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Health and well-being among 70-year-old migrants living in Sweden – results from the H 70 gerontological and geriatric population studies in Göteborg

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Abstract *Background* Comparative epidemiological studies in migrants in Sweden have shown increased prevalence of psychosocial morbidity in young adults, but there is paucity of information on health in people aged 65 years and over. *Aims* We aim to compare prevalence of mental, physical and social health problems, rates of hospital admission, and mortality in Swedish and non-Swedish born people aged 70 years living in Göteborg, Sweden, and examine associations between social factors, physical health, mood and life satisfaction in the ethnic groups. In addition, we aim to test for the hypothesis that differences in mental health between migrants and natives are explained by social disadvantages rather than ethnicity. *Method* Semi-structured interviews were administered to 84 migrants (47 women and 37 men randomly selected) with the help of bilingual interpreters, and 409 Swedes (183 males and 226 females) used as "controls". Complementary health and social data obtained from official sources on the total sample (N = 764, including non-participants in overall medical interviews) were used in comparative analyses of in-patient care and mortality and to check for the possibility of sampling bias. *Results* Migrants – originating mainly from Estonia, Poland, Yugoslavia, Germany, Italy and Nordic countries other than Sweden – reported more dizziness, poor vision and urinary problems, and fewer gall bladder problems than indigenous people ($p \leq 0.05$). Migrants also had higher levels of anxiety and depression and bodily pain, and lower levels of general health, social and emotional functioning, satisfaction with physical health status, family contacts, housing conditions and economic status than natives ($p \leq 0.05$). Satisfaction with physical health seemed to be one of the strongest factors related to a lower prevalence of anxiety and depression together with family support and time spent in leisure pursuits. No significant differences in in-patient care in several ICD categories and all-cause mortality were found between overall migrants and the control group notwithstanding differences in self-reported health. *Conclusion* The results indicate poorer subjective health in older migrants than natives in Göteborg, and also point to a "healthy migrant" effect on survival.

Key words migration – older people – mental health – disability – social support

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Introduction

Despite the tradition of mental health research in migrants to the Nordic countries (Haavio-Mannila and Stenius 1977; Åhlund 1978; Socialstyrelsen 1995; Bayard-Burfield et al. 1998), numerous gerontological studies in Sweden which have examined associations between well-being, physical disability and socio-economic status did not consider the influence of ethnic origin. Older people are likely to represent a greater proportion in immigrant communities in Sweden in the near future (Swedish Immigration Board 1997). Lack of research in migrant elders has led to slow progress in the understanding of the effects of ethnicity/migration as explanatory factors of health inequalities due to confusion with socio-economic influences that will (inevitably) contribute to patterns of ill-health in old age (Victor 1987). Like many other European countries, Sweden re-

ceived a great influx of migrant workers during the middle of the last century (Castles and Kosack 1985) in particular from Finland, Norway, Denmark, Poland and Germany (Statistics Sweden 1997). Recent statistics show that 18 % of the total population in Sweden is of foreign background when those having at least one foreign-born parent are included (Swedish Immigration Board 1997). In the light of growing class inequalities reported in recent years (Vågerö and Lundberg 1989; Blank and Diderichsen 1996), there is a need for research on modifiable risk factors that may predispose to common health and emotional problems in elders in minority ethnic communities. The same holds for comparative analyses of survival given that some studies have been carried out adjusting for age differences (Bayard-Burfield et al. 1998).

Previous researchers in Sweden have investigated cardiovascular disease in Finnish migrants (Theorell et al. 1980), trauma of war and repatriation in Latin American refugees (Sundquist 1994) and psychological health in Chileans, Polish and people of Arab descent (mostly young adults) (Socialstyrelsen/National Board of Health and Welfare 1999). Evidence of health discrepancies in people aged 65 years and above who were born abroad where existent is conflicting with reports of increased disability and mortality risk in "middle-aged" migrants. A study in 70-year-old migrants and Swedish natives (which included migrants of Nordic origin) in Göteborg pointed to differences mainly in subjective rather than objective health criteria (Waern and Steen 1995).

Comparisons of morbidity, including self-reported health, and mortality in migrant elders might facilitate the understanding of unique and similar influences and help disentangle the effects of ethnicity and social factors on well-being (Smaje 1995; Silveira and Ebrahim 1998; Bone et al. 1995). Models should be sensitive to this stage of life, i. e. issues of social support and chronic disability as well as experiences of migration (Norman 1985; Blakemore and Boneham 1994), life expectations and previous occupation among other factors. Older migrants may be more likely to face isolation in the receiving countries of migration (Warnes 1996). In addition, they may encounter barriers in access to services due to difficulties with language, discrimination by medical professionals and inadequate provision of interpreting/translation services that may lead to health disadvantages (double/multiple-jeopardy theory) (Norman 1985; Patel 1993). This comparative study aims to examine differences in several health outcomes in migrants and Swedish natives in Göteborg so as to reveal reasons for inequalities, and ways in which their health needs can be most adequately met.

Objectives

The main objectives of the study are: 1) to examine mental health/well-being, i. e. prevalence of anxiety and depression symptoms and degree of life satisfaction; physical health problems, i. e. chronic illnesses and disability; reasons for hospitalisation, length of stay, and number of hospital discharges, and all-cause mortality during the period 1992–1999 in migrants and natives in Göteborg; 2) to study associations between social factors (i. e. satisfaction with physical health, social support, leisure, income and housing conditions) and anxiety and depression in the ethnic groups; 3) to test for the hypothesis that differences in mental health may be explained by social disadvantages rather than ethnicity.

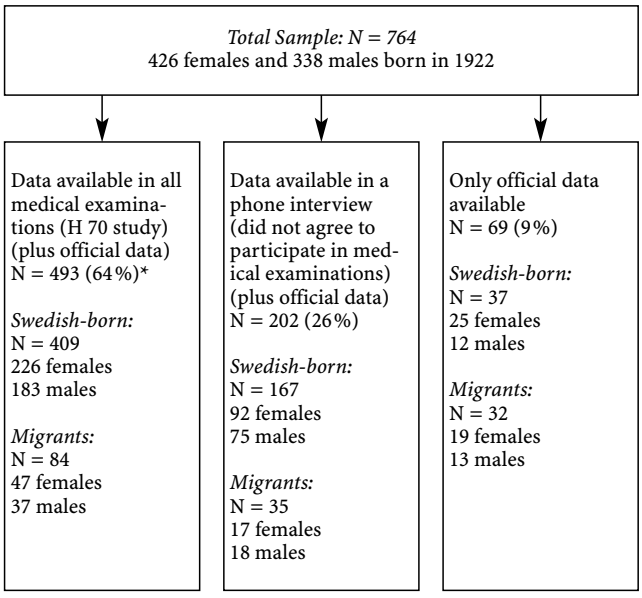
Subjects and methods

Data were collected within the framework of the gerontological and geriatric population H 70 studies in Göteborg (Rinder et al. 1975; Steen and Djurfeldt 1993), an on-going longitudinal study of 70-year-old people resident in the city. Information in the present investigation concerns detailed medical examinations on a cross-sectional sample – cohort 5, born in 1922 and interviewed in 1992, representing 17 % of the city's total residents of the same age – carried out by physicians and nurses. Migrants were selected from a list of names based on the following main criteria: being born outside Sweden, having a non-Swedish name and being a resident in Göteborg at the time of the study. Due to sample composition, the most appropriate quantification of immigrant-origin was by region rather than nationality. Therefore, migrants were subdivided into major "ethnic" categories as Nordic, Eastern/Western Europeans, Mediterranean and beyond Europe. The division Nordic/non-Nordic migrants is emphasised in analyses of mental health status given the likely differential impact of acculturation (i. e. acculturative stress) on well-being in these groups.

Sampling

A two-step sampling procedure was used to select migrants so as to obtain an adequate number of participants. Firstly, 686 people born in 1922, i. e. 384 women and 302 men, were selected at random from the population register. According to the official records, only 37 people in this sample had been born in non-Nordic countries. Therefore, a second random sample (83 people) was drawn so as to obtain 120 non-Nordic names in total (64 females and 56 males). Nordic migrants selected in the first step comprised 27 people. Hence, after including Nordic migrants (and an additional five people, some of whom had Swedish names but were born abroad and re-classified as migrants based on information obtained from the national register in May 2000), we selected 152 migrants (83 females and 69 males) and 617 Swedes (346 females and 271 males). Five people (3 females and 2 males, one of whom was a male migrant) died after selection but before fieldwork started and were excluded. Therefore, there were 151 valid cases among migrants (83 females and 68 males) and 613 among Swedes (343 females and 270 males) in the overall sample (N = 764). Migrants comprised Eastern Europeans (born in Estonia, Poland and Yugoslavia) (N = 58), Western Europeans (mostly from Germany) (N = 29), Nordic (from Norway, Finland and Denmark) (N = 27), Mediterranean (mainly from Italy) (N = 15) and non-Europeans (mainly from Africa and Asia) (N = 22). The majority (87 %) had migrated to Sweden before 1970 (mainly in the 1940 s and 50 s), 5 % between 1970 and 1979, and 8 % between 1980 and 1992. Recent migrants tended to be represented almost entirely by non-Europeans.

Overall, 493 people (273 females and 220 males), of whom 84 were of non-Swedish origin (47 females and 37 males) and 409 of Swedish origin (226 females and 183 males), agreed to participate in all health interviews and physical examinations out of the 764 initially selected. The study design and response rates are shown in Fig. 1.



* RR in H 70 study in non-Nordic migrants = 52%; overall migrants = 56%.

Fig. 1 Study design and response rates

Assessment

Instrument

A standardised questionnaire was used to collect information on self-reported physical health – chronic diseases and disability in activities of daily living (ADL) – satisfaction with economic situation, family life, leisure, social life, housing and health (measured on a 7-item Likert scale varying from very satisfied = 1 to very dissatisfied = 7); emotional/cognitive status (i. e. satisfaction with mood, confidence/self-esteem, energy, memory and appetite) (measured on a 7-item Likert scale varying from exceptionally good = 1 to very low = 7), and concepts of health as tapped in the Short-Form–36 (SF–36) (Ware et al. 1993), i. e. measures of mental health (MH), role limitation due to emotional problems (RE), vitality (VT), social functioning (SF), physical functioning (PF), general health (GH), role limitation due to physical problems (RP) and bodily pain (BP) in addition to two summary measures, the mental component summary (MCS) and physical component summary (PCS). The SF–36 has been validated in population studies conducted among elderly people in Sweden (Sullivan and Karlsson 1998). Five symptoms of anxiety and depression compose the mental health scale (MH) and all SF–36 subscales contribute to both summary measures. Total scores in individual scales in the SF–36 vary from 0 (worst health) to 100 (optimum health) (Ware et al. 1994). The recommended cut-offs used were 42 in the MCS (indicative of clinical depression) and 52 in the MH scale (indicative of emotional limitation, probably of any psychiatric disorder) (Ware et al. 1994). Information on the above parameters was available for participants in all medical interviews only (N = 493).

Complementary data on health and social status – consisting of year of immigration to Sweden, individual and family earnings (for income received in 1992), previous occupation and total working hours (pre-retirement in 1970 and 1980), household size (in 1992, 1970 and 1980), reasons for and number of hospital admissions in Göteborg and/or other hospitals in Sweden (from 1st January 1992 to 31st December 1998) and all-cause mortality (number of deaths recorded from 1st January 1992 to 31st December 1999) – were obtained from official sources (Statistics Sweden and the National Board of Health and Welfare) on everyone initially selected (i. e. 764 people, comprising participants and non-participants in medical examinations) in May 2000. This involved bilateral non-disclosure agreement and double blindness in data handling with assignment of new identification codes (random numbers) by Statistics Sweden. Main and secondary diagnoses at hospital admission(s) were based on the International Classification of Diseases (ICD) (World Health Organisation 1992) 10th and 9th editions for data collected during the period 1997–1999 (inclusive) and prior to that respectively. All relevant categories (14 in total) both somatic and psychiatric were included in analyses of in-patient care.

Finally, data on health status were obtained about people who declined to take part in all medical examinations but agreed to a telephone interview (N = 202). These consisted of self-reported health; chronic health problems, namely, diabetes, myocardial infarction, angina pectoris, cancer, previous occurrence of fractures (at age 25 years or later); use of medication against hypertension and diabetes; tobacco smoking (currently and in the past); use of dentist and hospital in-patient services. The study was approved by the Medical Faculty Ethics Committee.

Outcome measures and steps of analyses

Main outcome measures were symptoms of anxiety and depression (i. e. ratings in the SF–36 MCS and MH scale) and all-cause mortality (1992–1999). Analyses involved comparisons of health and social factors in migrants and controls, both among participants in medical interviews and people in the overall sample. Bivariate statistics comprised Chi-square tests for nominal associations and non-parametric permutation tests for ordinal and linear associations. Special cases of the permutation trend tests include the Mann-Whitney test (M-W) for examination of associations between one dichotomous and one ordinal variable, Spearman's rank correlation coefficients (rho) for associations between two ordered variables, and Fisher's exact test for associations between two dichotomous variables. Significance was calculated by the Monte Carlo technique (N = 50000) when the distribution of the test statistics showed skewness; otherwise, by asymptotic methods [a detailed description of permutation tests and Monte Carlo methods can be found in Mehta and Patel (1995)]. Data were coded and analysed using SPSS (Norusis 1990).

The combined influence of ethnicity, satisfaction with income, housing conditions, social support, leisure and physical health on mental health was studied using odds ratios in logistic regression (linear regression was used to estimate the amount of variation in anxiety and depression scores likely to be explained by the above factors). Lastly, data on self-reported health, social status, in-patient care and mortality were examined in non-participants to check for the possibility of sampling bias. Differences in health in non-participants are considered beforehand below.

Differences in health and socio-economic status between participants and non-participants in medical examinations

Within migrant and Swedish native groups

Prevalence of chronic health problems did not differ significantly in non-participants compared with participants among natives (although cancer, hypertension, angina pectoris and fractures were more common in migrant non-participants). Non-participants among migrants tended to perceive their health less positively (linear by linear association = 8, df = 1, $p \leq 0.01$) and visit the dentist less regularly (linear by linear association = 58.4, df = 1, $p \leq 0.001$). Use of antihypertensive medication was higher in native non-participants ($\chi^2 = 6$, df = 1, $p \leq 0.05$) and use of dentist services lower (M-H linear association = 17.2, df = 1, $p \leq 0.001$). Body mass index was lower in native (M-Wz = –4.4, $p \leq 0.001$) and migrant non-participants (M-Wz = –2.2, $p \leq 0.05$). Similar frequencies were found regarding smoking, hospitalisation, mortality, and in the distribution of gender and marital status in migrant and native non-participants. Household size was smaller in native non-participants (44% lived alone compared with 32% in participants) ($p \leq 0.05$).

Between migrant and Swedish native groups

Differences in perceived health (and smoking) between migrant and Swedish non-participants were non-significant. The mean number of hospital admissions was the same in migrant and Swedish non-par-

ticipants (mean = 34; SD = 100 and SD = 74, respectively). However, mortality was higher in native than in migrant non-participants. Overall, 57 migrants (85 %) compared with 146 (72 %) natives were alive in 1999 ($p \leq 0.05$). Being a "non-migrant" was a significant predictor of mortality ($\beta = 0.14$, SE = 0.06, $p \leq 0.05$) (bivariate analyses) although not of increased hospital care (neither discharges nor length of stay).

Results

Socio-demographic characteristics

Table 1 summarises results on marital status, household composition, occupation and income in participants by ethnic group. More migrants (non-Nordic = 28 %, Nordic = 30 %) than natives (14 %) were living in poorer areas (northeast in the city) although differences were significant in the total sample only ($p \leq 0.01$). Mean household income (total family income) from pensions, other income sources and total capital assets was lower in migrants than Swedes ($p \leq 0.05$), in particular among Eastern Europeans, Mediterraneans and non-Europeans. Earnings from disability benefits were similar in both groups.

Table 1 Demographic characteristics of participants by ethnic group (N = 493)

	No. of respondents (%)	
	Migrants	Indigenous
Marital status:		
married	51 (61 %)	250 (61 %)
widowed	11 (13 %)	70 (17 %)
divorced/never married	22 (26 %)	89 (22 %)
Household size (n):		
0	28 (35 %)	129 (32 %)
1	47 (58 %)	252 (63 %)
2[a]	6 (8 %)	18 (5 %)
Household composition (n)[a]		
0–19 years	2 (2 %)	4 (1 %)
20–69	35 (43 %)	188 (47 %)
70–79	19 (23 %)	93 (24 %)
80–85 and over[b]	3 (4 %)	2 (1 %)*
Living in same house with wife/husband[c]:		
yes	46 (55 %)	248 (61 %)
no	38 (45 %)	161 (39 %)
Occupation (n):		
unemployed	15 (21 %)	95 (24 %)
manual employee	31 (43 %)	109 (27 %)*
non-manual employee[d]	25 (34 %)	186 (46 %)
self-employed/managerial	2 (3 %)	13 (3 %)
Education (n):		
≤ 8 years	35 (46 %)	272 (67 %)*
Total family income:		
% at or below median	48 (57 %)	199 (49 %)*

[a] age of co-residents (1990 Census data); male migrants were less likely than natives to live with people aged 65–69 years (22 % x 41 %)
[b] whilst female migrants were more likely to live with 80- to 84-year-olds (7 % x 0)
[c] in 1992;
[d] includes professional (1980 Census data)
*$p \leq 0.05$

Physical health status

Self-reported chronic health problems

Graph 1 summarises commonly reported chronic health problems in migrants (shown as Nordic and non-Nordic) and Swedish elders. Overall, migrants were more likely to have poor vision, urinary difficulties, and dizziness ($p \leq 0.05$), and less likely to have gall bladder problems ($p \leq 0.05$). Differences in the prevalence of all other medical conditions (including previous surgery for gastric ulcer, osteoarthritis of the hip, prostate, kidney and gall bladder problems) were not statistically significant. Medical diagnoses varied between migrant subgroups. Eastern Europeans and Nordic migrants tended to report more myocardial infarction and poor vision. Nordic migrants also reported more hypertension, followed by Swedes, whilst Mediterraneans had more micturiction and hearing troubles, giddiness and gastric ulcer.

Disability in ADL

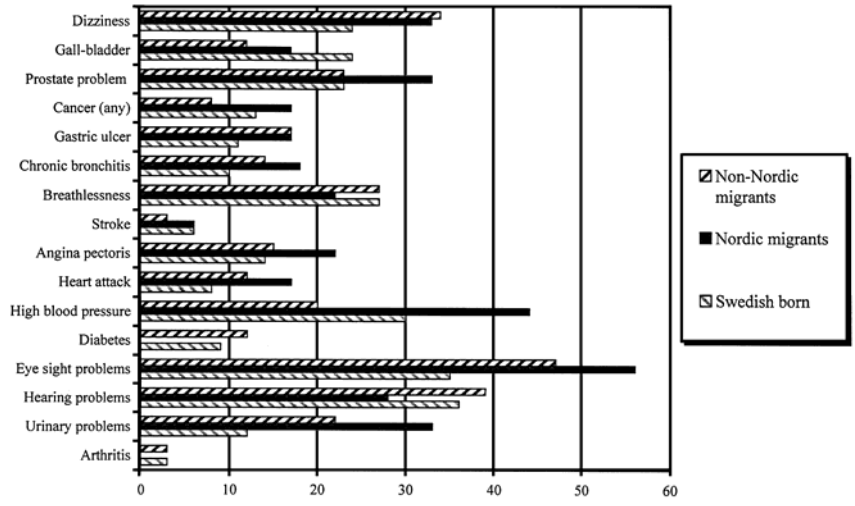
Prevalence of disability in personal and instrumental activities of daily living (ADL) – namely ability to bath, dress, toilet oneself, do home cleaning and shopping and use transport – was low in the migrant and the control groups (varying from 2 to 5 % in most tasks). However, almost a third of migrants (29 %) and natives (26 %) said they had difficulties (sometimes and/or on all occasions) in walking up and down stairs, 21 % and 22 % in walking outdoors and 5 % and 6 % indoors, respectively. All differences in the prevalence of disability between migrants and the control group were non-significant.

Mental health/well-being

Emotional and cognitive symptoms and life satisfaction

Feelings of low mood, energy and appetite, poor general condition, and declining memory were more common in migrants than indigenous elders (permutation tests $p \leq 0.05$ after controlling for gender). No significant differences were found in self-esteem (confidence). Migrants had lower levels of satisfaction with their social situation (i. e. outside family) ($p \leq 0.001$) as well as with family life ($p \leq 0.01$), time spent in leisure pursuits ($p \leq 0.01$), physical health ($p \leq 0.01$), economic status ($p \leq 0.02$) and living conditions ($p \leq 0.05$) than natives (after controlling for gender). Overall, women reported lower satisfaction than men regarding family support, economic situation and the extent of leisure (M-W = –2, $p \leq 0.05$) (OR for dissatisfaction in males in binary logistic regression models were 0.86, 0.74 and 0.84, respectively). However, no significant gender differences were observed in satisfaction with physical health, housing and social circumstances. Migrants who reported low satisfaction with physical capacity were more likely

Graph 1 Prevalence of self-reported chronic health problems by ethnic group (%)



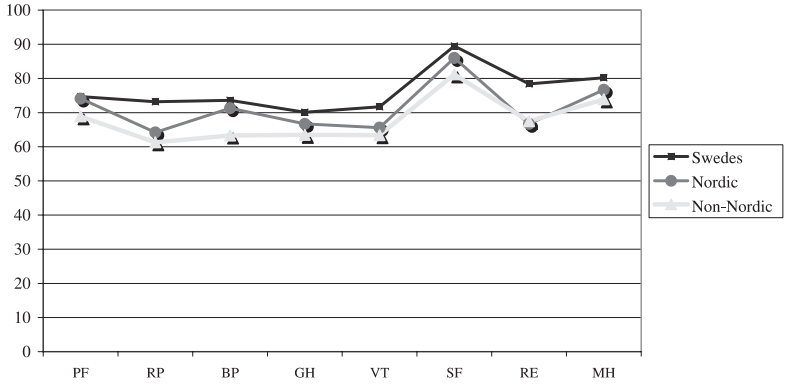
Note: p<=0.05 for increased urinary problems, dizziness and poor vision in overall migrants and gall-bladder problems in Swedes

than natives in the same condition to have an interest in "looking for information on health matters" as a means of improving health status (differences were non-significant, p = 0.058, after Monte Carlo tests). Similar proportions in both groups claimed to be managing health problems on their own or thought nothing could be done to improve their health status.

Anxiety and depression symptoms and other SF-36 health domains

Mean anxiety and depression scores (MH) varied according to sex and ethnic origin and were lower in migrants (74.6, SD = 21.1) than in natives (80.2, SD = 18.3) ($p \leq 0.02$) indicating worse perceived mental health in migrants. Graph 2 shows mean SF-36 scores in individual scales after controlling for gender and prevalence of depression defined as a Mental Component Summary score (MCS) ≤42 in Nordic and non-Nordic migrants and natives. Significantly lower mean scores in all SF-36 health domains were reported in non-Nordic migrants than in natives ($p \leq 0.05$), although not in Nordic migrants (the relative risk of depression in all migrants compared with Swedes was 1.9, 95 % CI = 1.1–3.6). Overall, migrants reported worse perceived health in all SF-36 domains ($p \leq 0.05$) except physical functioning (mean scores were lower in migrants although non-significantly). Women tended to have worse mental health, vitality, physical functioning, general health, bodily pain and role limitations due to physical and emotional problems than men, but similar social functioning (all non-significant). Eastern Europeans had low scores in all SF–36 subscales including mental health (MH) whilst western Europeans had high scores.

Graph 2 Mean SF-36 scores and prevalence of depression (MCS < 43) by ethnic group



Depression (MCS<43)	Swedish	All migrants	Nordic migrants	Non-Nordic migrants
Males	11	20	0	23
Females	16	27	25	28
Overall	13	24*	19	25*

*p<=0.05 (includes differences in all individual SF-36 items between non-Nordic migrants only and Swedes after controlling for gender)
PF-physical functioning, RP-role physical, BP-bodily pain, GH-general health, VT-vitality, SF-social functioning, RE-role emotional, MH-mental health

Predictors of anxiety and depression (MCS)

Stepwise adjustment for the effects of ethnicity followed by gender and satisfaction with income, housing conditions, social support and physical health led to changes in variation in mental health scores observed between ethnic groups. Membership of a minority ethnic group became non-significantly associated with anxiety and depression scores in logistic regression after adjusting for the above influences (Table 2). Physical ill-health and low satisfaction with family and social life in general (outside home) were the strongest risk factors for depression in multiple regression analyses, each explaining 25 %, 22 % and 17 % of the total variance in AD scores, and 35 % altogether.

Hospital in-patient care and mortality

Hospital in-patient care

Common reasons for admission, length of stay and number of hospital discharges in migrants and natives are shown in Table 3. Differences in the proportions of people who had had one or more admissions as well as in means and odds ratios for number of hospital days and discharges in overall migrants and migrant subgroups compared with Swedes were non-significant both among participants and people in the total sample. Although a significant increase in admissions was found for urinary problems in Nordic migrants compared with natives, and for cardiovascular disease in natives com-

Table 2 Odds ratios (95 % CI) for anxiety and depression scores (SF-36 MCS ≤ 42) in migrants before and after adjusting for the effects of gender and satisfaction with economic status, housing circumstances, social situation, leisure, family life and health status (N = 493)

Factor							
Low AD scores:	Unadjusted	Adjusted for					
		economic situation	living conditions	social situation	leisure	family situation	health status and all previous
Odds ratio (migrants)	1.83	1.8	1.8	1.5	1.5	1.54	1.2
95 % CI	1.0–3.3	1.0–3.3	1.0–3.4	0.8–2.8	0.8–2.9	0.8–3.0	0.6–2.5
Two-tailed probability	0.04	0.07	0.06	0.25	0.23	0.21	0.6

Ethnicity (0 = migrants, 1 = non-migrants). The values for the odds ratio, 95 % CI and probability (p) in migrants after adjusting for gender were the same as before adjusting (values as shown in first column). Independent variables on satisfaction are continuous; satisfaction with social situation refers to social contact/support mainly outside family (explanation in text)

Table 3 Main reasons for hospital admissions and length of stay during the period 1992–1998 by ethnic group (N = 764)

Reasons for admission (ICD–9 codes)	Percentages of people admitted at least once to hospitals in Sweden by ethnic group					
	Swedish born N = 613	Migrants overall N = 151	Other Nordic N = 27	West. European N = 29	East. European N = 58	Others[a] N = 37
Psychiatric problems (290–319)	8	11	15	3	16	8
Diseases of the cardiovascular system (390–459)[b]	38	31	44	28	28	27
Diseases of the respiratory system (460–519)	14	14	19	14	14	11
Diseases of the digestive system (520–579)	17	18	19	14	21	16
Diseases of the endocrine system (240–279)	13	15	15	14	19	8
Diseases of the urinary system (580–629)	15	13	26	7	10	14
Diseases of the muscle skeletal system (710–739)	12	9	7	24	7	3
Tumour(s) (140–239)	14	14	15	17	17	5
Injuries; poison (800–999)	16	13	22	7	14	11
Unspecified causes (780–799)	17	15	4	17	16	22
Overall mean number of hospital days	27	30	31	27	26	38
(SD)	(66)	(74)	(60)	(57)	(43)	(122)
Median	6	5	9	3	8	2
Range	0–915	0–728	0–230	0–264	0–229	0–728
Overall mean number of hospital discharges	2.8	2.6	3.0	2.4	2.5	2.3
(SD)	(4.6)	(4)	(4.6)	(3.1)	(3.0)	(4.1)
Median	1	1	2	1	1	1
Range	0–62	0–20	0–18	0–10	0–13	0–20

[a] Includes Mediterranean and people born in Africa and Asia. The percentages of diagnoses in all above chapters (in addition to diseases of the nervous system (320–389), infections (any) (001–139), skin (680–709) and blood related disorders (280–289)) both in migrant and native participants were either equal or varied from 1 to 3 % when compared with same in the total sample.

[b] Ethnic differences in frequency of diagnoses were non-significant both in the total sample and participants except for higher prevalence of cardiovascular disorders in natives than non-Nordic migrants in the total sample (p = 0.02). Diagnoses are based on the Swedish version of the ICD–9 (ICD 10 for 1997–99). Missing data excluded

pared with non-Nordic migrants, the first observation was based on four people only.

Mortality

Eighty-one fatal events (N = 16 in migrants and N = 65 in natives) were registered among participants and 149 (N = 26 in migrants and N = 123 in natives) in the total sample. Differences in mortality between migrants and natives both among participants and people in the total sample and between natives and migrant subgroups were non-significant.

Discussion

The results indicate low levels of well-being and increased personal distress in older migrants than natives in Göteborg, in particular regarding self-reported physical health and social support. Since differences in prevalence of physical disability and household size were small overall, it is possible that migrants might be less content than natives with the quality of relationships (family and/or friends) or might experience the psychological effects of diminished social contact outside home due to ageing to a greater extent. Smaller households in male migrants and larger households in female migrants might both be a source of increased distress given that family members among females seemed to consist to a varying extent of older relatives, some of whom might have been in need of care. Perceptions of low socialisation might have been due to geographical distance given that some migrants were living in scattered areas in the city, and to a lack of recreational facilities and culturally relevant community services in social surroundings. Feelings of dissatisfaction with social life and isolation also need to be thought of in relation to characteristics of the host society, unfulfilled expectations about life in Sweden (including diminished political participation) (Back and Soininen 1998) and the impossibility of returning home.

Results on physical health and social support confirm previous findings that both factors are strong correlates of mental health and quality of life in old age and may have a buffering effect on depression, even on minor symptoms (Kennedy et al. 1990). Nevertheless, there is dissimilarity of minority group experience concerning health, social and economic status. Notwithstanding small sample sizes, migrants had significantly lower economic status but not all groups tended to occupy similar positions within the income levels, pointing to a divergence in economic inequalities in older migrants in Göteborg. Despite conceptual difficulties in the operationalisation of ethnicity (Bhopal and Donaldson 1998), similar mortality (and disability) rates in migrants might have been due to the "healthy migrant" effect, i. e. higher physical strength in people who migrate (Marmot 1989), in particular in non-Nordic migrants, in addition to factors such as high educational level. Survivors in the present study have now reached 78 years of age, which corresponds to the overall life expectancy at birth in Sweden (currently 77 and 82 years in males and females), one of the highest worldwide (Alban and Christiansen 1995). However, factors related to the Swedish environment and the country's universal health care and welfare systems might have had an influence in preventing and/or postponing disability among them. ADL disability rates in migrants and natives were similar to those reported in 70-year-old Swedes in a study in Göteborg (1911/12 cohort) (Sonn et al. 1995) but lower than in 75-year-old natives in Glostrup (Denmark) and Jyvaskyla (Finland) (Heikkinen et al. 1997).

Similar mortality in migrants might, to some extent, be partly explained by the small sample size (low number of fatal events may have led to low power testing for significant differences in mortality) and, to a lesser extent, by the relatively short follow-up during which it might have been feasible to verify significant differences in survival. This seems conceivable in the light of increased all-cause mortality and early retirement in "middle-aged" migrants in Sweden (Bayard-Burfield et al. 1998; Socialstyrelsen 1995), despite reports of better or similar health in young male migrants from countries outside Europe (Socialstyrelsen 1997). A study in Finnish migrants aged 20–74 years showed higher total mortality both in males and females and higher risk of cardiovascular disease in females (Sundquist and Johansson 1997). Eastern European migrant women in Sweden also seem to have a higher risk of cardiovascular disease (Ågren and Romelsjö 1992), which echoes results on self-reported cardiovascular morbidity in this study, but contradicts results on (lower) hospital admission rates and mortality. Other studies in migrants aged 25–64 years showed impaired mobility and working capacity in Southern Europeans (males and females) compared with natives (Pudaric et al. 1998). As regards mental health, a study in 52-year-old migrants in Göteborg concluded that they were more affected by psychiatric disabilities (depression) and used more psychopharmacological drugs (Rosmond et al. 1996).

Poor mental health in migrants (aged 60+) has been shown to be related to disadvantages in access to health and social services in England (Littlewood and Lipsedge 1997; Silveira and Ebrahim 1998) despite the fact that the country has similar practices in public health to Sweden (Whitehead et al. 1997). This calls into question the influence of social explanations of mortality based on the fact that social welfare in Sweden has been more comprehensive compared with other European countries (Socialvetenskapliga Forskningsrådet 1998). Increased availability of health care resources (hospital beds, diagnostic facilities) in Sweden might have influenced mortality. Research on satisfaction with access to health and social services in migrant elders living in Sweden that would help shed light on the influence of adequacy of medical and social care on reduced morbidity and increased survival is nevertheless scarce (Smedby 1980). The assumption put forward in

a study on mortality in Estonian migrants to Sweden (Nilsson et al. 1997) is that better access to hospital care in Sweden compared with that in Estonia might be a reason for the increased survival of cancer patients in Estonian migrants (aged 70 years and over), since intermediate rates were found among them compared with Swedes and Estonians who were still living in the country of origin. The evidence in the present study is one of perceived greater need of health information in migrants as a means of coping with health problems. This might be due to low knowledge about community services due to language difficulties. Thus, similarities in migrant death rates in the sample appear on the face of it contradictory which makes definite conclusions about the true extent of mortality in 70-year-old migrants in Göteborg difficult to ascertain. Nonetheless, the study seems to stand as one of the first to show no ethnic differences in migrant elders in all-cause mortality and hospital in-patient care due to a vast number of medical diagnoses. Re-evaluation of recorded deaths from "undetermined" causes in Sweden has revealed an over-representation of migrants in numbers of undetermined suicides (Ferrada-Noli et al. 1995); however, differences in prevalence of injuries/poisoning in the present investigation were also small.

Non-participants both in migrants and Swedes had worse perceived health and higher physical morbidity. This might have led to under-estimation of physical disability, which has implications for generalisation of findings to migrants and natives of the same age in Göteborg and, by extension, estimation of prevalence of depression. Given the likelihood of increased psychological problems with increase in physical disability (Palsson and Skoog 1997), depression and other emotional symptoms might be commoner in older migrants in Göteborg than estimated in our sample. Higher mortality in Swedish compared to migrant non-participants could have lessened ethnic differences in physical and psychological health in participants, although it is difficult to estimate the extent of it due to lack of data on mental health in migrant and native non-participants. In the absence of other concomitant factors indicative of poorer health in native non-participants other than hypertension (and poorer oral health), increased mortality in native non-participants is hard to reconcile with worse perceived health in migrant non-participants. Increased mortality in native non-participants might be partially due to the above factors interacting with risks not clearly evidenced in the questionnaire study. One would expect to find a significant difference in hospital admissions due to cardiovascular problems between migrant and native non-participants (as found between natives and non-Nordic migrants in the overall sample). Similar admission rates in native non-participants who were ill might have been compensated for by greater use of primary care resources and/or nursing home care (given their smaller households). Similar survival rates in migrants and natives are unlikely to be explained by incomplete statistics once the sample was examined in its totality by means of a reliable compulsory universal registration system.

In what concerns the main outcome measure (i. e. mental health), the SF-36 has been shown to provide a good screening tool for general health in older people and patients at high risk of depression and hospitalisation. Moreover, it has been validated in population studies conducted in different languages in more than 40 countries, including Swedish elders (Sullivan and Karlsson 1998). However, the social functioning scale and, in particular, the vitality scale were more related to mental health in Swedish than U. S. studies which is suggestive of cultural differences (Persson et al. 1998). The multiplicity of health dimensions seems to complicate statistical analysis and interpretation in particular of the MCS in older people, despite relatively few empirical studies to date on this subject (Simon et al. 1998; Taft et al. 2001). Thus, the reliability of the SF-36 to detect psychological problems in elderly people in the immigrant groups is open to question. Future analyses of H 70 data in women including those diagnosed as depressed using a psychiatric interview schedule derived from the Montgomery-Åsberg Depression Rating Scale (Montgomery and Åsberg 1979) applied by psychiatrists as part of a large screening interview, the Comprehensive Psychopathological Rating Scale (Åsberg et al. 1978) will help examine in depth the validity and concurrent predictive value of SF-36 scores concerning psychiatric disease diagnosis and the influence of psychiatric problems as predictors of mortality in migrants and Swedes.

In conclusion, the main findings in the present investigation are the low levels of life satisfaction, higher mental distress and worse perceived health in elders in various migrant groups in Göteborg, despite absence of major biological disadvantages (disability and mortality). Health inequalities as measured solely by differences in the two last parameters did not appear as reliable a measure of class differences as the commonality of reported psychosocial stressors. Some ethnic groups seemed to have greater health needs and are pinpointed. Despite cultural heterogeneity in migrants, the singularity of the study and strength of findings on psychosomatic health lie in analyses of detailed health information about participants and non-participants. Further studies on the social conditions and expectations of social support in Eastern European and non-European migrant elders in Göteborg are urgently needed.

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