DETERMINANTS OF HEALTH AMONG HOMELESS POPULATION IN THE CZECH REPUBLIC – AN EMPIRICAL STUDY

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SUMMARY

It is generally recognized, that the delivery of healthcare to homeless population presents a number of specific challenges. In this paper, we try to assess the impact of the homeless people experience with the institutional framework including the access to health services on the health status of the homeless population in the Czech Republic. Multivariate regression is used to evaluate the impact of various dimensions of life experience and other social and economic characteristics of homeless people on their health status. Preliminary results indicate that the experience homeless people have with the institutional framework and their access to health care services are important determinants of their health status.

Key words: homeless population, health status, socio-economic survey, health services

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INTRODUCTION

Numerous studies have established that homeless people suffer from worse health than the general population (1, 3, 8, 9, 14). It is generally recognized, that the delivery of healthcare to homeless population presents a number of specific challenges (2).

In this paper, we try to assess the impact of the institutional framework including the access to health services on the health status of the homeless population in the Czech Republic. Multivariate regression is used to evaluate the impact of various dimensions of life experience and other social and economic characteristics of homeless people on their health status.

Preliminary results indicate that the experience of homeless people within the institutional framework and their access to health care services are important determinants of their health status.

MATERIAL AND METHODS

Data

Data were obtained from the questionnaire survey carried out in Prague (Czech Republic) in the year 2005. Design of the survey was cross-sectional. Respondents were clients of several charitable organizations running programmes for homeless people. Respondents were given food stamps in order to motivate them to fill the questionnaire out. The questionnaire included 85 questions covering personal characteristics, history of economic activity, life situation, life style, self assessed measurement of health status and the experience with public services including health services. In total, 956 individuals were included in the study.

Model

The dependent variable in the model is the individual's self reported assessment of his/her health status on the EuroQol scale. The variable was assigned the value 1, if the respondent judges his health status better than median value of the EuroQol scale score (60) and the value 0 otherwise.

Explanatory factors considered to be important for the level of EuroQol scale score were *core profile of respondent, social support, education, economic activity, health risk factors, access to health services.* Associated explanatory proxy variables, their description and assigned values are listed in Table 1.

Explanatory factors of interest are *economic activity* and access to *health services*. Those factors could respond relatively fast to policy programmes in those areas. We hypothesize, that the above factors have a large impact on the health of homeless people. Studies have shown that homeless people are unemployed more often and for a longer period of time than the general population and their access to health services is seriously curtailed (13, 16). Societal and individual burden due to ill health of homeless people can be lessened by policies targeting those areas (5). The intercourse of the social system with the homeless people by creating employment opportunities and responsive health care system may, through number of pathways, substantially improve the homeless people health status. Obviously, employment and access to health services are not the only factors influencing health status of the individual. Therefore in our model we control for *health risk factors* such as smoking habit and alcohol consumption.

The factor *"Core profile of respondent"* controls for the age and the gender of respondents. The factor *"Social support"* represented by the proxy friends is included on the assumption that

Table 1. *Definition of explanatory variables*

Explanatory factor	Variable	Definition
Core profile of respondent	age	variable "age" is a discrete continuous variable
	gender	variable "gender" has value 0 for female and 1 for male
Social support	friends	the variable "Friends" has value 1 for respondent living with other person and value 0 for respondent living alone
Level of education	education	the variable "education" is stratified to assume a value from 1 to 3. The stratification adheres to the concept of education level as primary, lower secondary, high school and college
Economic activity	employment	the variable "employment" has value 1 for respondent who is working and value 0 when respondent is unemployed
Health risk factors	smoking	the variable "smoking" reports on the smoking habits of the respondent. It assumes 3 values representing the category non-smoker, quitting smoking and smoking
	alcohol	the variable "alcohol" indicates either abstinence, or alcohol consumption of the respondent. It assumes value 0 or 1
Access to health services	HS access	the variable "HS access" has value 1 for respondent who was refused health care at least once and value 0 otherwise

having friends allows the individual to better cope with adversities including health problems.

The factor *"Education"* is included on the assumption that a better education enables the individual more successfully cope with challenges of adverse external conditions faced by homeless people.

METHOD

Model was estimated by applying logistic regression.[1]

$$y = \exp(b_0 + b_1*x_1 + ... + b_n*x_n)/\{1 + \exp(b_0 + b_1*x_1 + ... + b_n*x_n)\}$$

One can easily recognize that, regardless of the regression coefficients or the magnitude of the *x* values, this model will always produce predicted values (predicted *y*'s) in the range of 0 to 1.

One can easily linearize this model via the *logit* transformation. Suppose we think of the binary dependent variable *y* in terms of an underlying continuous probability *p*, ranging from 0 to 1. We can then transform that probability *p* as:

$$p' = \log_e\{p/(1-p)\}$$

This transformation is referred to as the *logit* or *logistic* transformation. Note that *p'* can theoretically assume any value between minus and plus infinity. Since the logit transform solves the issue of the 0/1 boundaries for the original dependent variable (probability), we could use those (logit transformed) values in an ordinary linear regression equation. In fact, if we perform the logit transform on both sides of the logit regression equation stated earlier, we obtain the standard linear regression model:

$$p' = b_0 + b_1*x_1 + b_2*x_2 + ... + b_n*x_n$$

RESULTS AND DISCUSSION

Results

Results of "Model – Health" (Dependent variable EuroQol score)

The summary of results in the model containing all initial explanatory variables is presented in Table 2.

The elimination of statistically insignificant variables has resulted in the final version of the model presented in Table 3.

Discussion

Results are in line with the original expectation. All coefficients of independent variables have a right sign. All variables are significant on at least 10% level. Employment and HS access variables are highly significant. We were interested in the effect of the employment and access to health services on health status of the homeless people. Results seem to support the original hypothesis that those factors have a large impact on the health of homeless people. In order to explain the strong effect of those variables, we can speculate that the perceived injustice of the society toward homeless as seen from the point of view of homeless person is exemplified in the refusal of the adequate health care and employment. After a bad experience with the system many homeless people may simply stop trying to interact with institutions and people representing the system (10). They "drop out" and their situation including the health status deteriorates. The variable Education is also highly significant, implying perhaps a better ability of more educated individual to interact with the system resulting in the lower "drop out" rate among this group.

The perception of the injustice can be even stronger in the society, which refuses to see the problem of homelessness as the community problem. In the survey carried out in the Czech Republic in the year 2005 (Justice and Solidarity in CR, 2006)

[1] We also used "Probit" regression to do the same. It turns out, that results of both models are very similar.

Table 2. *Model-Health with all initial explanatory variables*

Parameter	Coefficient	Standard error	t-value	t-prob.
Constant	-0.408892	0.3550	-1.15	0.250
Age	-0.018137	0.005630	-3.22	0.001
Gender	0.153196	0.1833	0.836	0.403
Friends	0.301998	0.1603	1.88	0.060
Education	0.163813	0.0873	1.88	0.061
Employment	0.543298	0.1525	3.56	0.000
HS access	-0.623468	0.2136	-2.92	0.004
Smoking	0.27600	0.1593	1.73	0.084
Alcohol	-0.169798	0.1549	-1.10	0.273

No. of observations 942	No. of parameters	9	
baseline log-lik	-644.4926	Test: $\chi^2(8)$	51.015 [0.0000]**
mean (EuroQol)	0.433121	var (EuroQol)	0.2455

Table 3. *Final version of Model-Health*

Parameter	Coefficient	Standard error	t-value	t-prob.
Age	-0.019683	0.003864	-5.09	0.000
Friends	0.238627	0.1425	1.67	0.094
Education	0.162083	0.0800	2.03	0.043
Employment	0.539951	0.1500	3.60	0.000
HS access	-0.651758	0.2097	-3.11	0.002

No. of observations 948	No. of parameters	5	
zeroline log-lik	-657.1035	Test: $\chi^2(5)$	62.564 [0.0000]**
mean (EuroQol)	0.432489	var (EuroQol)	0.2454

people were asked to express willingness to provide a help to defined categories of people identified within the society. Results show that 97% of people were willing to help people with health handicaps, but only 40% were willing to help homeless people. It is interesting to note that even less compassion was reserved for immigrants (30%) and gypsies (17%).

Policy Implications

In the model the variables HS access and Employment are significant, but so are variables Age, Education and Friends. Out of those five variables, only variables HS access, Employment and Education can be influenced by policies aiming to improve access to health, job opportunities and level of education for homeless people. Quasi-elasticities calculated for HS access, Employment and Education show that the 1% improvement of the mean values for those variables would increase probabilities of respondent reporting a better health status by 0.021, 0.035 and 0.079 respectively. We believe that authorities can implement programmes in the areas of health care access and job opportunities relatively fast, while improving the education level is a longer-term proposition. The Czech Republic is planning to take steps in this direction in coming years (12).

CONCLUSIONS

We can conclude that the relationship between the social institutional framework and the health status of homeless people is significant. Results suggest that implementing programmes in the Czech Republic aiming to improve access to health services and to provide employment opportunity for homeless people could have a positive impact on their health status. The importance of the education for the better health of homeless people is also apparent. We expect that the economic development in the Czech Republic will lead to increase in the income inequality among population. It will likely lead to the increase in the number of homeless people and their deeper social exclusion. In the Czech Republic, non-profit charitable sector does not have a long tradition and it is relatively weak (17). It can't be expected to handle the situation without the help of state. Therefore, without taking decisive steps on the institutional level now, the country may need to take more expensive and less effective measures later as the number of homeless people grows.

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