.5–0.9)	0.2 (0.1–0.4)	0.2 (0.1–0.4)

care would have the best outcome regarding health and well-being, compared to practical nurses and unskilled attendants, because registered nurses have more education and higher wages than the latter groups. This was confirmed in the study, with the exception that only a minimal difference was found in medical problems that resulted in visits to a doctor.

A possible explanation could be that registered nurses who have complaints have a lower threshold for visiting the doctor than the other groups. They might also have easier/better access to doctors, and more economic leeway, so as to render it an easier option for them. Iceland is a rich country, ranking sixth in GDP (gross domestic product) per capita among the OECD countries. However, social security benefits are lower in Iceland than in the other Nordic countries [16]. People in Iceland have to pay a nominal fee for each visit to the doctor, a fee whose proportions may prove substantial for those of low income.

All the concerned groups were rather content with their work, which is in agreement with Fahlström's results: she found in her study on work and the work conditions of assistant nurses, nurses' aides and home helpers caring for the elderly in Sweden that the occupation overall was perceived as independent and rewarding, but mentally and physically straining [6].

There has been much debate about whether it is possible to use women's occupations to measure inequalities in their health. When the majority of women were more or less fulfilling to role of housewife's, a man's occupational class indicated both his own working conditions and his household's material circumstances. This was less likely to be the case for women [2]. Accordingly, in the past, the occupational class of the husband was considered so important for women's health that categorizing married women by their husband's class became the "conventional" approach. On the other hand, where women's participation on the labor market is high, combined with contemporary fluidity in marital status, it has been assumed that a woman's own occupation will have a strong impact on her health [2]. This assumption was ascertained when inequalities in women's health in Britain and Finland was compared [3] and is clearly reflected in the present results. Women's participation in the labor market is low in Britain, but high in Finland, as it also is in Iceland. In the year 2000, 79% of Icelandic women aged 16–74 were economically active. Furthermore, the degree of unemployment is low: in the year 2000 only 1.9% among women [20].

High Icelandic participation in the labor market could influence the *healthy worker effect* that is well known in occupational studies and predicts that those who work are healthier than those who do not. This effect stands out in studies where the health of a working group is compared to that of the general population [4], although that was not the case in this study. The healthy worker effect could, however, bias the outcome in the sense that all the women in the study group must have sufficiently good health to be able to work in this physically and mentally demanding job sector and are in that sense a selected group. Nonetheless, this should tend to reduce rather than increase the distinctions found in the present study.

It may come as a surprise that the age range was 14–79 years. Normally, the working age in Iceland spans from 16 to 70 years. Some start working before age 16 to earn money while still at school, and some work beyond the age of 70, possibly because of their pension not sufficing for their living standards or their simply choosing to continue working if the opportunity exists.

According to Fahlström not many studies are available on work satisfaction and well-being among practical nurses and unskilled attendants [6]. Querying in Medline and other databases, we did not succeed in discovering any research that compared

Table 4
Age-adjusted odds ratios (OR) and 95% confidence intervals (95% CI) for history of seeking medical advice among different groups of personnel in geriatric care ($n = 1215$); registered nurses as reference category

	Odds ratios (95% confidence intervals)				
	Registered nurses	Practical nurses	Unskilled attendants	Cleaning personnel	Others
Asthma (8.3%)	1	1.1 (0.5–2.2)	1.2 (0.7–2.3)	0.9 (0.3–2.3)	1.4 (0.6–3.1)
Myalgia (40.0%)	1	1.5 (1.0–2.2)	1.1 (0.8–1.6)	0.9 (0.5–1.4)	1.2 (0.8–1.9)
Back pain (34.1%)	1	1.1 (0.7–1.6)	1.1 (0.7–1.5)	0.9 (0.5–1.5)	1.0 (0.6–1.6)
Arrythmias (9.3%)	1	1.3 (0.7–2.3)	0.7 (0.4–1.3)	0.3 (0.1–0.9)	0.8 (0.4–1.8)
Hypertension (13.1%)	1	0.8 (0.4–1.3)	0.8 (0.5–1.4)	0.7 (0.3–1.5)	1.0 (0.5–1.8)
Headaches (18.4%)	1	1.1 (0.7–1.8)	1.0 (0.6–1.6)	1.1 (0.6–2.1)	0.9 (0.5–1.6)
Sleeping problems (12.3%)	1	2.0 (1.1–3.8)	2.0 (1.1–3.7)	1.4 (0.6–3.2)	1.0 (0.4–2.3)
Depression (10.6%)	1	0.9 (0.5–1.5)	0.8 (0.5–1.3)	0.4 (0.2–1.1)	0.3 (0.1–0.7)
Anxiety (12.2%)	1	1.1 (0.6–2.0)	1.3 (0.8–2.2)	1.0 (0.4–2.1)	0.7 (0.3–1.5)
Eye irritation (10.9%)	1	1.0 (0.6–1.9)	1.0 (0.6–1.8)	0.6 (0.2–1.4)	1.2 (0.6–2.3)

Table 5
Mean score on a scale from 1 to 10 regarding well-being and satisfaction among different groups of personnel in geriatric care ($n = 1215$) with test statistics adjusted for age

	Mean score (standard deviation)				
	Registered nurses	Practical nurses	Unskilled attendants	Cleaning personnel	Others
Physical well-being $F = 4.72$ $df = 4$ $p = 0.001$	7.7 (1.5)	7.2 (1.8)	7.0 (2.1)	7.2 (2.2)	7.5 (2.0)
Mental well-being $F = 3.84$ $df = 4$ $p = 0.004$	8.3 (1.3)	8.2 (1.7)	7.7 (2.2)	7.9 (2.3)	8.1 (1.8)
Satisfaction with work $F = 2.02$ $df = 4$ $p = 0.09$	8.1 (1.5)	7.7 (1.7)	7.9 (1.8)	7.7 (2.3)	8.2 (1.9)

the work-related well-being and health of the groups presently studied. However, in consideration of the increasing age of many nations and the growing need of care for the elderly, it is worth implementing every available public health measure to improve the conditions of those employed in this field. The strengths of our research are that it was conducted nationwide, the group under study was numerous, and the response rate was high, increasing the reliability of the results.

5. Conclusions

This study shows that a woman's employment can be taken as a probable measure of her occupational health and that various personnel groups in geriatric care have different physical and psychosocial workloads. Registered nurses enjoy greater physical and mental well-being than other groups in the sector. The results should encourage health authorities to take special steps to improve generally the work environment and health in this career sector, especially as pertains to those lower in the social hierarchy of the health care system.

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