

Cost-related barriers to use of health services and prescription medicines in Finland: a cross-sectional survey

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Background: The objective was to examine cost-related barriers to using health services and prescription medicines in Finland. **Methods:** A survey that examined adults' experiences of and opinions about the social security system was mailed to a random population-based sample of 5000 Finns aged 18–74 years. The survey assessed households' cost-related barriers to use of health services, prescription medicines and social assistance in the past year. The responses were adjusted for sociodemographic and health predictors by weighting and logistic regression. **Results:** Responses were received from 1770 households. In total, 18% had experienced at least one cost-related barrier; 11% did not fill a prescription, 8% did not go to hospital and 13% went without another form of treatment. Of respondents diagnosed with a disabling illness or impairment, 32% reported at least one cost-related barrier. Households with below-average income reported barriers twice as often as above-average income households, after adjusting for age and health. Lower income [lowest tertile, odds ratio (OR) 5.0 compared with highest tertile], fair/poor self-assessed health (fair/poor OR 7.1 compared with very good/good), younger age (18–34 years OR 3.8 compared with 65–74 years), lower education (primary OR 1.6 compared with tertiary) and female gender (OR 1.4) were significantly associated with more frequent cost-related barriers. Overall, 34% of households who encountered cost-related barriers had applied for and 17% had received social assistance. **Conclusions:** Cost-related barriers were common among respondents with low income and/or poor health. These barriers may thus have a role in creating inequities in access to health care in Finland.

Introduction

Despite comprehensive health care systems, there are cost-related access barriers to health care in high-income countries. Surveys conducted by the Commonwealth Fund (CF) have shown that cost-related access problems (not consulting a doctor, skipping treatment recommended by a doctor or not filling a prescription due to cost during the preceding year) were reported by 5–33% of the interviewed adults from Australia, Canada, France, Germany, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the United States and the United Kingdom.¹

Finland was not among the countries examined, but cost-related barriers to health care were investigated in a population survey in 2000. At that time, 17% of households had deferred buying medicines and 24% had gone without another treatment recommended by a doctor due to cost during the preceding year.² These shares are relatively high, given that Finland has publicly funded health care with universal coverage. However, most services, including public hospital and general practitioner (GP) visits and prescription medicines, are subject to patient fees, which are generally not sensitive to income. Households with low income can apply for municipal social assistance to pay for health care or other necessities. This means-tested last resort minimum income assistance may cover part or all of the health expenses, based on the household's situation.

The role of user charges in creating inequities in access to health care has been one of the topics discussed in evaluations of the Finnish system. In 2005, an Organisation for Economic Co-Operation and Development review group wrote: 'International

comparisons suggest that Finland offers less equitable access to GPs and specialists than many other countries. Inequitable access to GPs is likely to be due to the availability of relatively abundant occupational health care, free of charge to employees, combined with relatively tight rationing of, and charging for, access to health center physicians for non-employees'.³ Regarding costs for medicines, a report published in 2008 states 'Data suggest that user charges in Finland rank high relative to other western European countries. However, it is not known how much these user charges create socioeconomic inequities in access for low-income and vulnerable groups'.⁴

In this study, we report the cost-related access barriers to health care in Finland, using survey data collected in 2010. We also investigated the extent to which demographic, socioeconomic and health-related factors might explain the reported access barriers. Additionally, we examined the share of respondents who had received or applied for social assistance.

Methods

We used data collected from a postal survey in Finland in 2010.⁵ The survey was designed to assess adults' experiences of and opinions about the social security system. People's economic problems and the solutions they found, their health, social relations and welfare deficiencies were among the topics investigated in the study. The questionnaire, study design, sampling, data collection and data handling have been reported elsewhere.⁵ Relevant issues regarding

the current study are described briefly below. The survey was originally administered in Finnish and in Swedish.

Sampling and weighting

A total of 5000 community dwelling Finnish- or Swedish-speaking Finnish citizens aged 18–74 years were randomly selected from the national population register. The final response rate was 35% after three reminders. The results were weighted by post-stratification to represent the studied population by respondent age, gender, education (primary/secondary/tertiary) and working status (employed/unemployed/pensioner) to account for the non-respondents. For example, when the share of males was 44.8% in the sample and 49.8% in the target population, we calculated the post-stratification weights w for males $w = 0.498/0.448 \approx 1.11$. For multiple variables (age group, gender, education and working status), the post-stratification was conducted using an SAS raking algorithm.⁶ These weights w were used in all analyses, except for the comparison between above-/below-average income, where we used w_2 (see 'Statistical analyses' later).

Outcome variables

Cost-related barriers to access to medicines or health care were measured by the following questions: 'In the past year, have you or a member of your household experienced any of the following situations? a) You did not go to a hospital visit because you didn't have the money; b) You did not fill a prescription due to cost; c) You also went without a treatment that was recommended by a doctor because you didn't have the money.' Each question had five options: (i) no, (ii) once, (iii) a few times, (iv) often and (v) repeatedly. For the bivariate and multivariate analyses, we dichotomized the responses into once or more vs. not at all. We also formed a dichotomous composite variable of having encountered at least one of the aforementioned access barriers vs. none.

Whether or not respondents applied for social assistance was investigated using the follow-up question: 'How have you tried to solve the financial problems you indicated in the previous question? (If you did not indicate any financial problems, please move to the next question)'. Applying for social assistance was listed among 12 other pre-defined coping strategies with four options: (i) no, (ii) once, (iii) a few times and (iv) repeatedly. We dichotomized the responses into once or more vs. not at all. Receipt of social assistance and other social benefits was measured in a multiple response question: 'In the past year, have you or a member of your household received any of the following benefits? (Select all appropriate options)'. Social assistance was listed among 19 other options.

Independent variables

The main exposure variable for this analysis is household members' total monthly net income. We categorised the household income into tertiles (low/mid/high) according to the sample distribution. We were not able to divide income with the number of household members due to inconsistencies in the data. Instead, we looked at family structure as a separate variable, which we categorised into four categories (i) couple with children (0–17 years), (ii) couple only, (iii) single parent with children (0–17 years) and (iv) others (including adults living with parents). State of health was assessed by self-assessment (How would you rate your current health status? (i) very good, (ii) good, (iii) average, (iv) fair and (v) poor) and by presence of a diagnosed disabling illness or impairment (Have you been diagnosed with a permanent or long-term illness or impairment that decreases your ability to work or function?). Poor health of any of the household members is of importance, and therefore health status was used as an explanatory variable even though health status of household members other than the respondent could not be assessed. Other covariates included area

of residence (urban/rural) and respondents' age, gender and education. We assumed that adults in a family typically belong to the same wide age group and also have a similar level of education, and these can therefore act as a proxy for the entire household. The explanatory role of gender, however, is of limited importance for couples and families and was principally used as a covariate in the adjusted models.

Statistical analyses

We first estimated the bivariate association between access problems encountered and independent variables and tested for statistically significant differences by a chi-squared test.

Second, we examined the extent to which experiences differ by income, when age and health status are adjusted for. Adjusting was conducted by creating two subsets (above average = above median/below average = median or below) and applying a post-stratification weighting procedure to stratify the differences in age and health status between the two subsets (w_2), as described above. The bivariate associations between income and access problems were then estimated using weights w_2 .

To investigate the extent to which socioeconomic and health predictors explain the reported access barriers, the effects of income and other covariates were then assessed using multivariate logistic regression models. Similar methods were used by Jatrana *et al.*⁷ when examining ethnic differences in access to prescription medication. Relevant covariates (age, gender and family structure) and all factors that were significant at a $P < 0.05$ level were included in the model.

Finally, to examine the financial coping strategies used by the respondents who reported access problems, we cross-tabulated the questions of access with questions about applying for and receiving social assistance. Bivariate associations were tested by a chi-squared test.

The population in the age- and health-adjusted comparison consisted of 1609 people and in the regression analysis of 1412 people of whom complete information on all of the variables under analysis was available. Statistical analyses were performed using SAS software version 9.2 (SAS Institute Inc., Cary, NC).

Results

Table 1 lists the characteristics of the study population and the bivariate associations between the studied outcomes and the sociodemographic and health predictors. Overall, 18% of the respondents reported at least one problem with access to health care due to cost within the past year. In total, 53% of respondents who assessed their health as fair or poor and 32% of the respondents with a diagnosed disabling illness or impairment had encountered at least one access problem. Those living alone, those with lower education or income and those reporting worse health or disabling illness or impairment were all significantly more likely to encounter access problems than their counterparts. The bivariate associations were mostly not significant for age, gender and area of residence.

To examine the extent to which experiences differ by income, the households with above-average incomes were compared with the households with below-average incomes, while controlling for age and health status (table 2). After adjustments, 25% of below-average income households and 12% of above-average income households experienced access problems ($P < 0.001$).

On the basis of bivariate associations, we included education, income and health status in the multivariate models. Because both health predictors gave similar results, we only included one because these variables were highly correlated. We selected self-assessed health because it covered a wider range of health problems and is commonly used in other studies.^{7,8} Age, gender and family structure were included as relevant covariates. Because education and income were also highly correlated, we experimented with adding the

Table 1 Characteristics of the study population ($n = 1770$) and bivariate associations with statistical significance (P , by chi-squared test) between the studied cost barriers and included background variables

	<i>N</i> (%)	Respondents who reported problems with access because of cost (row %)			
		Did not fill prescription	Did not go to a hospital visit	Went without other form of care	Had at least one access problem
Total	1770 (100%)	11%	8%	13%	18%
Missing (<i>n</i>)	0	184	185	188	162
Gender		$P = \text{NS}$	$P = \text{NS}$	$P = \text{NS}$	$P = 0.038^*$
Male	877 (50%)	9%	8%	11%	16%
Female	884 (50%)	12%	8%	14%	20%
Missing (<i>n</i>)	9	189	192	193	169
Age, years		$P = \text{NS}$	$P = 0.003^*$	$P = \text{NS}$	$P = \text{NS}$
18–34	508 (29%)	14%	11%	13%	21%
35–49	464 (26%)	9%	8%	12%	17%
50–64	538 (31%)	11%	6%	13%	18%
65–74	254 (14%)	7%	4%	11%	15%
Missing (<i>n</i>)	5	185	187	189	164
Family structure		$P = 0.003^*$	$P = 0.001^*$	$P < 0.001^*$	$P < 0.001^*$
Couple with children	547 (31%)	8%	6%	9%	14%
Couple only	657 (37%)	11%	7%	11%	17%
Single parent	61 (3%)	13%	7%	13%	22%
Others	498 (28%)	15%	12%	18%	25%
Missing (<i>n</i>)	6	185	186	189	163
Education		$P < 0.001^*$	$P < 0.001^*$	$P < 0.001^*$	$P < 0.001^*$
Primary	419 (24%)	17%	11%	18%	24%
Secondary	773 (44%)	13%	10%	15%	21%
Tertiary	551 (32%)	5%	4%	6%	11%
Missing (<i>n</i>)	28	200	201	204	178
Income		$P < 0.001^*$	$P < 0.001^*$	$P < 0.001^*$	$P < 0.001^*$
Low	582 (36%)	20%	16%	21%	31%
Mid	509 (32%)	11%	5%	12%	17%
High	523 (32%)	3%	3%	4%	7%
Missing (<i>n</i>)	156	295	295	296	275
Area of residence		$P = \text{NS}$	$P = \text{NS}$	$P = \text{NS}$	$P = \text{NS}$
Urban	1298 (74%)	12%	9%	13%	19%
Rural	458 (26%)	9%	7%	12%	17%
Missing (<i>n</i>)	14	191	192	194	169
Self-assessed health		$P < 0.001^*$	$P < 0.001^*$	$P < 0.001^*$	$P < 0.001^*$
Very good/good	1277 (73%)	7%	6%	8%	13%
Average	315 (18%)	15%	11%	19%	26%
Fair/Poor	153 (9%)	37%	25%	43%	53%
Missing (<i>n</i>)	25	201	202	204	179
Diagnosed disabling illness or impairment		$P < 0.001^*$	$P < 0.001^*$	$P < 0.001^*$	$P < 0.001^*$
No	1198 (70%)	7%	6%	8%	13%
Yes	516 (30%)	21%	13%	25%	32%
Missing (<i>n</i>)	56	222	223	223	200

*Statistically significant at $P < 0.05$ level.**Table 2** Reported cost-related access barriers to health care by income when adjusted by age and health status (weight w_2 , see Methods)

	Adjusted by age and health status	
	Above-average income	Below-average income
Did not fill a prescription	6%	16%
Did not go to a hospital visit	5%	12%
Went without other form of care	8%	17%
Had at least one access problem	12%	25%

Differences between the income groups were statistically significant ($P < 0.001$) by a chi-squared test for all questions.

interaction effect of income and education in the model. However, the interaction effect did not reach statistical significance and was excluded from the main analyses.

Low income and poor health had independent and strong associations with going without care due to cost, after adjusting for

gender, age, education and family structure (table 3). Low-income respondents were five times more likely and mid-income respondents two times more likely to encounter access problems than high income respondents. Fair/poor health increased the odds 7-fold and average health 2-fold when compared with respondents who reported their health as good/very good. Lower education was associated with a small (1.6-fold) but significant increased likelihood of encountering cost-related access problems. Among the covariates in the model, which were mostly not significant in the bivariate associations, younger age had a moderately strong and increasing association with access problems. Youngest respondents were four times more likely to encounter access problems than the oldest respondents. According to model, female gender was also associated with slightly more frequent access problems (1.4-fold).

Table 4 presents that 34% of the households that had encountered access problems to health care had also applied for social assistance, which is the last resort financial aid in the Finnish social security system. However, only 17% of the households with access problems had received this benefit. Among all respondent households, 5% had received social assistance. According to the National Statistics, 7% of households received some social assistance in 2010.⁹

Discussion

The main finding of this study was that 18% of the respondent households had foregone or postponed a health related need due to cost at least once within a year. This was most common among respondents who assessed their health as fair or poor, or reported having a diagnosed disabling illness or impairment. We also examined the extent to which sociodemographic and health predictors might explain the barriers to health care. We found that below-average income families experienced access problems twice as often as above-average income families, after adjusting for health status and age. According to the multivariate models, poor self-assessed health, lower levels of income and education, younger age and female gender were significantly associated with increased likelihood of encountering access problems.

Our findings can partly be explained by the fact that people with better health use less health services and are therefore less often in a position to compromise on them. It is known that most chronic conditions are more prevalent in lower socioeconomic groups,¹⁰ and women use medicines and health services more often than men do.^{11,12} Hence, deferring care was most frequent among groups that need and/or use health services the most. Conversely, younger

age was also associated with increased access problems, although our sample only included people up to 75 years of age, which may have influenced the results. In earlier studies, older age has been associated with decreased risk for cost-related medication nonadherence.¹³

According to a similar population-based survey conducted in 2000, 17% of Finnish households had not filled a prescription and 24% had gone without another treatment recommended by a doctor due to cost.² According to the results from 2000, stratified by employment status, 33–47% of the unemployed respondents reported access problems, which was approximately three times more frequently than employed respondents. These findings suggest that access barriers have become less common in general but persist among vulnerable groups.

We also assessed social assistance use as a coping strategy among respondents who reported encountering access problems. We found that one-third had applied for and one-fifth had received municipal social assistance. It seems hence that a considerable proportion of the applicants failed to receive this benefit. However, because we have cross-sectional data, some of the respondents may have had an on-going application process at the time of the survey. Previous qualitative research has identified gaps in the social security system, where households have temporary or long-term financial problems due to debt, illness and unemployment even though they do not qualify for social assistance. Social assistance may also not cover all health expenses due to various reasons, including a complex and lengthy application process.^{14–16}

Two-thirds of the respondents who reported access problems had not applied for social assistance. Access barriers therefore seem to extend beyond the most financially disadvantaged. Furthermore, mid- and high-income respondents also reported deferring health care due to cost. There are several possible explanations to these findings. Deferred care may be less necessary (e.g. 'discretionary' medicines) and/or it may include treatments not covered by the public health sector or the National Health Insurance.

When comparing our results with those from the CF Health Policy survey from 11 countries, cost-related access barriers were reported in Finland more frequently than in other Nordic and European countries but less frequently than in the United States. All examined countries have different systems of coverage with varying levels of cost sharing, which can affect access. The findings from Finland are in line with the earlier results, which indicate that universal coverage with low user fees or exemptions for vulnerable groups decrease the risk of compromising health care due to cost.¹ However, the CF survey investigated access problems experienced by individuals, whereas we investigated access problems experienced by households. This difference may partially explain the greater access barriers experienced in Finland. Schoen *et al.*¹ also examined insurance-related experiences by income based on the above-mentioned survey results, while controlling for age and health

Table 3 ORs (with 95% CIs) of reporting at least one health-related access problem, with adjusting for effects of socioeconomic and health predictors

	OR	95% CI	P
Gender			
Male	1.00		
Female	1.39	1.04–1.87	0.028
Age (years)			
18–34	3.80	2.06–7.01	<0.0001
35–49	3.19	1.69–6.02	0.0003
50–64	1.90	1.06–3.40	0.0306
65–74	1.00		
Family structure			
Couple with children	1.00		
Couple only	1.02	0.69–1.53	0.911
Single parent	0.77	0.35–1.68	0.506
Others	0.76	0.49–1.18	0.228
Education			
Primary	1.63	1.02–2.61	0.043
Secondary	1.64	1.13–2.38	0.009
Tertiary	1.00		
Household net income			
Low	4.95	3.02–8.12	<0.0001
Mid	2.24	1.40–3.57	0.001
High	1.00		
Self-assessed health			
Very good/good	1.00		
Average	2.34	1.61–3.40	<0.0001
Fair/Poor	7.07	4.45–11.22	<0.0001

Table 4 The share of households who had applied or received municipal social assistance, among the households that had encountered access problems to health care and among all households, including cross-tabulation of receiving and applying for social assistance

	Applied for social assistance			Received social assistance	
	Yes	No	Missing (n) ^a	Yes	No
Did not fill a prescription	38%	62%	31	20%	80%
Did not go to a hospital visit	44%	56%	17	21%	79%
Went without other form of care	34%	66%	36	17%	83%
Had at least one access problem	34%	66%	55	17%	83%
All respondents	18%	82%	1049	5%	95%
Respondents who received ^b /applied ^c for social assistance	94% ^b	6% ^b	14 ^b	51% ^c	49% ^c

a: Applying for social assistance was only asked from those who had encountered at least one financial problem (not limited to health care).

b: Received social assistance.

c: Applied for social assistance.

status. In line with our results from Finland, below-average income respondents reported access barriers significantly more frequently than above-average income respondents in all countries except for the United Kingdom, which has negligible, if any, user fees.

A few caveats need to be noted when comparing our results with the international findings. First, we used a postal survey, whereas the CF survey was conducted by telephone interviews. Second, the CF survey included a question about not seeing a doctor because of cost unlike our study, where we asked whether the respondents had foregone a hospital visit.¹⁷

There are also limitations in the generalisation of our results to the Finnish population. First, the response rate was low (35%) despite three reminders, and weighting might not fully account for non-respondents. Earlier research has described selective attrition of population groups with lower socioeconomic position and a greater likelihood of ill health.^{18,19} Health-related access problems may thus be more common in the population. Second, the survey population was aged between 18 and 74 years. Third, the necessity of the care that was deferred could not be assessed. Fourth, not all possible explanations for the examined outcomes could be explored. The logistic regression model can only explain part of the variation, because we only included general background variables. Several of the background variables also represent the respondent rather than the entire household, which decreases the goodness of fit of the model. Furthermore, the reasons behind foregoing or postponing care are likely to be influenced by many other, much more complex factors, including experiences and personal values, which are out of the scope of this article.

Although most households had not experienced cost-related barriers to health care, these were common among participants with low income and/or poor health. These barriers may thus have a role in creating inequities in access to health care and prescription medicines in Finland. Households with below-average income reported access problems twice as often as above-average income households, after adjusting for age and health status. According to multivariate models, younger age, poor health, lower level of income and education and female gender were associated with more frequent access problems. One-third of the households with access problems had applied for social assistance, while less than a fifth had received this benefit. In this 2010 survey, problems with access were less common than a decade earlier.

Conflicts of interest: None declared.

Key points

- Previous research has shown that health insurance design affects access to care
- International comparisons suggest that Finland offers less equitable access to general practitioners and specialists and has relatively high user charges for medicines compared with other western European high-income countries
- This study found that socioeconomic disparities in access to health care and buying prescription medicines exist in Finland, while controlling for health status and demographics
- Access problems were frequent among people who reported having a diagnosed disabling illness or assessed their health to be poor
- Policymakers should be aware of the effect of user charges on access to health care

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