

Why do Swedish-speaking Finns have longer active life? An area for social capital research

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SUMMARY

We performed ecological and individual register studies to compare disability-free life expectancies and disability pensions among Swedish-speaking and Finnish-speaking Finns residing on the western coast of Finland. The study was conducted to establish our assumption that the Swedish-speaking ethnic minority has a longer active life than the Finnish-speaking majority and to show that this disparity

can be seen in a limited geographical area with similar socio-economic and health service structures. We suggest that the observed disparities in active life and in mortality depend on differences in the extent of social capital. A detailed characterization of the social capital and its impact on the health of the Swedish-speaking individuals is in progress.

Key words: active life expectancy; language minority; mortality; register study; social capital

COMMUNITY INEQUALITIES AND POPULATION HEALTH

Health expectancy and active or disability-free life expectancy have been studied in (and between) geographically proximate regions or communities to monitor the long-term trends and inequalities in the development of community health [e.g. (Katz *et al.*, 1983; Wilkins *et al.*, 1983; Wilkins and Urb, 1986; Elstad, 1998)]. Socio-economical and ecological disparities seem to contribute strongly to regional variations in health expectancy and in mortality (Wilkins *et al.*, 1983; Wilkins and Urb, 1986; Robine and Ritchie, 1991; Wilkinson, 1992; Fiscella and Franks, 1997; Kawachi and Kennedy, 1997; Kawachi *et al.*, 1997; Wilkinson, 1997; Kennedy *et al.*, 1998). In Belgium, regional differences in health expectancy between the Flemish and Walloon populations have been attributed to differences in culture and the prevalence of diseases rather than to income inequality (van Oyen *et al.*, 1996).

Perhaps the most famous story about community health inequalities is the 'Roseto miracle'. Roseto, Pennsylvania, is a small town in

the hills of the Pocono Mountains, settled by Italian immigrants 120 years ago. Local doctors found in the 1950s that the residents of Roseto died of heart attacks at half the national rate of that in the USA, despite the fact that they smoked heavily and had a similar diet to that of other Americans in the nearby towns. Stewart Wolf, the sociologist, spent nearly 50 years studying the Rosetans' life habits. He showed that the secret of their health lay in the social cohesion (Wolf and Bruhn, 1993). By 1985, the cardiovascular mortality in Roseto had risen to the same level as in the surrounding areas, although the majority of conventional risk factors for health had improved. According to Wolf, the important thing that had deteriorated in Roseto was the degree of cohesion in social life (Wolf and Bruhn, 1993).

THE SWEDISH-SPEAKING ETHNIC MINORITY IN FINLAND

Finland has generally been regarded as an example of a monocultural and egalitarian society.

However, for historical reasons, we have a Swedish-speaking minority. For centuries, Finland was part of the Swedish Kingdom and during that era Swedish was the official language of our country. Even after the independence from Russian empire in 1917, Swedish remained the principal language of the upper class for over 20 years. Today, both Finnish and Swedish are official languages in Finland.

The current 5.7% Swedish-speaking ethnic minority is backed up by constitutionally guaranteed rights as well as an extensive network of Swedish institutions and organizations, including a comprehensive Swedish educational system, Swedish television and radio channels, newspapers and magazines, and a Swedish episcopate within the Finnish Lutheran Church. Swedish speakers live mainly in Finland's southern coastal areas along the Gulf of Finland, in the Åland Islands and in the western coast along the Gulf of Bothnia, so-called Ostrobothnia. The Swedish-speaking residents intermingle with Finnish speakers, and about half of them live in the Ostrobothnian municipalities. In a few municipalities, Swedish speakers are in the majority, but in the Helsinki metropolitan area, where about one fifth of the Swedish-speaking population live, the proportion is <10%.

Although it is difficult to define ethnicity with accuracy and validity (Bhopal, 1997), the Swedish-speaking minority in Finland meets the four major criteria of ethnicity, i.e. self-identification of ethnicity, language, social constructions and ancestry (Allardt and Starck, 1981; Liebkind, 1984). More important for the present study on inequalities in health is the fact that the two language groups are quite similar to each other in most other respects, including socio-economic status, education and health services (McRae, 1997). In Finland, the demographic features and the availability of health services differ more between geographical regions than between these language groups.

LONGER LIFE IN THE SWEDISH-SPEAKING COMMUNITY

The fact that Swedish speakers live longer than the Finnish-speaking majority is very interesting from the health promotion point of view. Ever since epidemiological health surveys have been published in Finland, the total mortality rates

have favoured the Swedish-speaking minority (Kolari, 1975; Valkonen, 1982; Finnäs, 1986; Näyhä, 1989). Significant disparities have been established in annual suicide rates, violent and accidental death rates [see (Hyypä and Mäki, 1997)], and especially in cardiovascular mortality (Näyhä, 1989; Koskinen, 1994). These results are internationally exceptional since reported mortality rates do not usually favour ethnic minorities. We assume that the long life and low mortality of the Swedish-speaking population in Finland resembles the health and well-being described among the Roseto community (Wolf and Bruhn, 1993). Detailed studies on inequalities in health between Swedish speakers and Finnish speakers may offer new perspectives on the issues of social capital and public health, not only in Finland but also elsewhere in Europe where ethnic minorities are often subordinate in terms of health.

We conducted two register surveys in order to progress towards the exploration of disparities in health at the individual level between the Swedish- and Finnish-speaking communities. By combining the census data with the national pension statistics, we first performed an ecological study to establish language group differences. Then, by linking language codes to individual register data, we compared the levels of disability among the Swedish- and Finnish-speaking populations in the same municipalities. A detailed comparison of demographics, civic trust and voluntary activity among Swedish- and Finnish-speaking individuals is in progress (Hyypä and Mäki, 2000), which will eventually allow us to proceed from the level of communities to individual levels of social capital.

SURVEY 1: DISABILITY-FREE LIFE EXPECTANCY

The survey populations consisted of all adult (>16 years) persons living in the northern (Ostrobothnian) and southern (Satakunta) coastal municipalities. In the northern bilingual municipalities, 52.7% of the total population ($n = 151\,941$ in 1995) spoke Swedish as their mother tongue, while in the southern municipalities a total of 99.995% were Finnish speaking ($n = 122\,754$ in 1995) (see map in Figure 1). To reveal possible disparities in active life expectancies (Katz *et al.*, 1983; Hytti, 1996), we performed register surveys on disability pension

recipients from 1990 to 1995 based on the statistics published jointly by the Central Pension Security Institute and Kela (the Social Insurance Institution of Finland).

Disability pension is granted to persons with a long-standing and disabling disease. In Finland, disability pension can be granted to people <65 years of age if their working capacity is reduced by at least 40% according to an expert review of occupational and medical data. The cause of disability is classified according to the diagnoses [maximum of three according International Classification of Diagnoses (ICD) diagnoses] given in the medical certificate, verified by the responsible physician and recorded in the pension records. For research purposes, all pensions, including disability pensions, are registered and prepared as follows. For each individual who has applied for disability pension before the age of 65 years, an individual pension history is compiled and updated monthly since the year 1970. The register data have been validated according to the actual disability, i.e. continuous inability to work and permanent disability pension.

For disability-free life expectancy, we calculated the frequencies of all disability pensions and then separately calculated the frequencies of the disability pension decisions based on four top-ranked diagnostic categories (ICD, 9th Revision) causing long-term disability (Robine and Ritchie, 1991). We then applied Sullivan's prevalence-based method (Sullivan, 1971; Mathers and Robine, 1997) to calculate disability-free life expectancies between the age of 16 and retirement at 65 (maximum 49 years) from the life tables and disability pension data according to Hytti (Hytti, 1996).

The municipality-based Sullivan's estimations of disability-free life expectancies covered both the Swedish- and Finnish-speaking populations because they resided in the same municipalities and native tongue has not previously been linked with municipality-based pension data. Although we did not separate individuals by their native tongue in this register study, we were able to compare the bilingual Swedish-Finnish municipalities (53% Swedish speakers) with the neighbouring Finnish-speaking municipalities (99.995% Finnish speakers). The Ethnic Committee of Kela had approved the protocol. We did not apply statistical analysis to our register data since they included all adult individuals living in the coastal municipalities.

SURVEY 2: DISABILITY PENSION RATES

In addition to the ecological community-based survey, we carried out an individual-based analysis of the prevalences of the disability pension decisions for Swedish- and Finnish-speaking populations living in the same Ostrobothnian municipalities. The study sample consisted of all adults (aged over 16 years) living in the bilingual municipalities. One half ($n = 78\,000$) of the residents spoke Swedish and the other half ($n = 75\,000$) Finnish as their native tongue. The neighbouring municipalities down the coastline, where practically all residents speak Finnish, formed the control population as in the first part of the study.

We linked language codes to the individual disability pension and census data recorded by Kela between 1991 and 1996. The language code indicates the native language of an individual, i.e. the language used to communicate with authorities, government and municipal institutions, post office, police, health service and so on. It is the constitutional right of the Swedish-speaking minority in Finland to receive service in Swedish in official connections.

RESULTS

Survey 1

In the bilingual region, the average annual prevalence of disability pension decisions (1990–1995) was 5.0% for men and 4.2% for women. Corresponding rates in the Finnish-speaking region were 5.5 and 4.6%. With 100 as the index of disability pensions in the total population of Finland, the indices for men (women) were 80.4 (91.7) in the bilingual region and 91.7 (99.3) in the Finnish-speaking region. Age did not confound with differences between regional disability rates, studied in age groups with 5-year intervals. In the oldest age groups, approaching the retirement age (65 years), the regional differences increased from 0.3 percentage units before 55 years to 2.1 percentage units between 55 and 59 years.

Life time, active time and disability time were calculated separately for men and women from the age of 16 to 65 years. In 1995, a 16-year-old male residing in the Swedish-Finnish region would expect to live 46.8 years (maximum 49 years), 41.1 years without disability and 5.7 years with

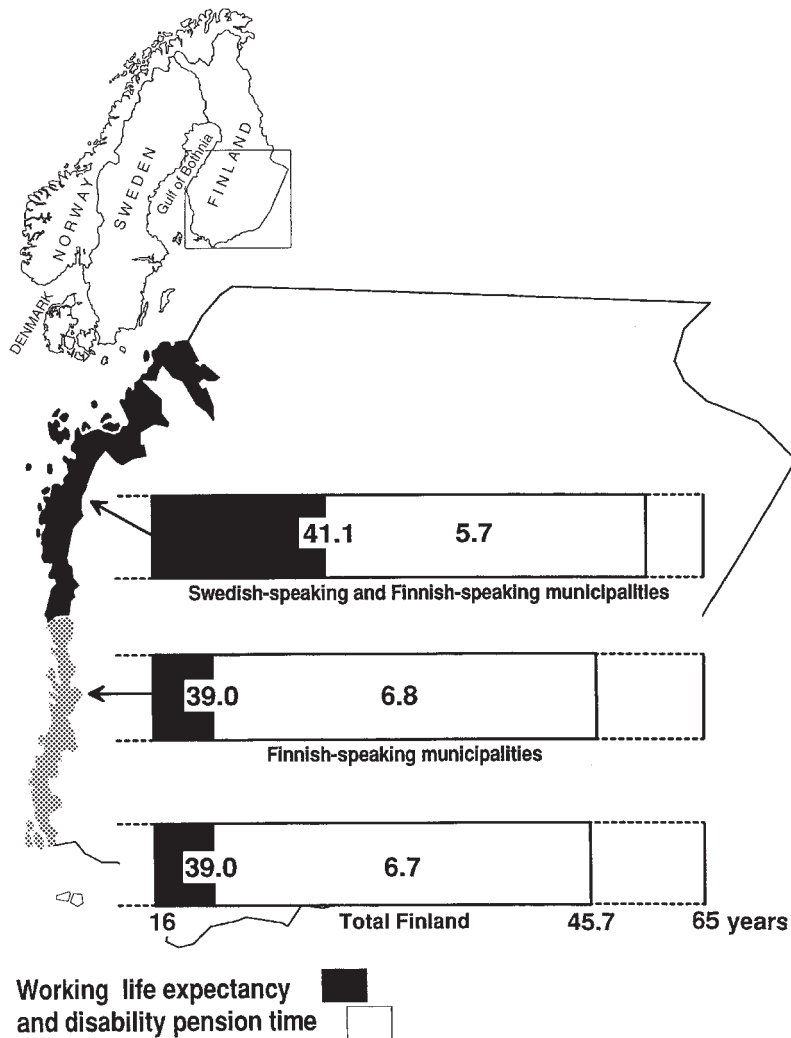


Fig. 1: Working life expectancy and disability pension time up to 65 years of age among men at 16 years.

disability, whereas the corresponding expectancies in the Finnish-speaking region were 45.9, 39.0 and 6.8 years, respectively (Figure 1). Thus, the difference in active life without disability is ~2 years in favour of men living in the bilingual Swedish–Finnish region. The expectancies among males in the Finnish coastal region are very close to the corresponding values of the total male population in Finland, i.e. 45.8, 39.0 and 6.7 years. Females in the bilingual region had an average life expectancy of 48.0 years, of which 42.6 years would be spent without disability and 5.3 years with disability. The corresponding average expectancies of females in the Finnish-speaking region were 47.8, 41.6 and 6.2 years, which are

close to the expectancies of the total female population in Finland.

The municipality-based analyses showed clearly that the disability-free life expectancy was longest in the municipalities where Swedish was spoken. In this bilingual region the disability-free life expectancy was <40 years only in one of seven towns, while it was <40 years in all towns in the Finnish-speaking region. When the register data were analysed separately for each municipality, we observed that the differences between municipalities corresponded to the ratio of spoken languages: the more dominant Swedish was in the community, the longer the active life expectancy. Having established that the disability-free

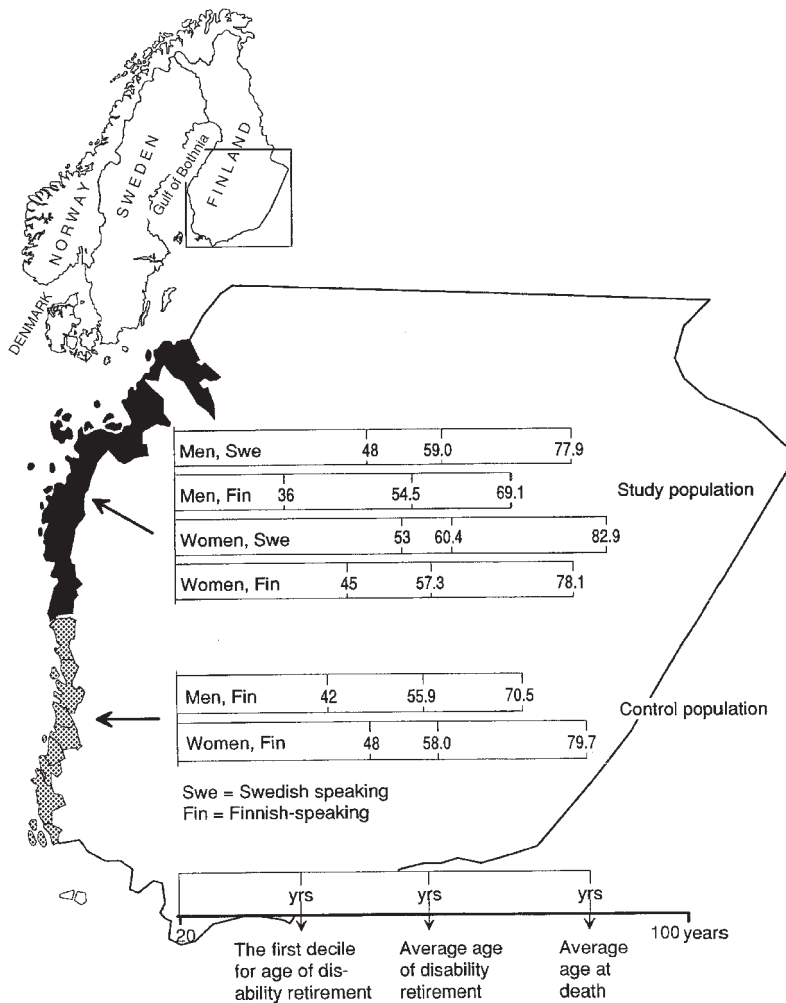


Fig. 2: The first decile and the mean age of disability retirement, and the mean age at death in the bilingual community in Finland.

life expectancy was longer in the Swedish-speaking than in the Finnish-speaking community, we were ready to proceed from the ecological study setting to the more demanding individual-based register study.

Survey 2

The first decile (tenth) for the average age of disability retirement fell at 48 years and 36 years among the Swedish- and Finnish-speaking men, respectively. For women, the corresponding ages were 53 and 45 years, respectively (Figure 2). Figure 3 shows that both the average age of disability retirement and the average age at

death were significantly higher among the Swedish speakers than among the Finnish-speaking individuals. During 1991–1996, the average age at death was 77.9 years among Swedish-speaking men and 69.2 years among Finnish-speaking men. Thus, the former actually lived 8.7 years longer. Swedish-speaking women died on an average at the age of 82.9 years and Finnish-speaking women at the age of 78.1 years.

We also calculated the frequencies of disability pensions based on the four uppermost diagnostic categories (according to ICD-9) causing long-lasting disability (Robine and Ritchie, 1991): cardiovascular diseases, mental disorders, musculoskeletal disorders, and violence and accidents.

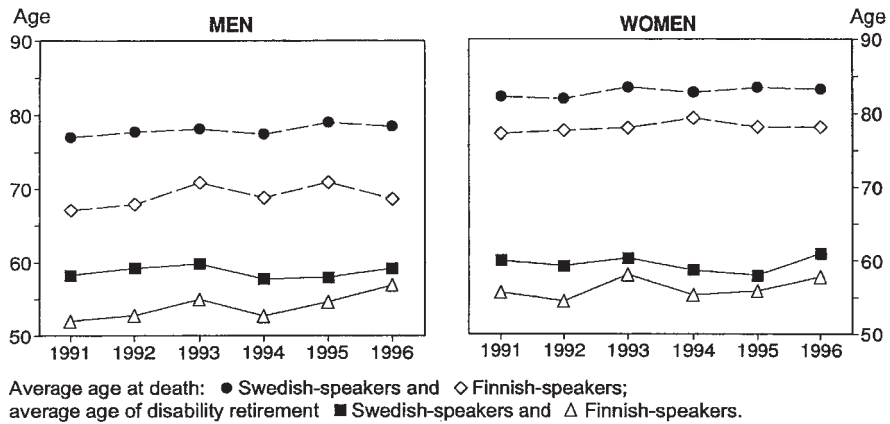


Fig. 3: Average age at death and average age of disability retirement in Ostrobothnian coastal municipalities, 1991–1996.

Independently of the age cohort and diagnostic category, Finnish-speaking men and women are clearly on a disability pension more frequently than their Swedish-speaking compatriots (Figures 4–6).

DISCUSSION

By applying the methodology of Sullivan (Sullivan, 1971), we compared active life expectancies between two neighbouring regions consisting of bilingual (half Swedish, half Finnish) and entirely Finnish-speaking municipalities on the coast of Ostrobothnia. We observed that men living in the bilingual Swedish–Finnish region had a significantly longer active life expectancy (from 16 to 65 years). The observed difference in active life expectancies verifies our assumption that Swedish speakers have a longer disability-free life. Keeping in mind that the Ostrobothnian community studied here is comprised approximately equally of Swedish- and Finnish-speaking residents, it is reasonable to assume that the disparity between pure language groups must be even greater and in favour of Swedish speakers.

We looked at the individual register data from the same Swedish–Finnish Ostrobothnian region, where both language groups are intermingled and reside in same cities, villages and dwellings. Here, native tongue is the only factor to distinguish individuals who otherwise live in ecologically similar circumstances, e.g. the proportion of the rural population is 15.5% Swedish and 14.4% Finnish. We think that this study design

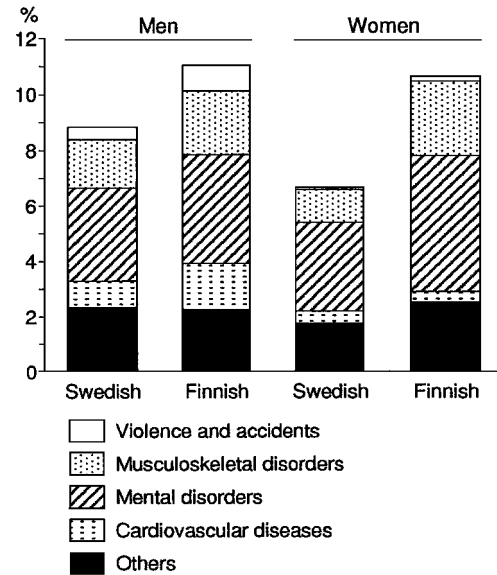


Fig. 4: Prevalence of disability pension recipients (%) by ICD categories in the age cohort from 50 to 54 years in Swedish and Finnish speakers in Ostrobothnia.

solves the language mixture problem in our first survey and simultaneously diminishes the power of conventional risk factors and socio-economic inequalities to explain health disparities between the Swedish- and Finnish-speaking populations.

In Ostrobothnia, the Swedish- and Finnish-speaking populations are quite similar in socio-demographic variables, socio-economic

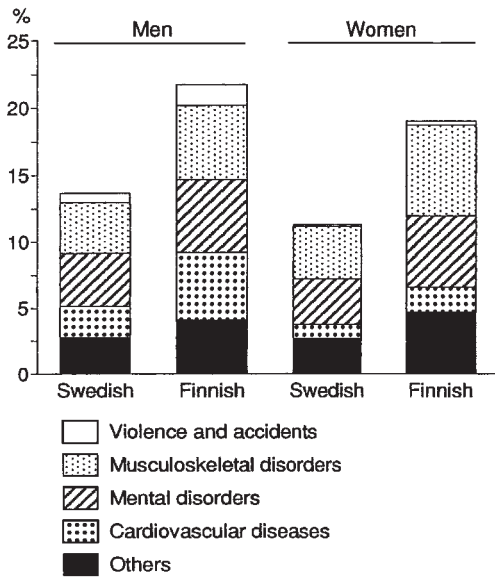


Fig. 5: Prevalence of the disability pension recipients (%) by ICD categories in the age cohort from 55 to 59 years in Swedish and Finnish speakers in Ostrobothnia.

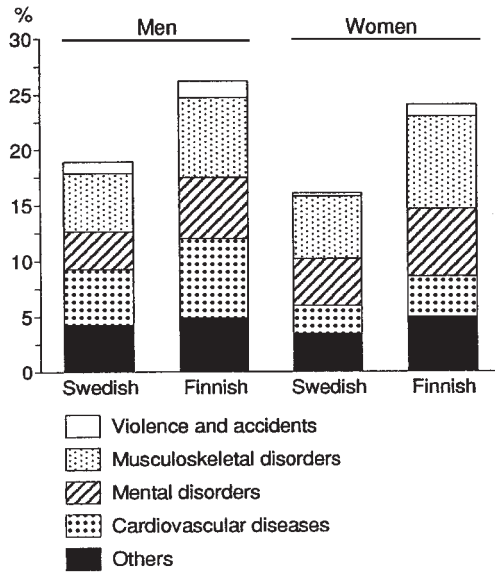


Fig. 6: Prevalence of the disability pension recipients (%) by ICD in the age cohort from 60 to 64 years in Swedish and Finnish speakers in Ostrobothnia.

circumstances and the availability of health services and, therefore, hereditary differences of populations speaking different languages are suggested to explain disparities in disability and mortality. However, the language populations have been genetically homogeneous for centuries (Virtaranta-Knowles *et al.*, 1991). The average level of education, which shows a systematic relationship with life expectancy and disability-free life expectancy in Finland (Valkonen *et al.*, 1997), does not differ between the Swedish- and Finnish-speaking populations in Ostrobothnia (Statistics Finland, 1997).

It is often assumed that inequalities in public health are directly determined by material inequalities [see (Wilkinson, 1992; Wilkinson, 1997)]. This assumption is perhaps simplified since recent ecological studies show that income inequality exerts a large indirect effect on mortality through the social capital (Kawachi *et al.*, 1997; Kennedy *et al.*, 1998; see also Elstad, 1998). According to Finnish municipal statistics, there are no significant income inequalities between the Swedish-Finnish and Finnish-speaking municipalities in Ostrobothnia. An earlier statistical study including all Swedish- and Finnish-speaking Finns in Finland showed no significant income inequality between the

language majority and minority (Kolari, 1975). Our preliminary results from a population-based questionnaire study show that the family net incomes are at the same level in the Swedish- and Finnish-speaking populations in Ostrobothnia (Hyypä and Mäki, 2000). Also, an equal proportion of Swedish and Finnish speakers are outside the labour force (Swedish-speaking men 28% and women 41% versus Finnish-speaking men 36% and women 38%, unpublished results). Disparity in unemployment rate between the comparison groups could have an impact on our results. However, the unemployment rate in 1995–1996 does not differ between the study populations (Statistics Finland, 1996; Statistics Finland, 1997), although significantly more Finnish than Swedish speakers reported to be unemployed in our later (1998–1999) questionnaire study (Hyypä and Mäki, 2000).

Conventional risk factors for health do not easily explain disparities between populations. For instance, alcohol consumption is at the same level in both communities, although the drinking habits among the Finland Swedes are significantly less drunkenness-prone than among other Finns (Simpura, 1990; Hyypä and Mäki, 2000). There is no language group difference in the tobacco smoking rate either (Hyypä and Mäki, 2000).

Regional analyses of blood pressure, cholesterol levels and physical activity have not been performed, but there are not any reasons to assume disparities on the Gulf of Bothnia coast.

Finnish speakers living in the bilingual Ostrobothnian municipalities have the same average disability retirement age and age of death as the Finnish-speaking controls residing further down the coastline. The Ostrobothnian Finnish-speaking population represents well the average Finnish-speaking population in western Finland with a considerably lower mortality than in eastern Finland (Koskinen, 1994). Thus, the observed disparity in health and life expectancy between the language groups in Ostrobothnia favouring the Swedish speakers cannot be explained by an exceptionally poor health of the Finnish speakers.

Some prospects

In Finland, the individuals belonging to the Swedish-speaking community in Ostrobothnia remain active in working life for longer and have a significantly longer lifetime than their Finnish-speaking compatriots in the same region. Differences are astonishingly large to appear in a highly monocultural and egalitarian society [see (McRae, 1997)]. In fact, the lifetime of Finland Swedes is one of the longest known in the world.

What, then, are the health-promoting factors favouring Finland's ethnic minority population identified by the Swedish language? We assume that an explanation for the marked disparities in disability-free life and mortality can be found in inequalities in social integration. We attribute the observed disparities to the larger social capital of the Swedish-speaking community. Furthermore, we think that social capital is the beneficial mediator in population health as has been suggested by others (Coleman, 1988; Putnam, 1993; Putnam, 1995; Kawachi and Kennedy, 1997; Kawachi *et al.*, 1997; Lomas, 1997; Baum, 1999).

Robert D. Putnam, the political scientist, studied the strength of social cohesion, which he called social capital (Putnam, 1993). Social capital refers to the features of social organization, including networks, norms and social trust, that facilitate co-ordination and co-operation for mutual benefits (Putnam, 1993; Putnam, 1995). In the late 1990s, social capital was introduced to explain inequalities in health (Kawachi and Kennedy, 1997) and as an opportunity for health promoters to explore important social processes in relation

to health (Cox, 1997; Lomas, 1997; Elstad, 1998; Baum, 1999).

Although there are only a few validated measures of social capital, some interesting ecological surveys on population health have been conducted (Kawachi *et al.*, 1997; Kennedy *et al.*, 1998; Kawachi *et al.*, 1999). These surveys showed that the degree of civic distrust and paucity of associational life correlated strongly with overall mortality. Some indication has been found that the states with a lower income equity also have lower levels of civic trust and voluntary activity, and that these contribute to the higher mortality (Kawachi and Kennedy, 1997; Kawachi *et al.*, 1997). Furthermore, Kawachi *et al.* showed with path analysis that income inequality exerts its effect on mortality through social capital (Kawachi *et al.*, 1997), and a contextual analysis extended previous findings on the health advantages stemming from social capital (Kawachi *et al.*, 1999). In addition to insufficient means to assess social capital, the paucity of individual-level evidence about its relation to inequalities in health calls for more systematic community studies (Veenstra, 2000). Usually, inequalities in health have been observed and studied between states or geographic regions.

Unfortunately, the present register studies do not yield direct evidence about the beneficial effect of social capital on public health or health promotion. First, social capital has not been measured here, and secondly, our study settings do not allow any causality conclusions. However, we have good reasons to believe that the social behaviour of the Swedish-speaking ethnic minority differs from that of the Finnish-speaking majority (Liebkind, 1984). The 5.7% Swedish-speaking ethnic minority is supported by constitutionally guaranteed rights and by comprehensive networks of Swedish organizations and institutions (McRae, 1997). Perhaps even more important for the minority's well-being and health is the civic community that ensures trust and security, social support, self-esteem, sense of belonging and self-respect (Liebkind, 1984).

Until now, there have been no studies assessing directly the level of social cohesion or social capital in the Swedish-speaking community in Finland. However, it is reasonable to assume that the Swedish-speaking community has a high level of social cohesion, due to its small size, strong institutional network, cultural activity and geographic stability. Minority language can be regarded as an indicator of social cohesion. As a

marker of high social integrity, the divorce rate has been shown to be significantly lower among the Swedish-speaking minority than among the Finnish-speaking majority, with the lowest rate in Ostrobothnia (Finnäs, 1997). A low divorce rate contributes positively to interpersonal trust and civic engagement (Brehm and Rahn, 1997).

Empirical individual studies are needed to show the impact of social capital for the long active life of Swedish speakers in Finland. A population-based questionnaire survey is in progress, and preliminary results support the social capital approach in population health (Hyypä and Mäki, 2000). If future surveys confirm causes and consequences of social capital in public health, we shall have more ground to argue that our view must be switched from current individualistic biomedicine to social connections and community behaviour, or towards a more holistic perspective to better explain inequalities in health.

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