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Lindström, Martin; Rosvall, Maria

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Marital status, social capital, and health locus of control: A population-based study

Martin Lindström (1,2)

1 Department of Clinical Sciences in Malmö
Lund University

2 Centre for Economic Demography (CED)
Lund University

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Abstract

Objective: To investigate the association between marital status and lack of internal health locus of control (HLC), taking economic stress and trust into account.
Study design: Cross-sectional study.
Methods: The public health survey Skåne 2008 is a postal questionnaire study (55% participation rate). A random sample was invited, 28,198 persons aged 18–80 participated. Logistic regression models were used to discern associations between marital status and lack of internal HLC. The multiple regression analyses included age, country of birth, education, economic stress and horizontal trust.
Results: 33.7% of the men and 31.8% of the women lacked internal health locus of control. After age-adjustments the unmarried and divorced men and the widowed women displayed significantly higher odds ratios of lack of internal HLC. The significantly higher odds ratios only remained for unmarried men throughout the multiple analyses. In contrast, divorced women had significantly lower odds ratios of lack of internal HLC than married women after adjustments for economic stress.
Conclusions: The associations between marital status and HLC differ to some extent between men and women. Health promotion regarding HLC and related behaviours should consider unmarried/ not cohabitating men and women.

Key words: Social capital, trust, economic stress, education, health locus of control, Sweden.

Introduction

Social circumstances affect health. Socioeconomic status defined as occupational status, education or income are strong predictors of morbidity and mortality.[1] Marital status is another important social factor associated with risk factors of morbidity, and mortality. Non-married men and women have higher cardiovascular disease (CVD) and all-cause mortality rates compared to married men and women.[2,3,4] In a population study of middle-aged men in Sweden the association between marital status and screened hypertension and CVD mortality remained statistically significant after multiple adjustments for confounders, singleton men having higher risks than married/cohabitating men.[5] Being never married, widowed or divorced has also been reported to be associated with higher suicide rates[6] and with a higher risk of depression,[7] although CVD mortality seems to contribute the major part of the increased all cause mortality of the never married, widowed or divorced.

Marital status has not only been shown to be associated with chronic diseases such as CVD but also with CVD risk factors. Loss of a spouse through the end of marriage is associated with a decrease in BMI.[8] On the other hand, divorced or widowed persons have less benevolent lipid profile and blood pressure,[9] increased risk of hypertension,[10] and increased levels of inflammation markers.[11] Health related behaviours such as smoking, exercise, alcohol consumption,[12,13] and fruit and vegetable consumption[14,15] also seem to be patterned in a more advantageous way for health among married and cohabitating men and women.

Health locus of control, i.e. the extent to which a person think that it is possible to influence one's own health, defined as internal health locus of control as opposed to lack of internal health locus of control/ external health locus of control, is a determinant of health related behaviours that are CVD risk factors.[16,17,18] The assumption behind the notion of health locus of control is that if individuals are concerned about their health, and if they believe that action to promote or protect health can be taken, i.e. they have internal health locus of control, then lifestyle change in a health protective direction will result. The behaviours affected by health locus of control include smoking, alcohol consumption, exercise, and dietary intake, although exercise and patterns of dietary intake seem to be influenced by health locus

of control to a higher extent.[16] Health locus of control has previously been demonstrated to be associated with age, country of birth, education, economic stress and social capital.[19] Social capital entails high civic engagement and social participation among citizens, high generalized (horizontal) trust in other people, high trust in public institutions and generalized reciprocity.[20,21] One of the four main hypothesized pathways by which social capital affects health is through health related behaviours.[22] Social capital as a determinant of health has been challenged by other authors who claim that public welfare policy aimed at decreasing socioeconomic differences in life conditions in general, public health care policy aimed at decreasing socioeconomic differences in health in particular and material conditions in general are crucial predictors of health.[23] No previous study has to our knowledge investigated the association between marital status and health locus of control. The main hypothesis of this study is that the married and cohabitating category has lower odds ratios of lack of internal health locus of control, i.e. external health locus of control, because marriage/cohabitation may be seen as a psychological, psychosocial and material resource.

It should be observed that the concept of marriage is currently viewed more broadly than traditional marriage with its legal rights and obligations. "Living as married" now also includes cohabitation, and in this study married and cohabitating are collapsed into one category for this reason.[24] It should also be noted that people who are never married, divorced and widows/widowers may be living with other persons than a spouse. Younger unmarried may for instance live with their parents or siblings.

The aim of this study is to investigate the association between marital status and lack of internal health locus of control, taking economic stress and horizontal trust into account.

Methods

Study population

The 2008 public health survey in Skåne, southern Sweden, is a cross-sectional study. A total of 28,198 persons randomly selected from the official population registers of

persons living in Skåne born in 1928-1990 answered a postal questionnaire in the period August to September 2008, which represents a 55% response rate. Two reminder letters were sent to the respondents.

Definitions

Dependent variable

Health locus of control was assessed with the item "Do you believe that you can do anything yourself in order to preserve good health?" The alternatives "Yes, to a very high extent", "Yes, to some extent", and "No, it is not possible to influence your own health" were dichotomised with the first alternative as high belief in the possibility to influence health (internal health locus of control), and the other two alternatives as low belief in the possibility to influence health (external health locus of control).

Independent variables

Age was divided into the age intervals 18-24, 25-34, 35-44, 45-54, 55-64 and 65-80 years.

All analyses were stratified by *sex*.

Born in Sweden/born in other country than Sweden. All participants born in countries outside Sweden were merged into a single category which was compared with the born in Sweden category.

Education was divided by length of education into the categories 13 years of education or more, 10-12 years of education and 9 years or less.

Economic stress was assessed with the item "How often during the past twelve months have you had problems paying your bills?" with the four alternative answers "never", "occasionally", "every second month" and "every month".

Generalized (horizontal) trust in other people is a self rated variable which assesses the individual's perception of generalized trust in other people. It was appraised by the item "Generally, you can trust other people" with the four alternative answers: "Do not agree at all", "Do not agree", "Agree", and "Completely agree". These alternatives were dichotomized with the two first alternatives indicating low trust and the two latter high trust.

The generalized trust in other people item used in this study has been used in previous investigations.[21]

Marital status is a self-reported variable which entails four alternatives: married/cohabitating, never married/living alone, divorced/living alone, and widow/widower/living alone.

Statistics

Prevalences (%) of external (lack of internal) health locus of control, age, country of birth, education, horizontal trust and marital status stratified by sex were calculated (table 1). Prevalences (%) and odds ratios with 95% confidence intervals (OR:s, 95% CI) of external health locus of control were calculated according to marital status, age, country of birth, education, and horizontal trust (table 2). Age-adjusted and multiple adjusted odds ratios and 95% confidence intervals of external health locus of control were calculated according to marital status (table 3). The statistical analyses were performed using the SPSS software package version 17.0.[25]

Results

Table 1 shows that 33.7% of the men and 31.8% of the women reported lack of internal health locus of control. The prevalence of demographic, educational, economic stress, horizontal trust and marital status variables among men and women are also displayed in table 1.

Table 2 shows that the prevalence (%) and odds ratios in bivariate logistic regression analyses of lack of internal health locus of control were significantly higher among

older people, among persons born in countries other than Sweden, with low education (10-12 years as well as 9 years or less compared to those with 13 years of education or more), with economic stress, with low horizontal trust, and among the divorced and widows/widowers among both men and women.

After age-adjustments the unmarried, odds ratio 1.41 (1.26-1.57), and the divorced, odds ratio 1.31 (1.12-1.52), among men and the widowers, odds ratio 1.43 (1.24-1.66), among women had significantly higher odds ratios of lack of internal health locus of control compared to the married/cohabitating category (table 3). The significantly higher odds ratio only remained for unmarried men throughout the multiple regression analyses, odds ratio 1.25 (1.11-1.41) in the final multiple regression model with all variables including trust and economic stress. In contrast, divorced women had significantly lower odds ratios of lack of internal health locus of control than married women after multiple adjustments in the regression models. These models included economic stress as well as economic stress *and* trust, odds ratios 0.84 (0.73-0.96) and 0.82 (0.72-0.95), respectively.

Discussion

The associations between marital status and health locus of control differ to some extent between men and women. Health promotion regarding health locus of control and health related behaviours should particularly consider unmarried men due to their higher propensity to lack internal health locus of control. The health locus of control of divorced and widowed women is more associated with economic stress than health locus of control among divorced and widowed men. After age-adjustments the unmarried and the divorced among men and the widowers among women displayed significantly higher odds ratios of lack of internal health locus of control compared to the married/cohabitating. The significantly higher odds ratio only remained for unmarried men throughout the multiple regression analyses. In contrast, divorced women displayed significantly lower odds ratios of lack of internal health locus of control than married women after multiple adjustments including economic stress as well as economic stress *and* trust.

The study of the association between marital status and health locus of control builds on the notion that the social factor marital status affects the psychological factor health locus of control.[16] The odds ratios of lack of internal health locus of control did not differ for widowed men compared to married/cohabitating men throughout the analyses. In contrast, the corresponding odds ratios did significantly differ for widowed women compared to married/cohabitating women, but the significant difference disappeared with the introduction of economic stress. This finding is in line with previous results which suggest that marital dissolution may have more severe economic effects for women than for men.[26] The patterns for the divorced, i.e. with significantly lower odds ratios of lack of internal health locus of control after adjustments for economic stress, support this notion further. Divorced women have also previously been demonstrated to have more financial problems and more psychological distress than divorced men.[27,28,29] Being unmarried seems to be more adversely associated with health locus of control among men than among women in terms of health locus of control.

The prevalence of especially the divorced category seems somewhat low considering the high divorce rates in Sweden. Still, the assessments of marital status in this cross-sectional study only mirror the marital status at the point in time when the participants responded to the questionnaire. A substantial part of the married/cohabitating category has thus probably experienced one or several previous divorces during the course of their life, a longitudinal perspective which is not possible to discern with a cross-sectional study design. Similar patterns were found in the previous public health survey in Skåne in 2004.[30]

Implications for prevention may include the consideration that unmarried/not cohabitating men and women should be highlighted in the health care system regarding a significantly higher likelihood of lack of internal health locus of control and less benevolent health related behaviours. The question whether lack of internal health locus of control causes a higher or lower propensity to seek help in the health care system should be investigated in further studies. The economic conditions and exposure to economic stress among divorced women should be highlighted not only in the health care system but in general social and welfare policy.

Strengths and limitations

The participation rate is 55%. The category born outside Sweden is underrepresented in this study by approximately 4 per cent units compared to official register statistics for Skåne (the proportion being approximately 14% in this investigation). The distribution of the other sociodemographic variables in a similar public health survey with almost the same response rate in Skåne in 2000 corresponded well with the general distribution of these sociodemographic characteristics in the population of Skåne in 2000 when compared with official registers,[31] and comparisons for the 2008 investigation have yielded similar unpublished results. The risk of selection bias is consequently rather small.

Confounders such as age, sex, country of origin, education, economic stress and horizontal trust were adjusted for in the regression analyses, and by stratifying for sex. The variables affected the estimates to the extent demonstrated in table 3.

The health locus of control variable is well documented and valid.[16] The horizontal trust variable has been widely used.[21,32]

The cross-sectional design of this study renders it theoretically impossible to infer causality.

Conclusions: The associations between marital status and health locus of control differ to some extent between men and women. Health promotion regarding health locus of control and health related behaviours should consider unmarried/ not cohabitating men and women.

Ethical approval

This research was approved by the ethical Committee at Lund University (dnr. 2010/343).

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Competing interests

None declared.

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Table 1. Prevalence (%) of health locus of control, demographic characteristics, education, economic stress, trust in other people (horizontal trust), and marital status. Men (n = 12,726), women (n = 15,472), and total (n = 28,198). The public health survey in Skåne 2008.

	Men (n = 12,726)	Women (n = 15,472)	Total (n = 28,198)
Health locus of control			
Internal	66.3	68.2	67.3
External (lack internal)	33.7	31.8	32.7
(Missing)	(204)	(312)	(516)
Age			
18-24	8.3	9.1	8.8
25-34	12.3	13.9	13.2
35-44	16.4	17.2	16.9
45-54	17.7	18.5	18.1
55-64	21.2	19.3	20.1
65-80	24.2	21.9	22.9
(Missing)	(0)	(0)	(0)
Born in Sweden/born in other country than Sweden			
Sweden	86.0	85.7	85.9
Other country	14.0	14.3	14.1
(Missing)	(0)	(0)	(0)
Education			
13-year	33.2	41.2	37.5
10-12 years	41.9	38.3	39.9
-9 years	25.0	20.4	22.5
(Missing)	(1098)	(1631)	(2729)
Trust (horizontal)			
High	66.1	64.3	65.1
Low	33.9	35.7	34.9
(Missing)	(537)	(700)	(1237)
Economic stress			
Never	79.5	76.5	77.8
Occasionally	14.1	15.7	15.0
Half the year	3.1	3.6	3.4
Every month	3.3	4.2	3.8
(Missing)	(307)	(335)	(642)
Marital status			
Married/cohabitating	73.5	69.2	71.2
Unmarried	18.2	15.7	16.8
Divorced	6.3	9.2	7.9
Widow/widower	2.0	5.8	4.1
(Missing)	(283)	(337)	(620)

Table 2. Prevalence (%) and odds ratios (OR, 95% CI) in bivariate analyses of lack of internal health locus of control according to age, country of origin, education, economic stress, trust in other people (horizontal trust) and marital status. Men (n = 12,726) and women (n = 15,472). The public health survey in Skåne 2008.

	Men (n=12,726)		Women (n=15,472)	
	%	OR(95%CI)	%	OR(95%CI)
Age				
18-24	21.8	1.00	21.8	1.00
25-34	22.1	1.02 (0.84-1.23)	23.1	1.08 (0.91-1.26)
35-44	25.3	1.21 (1.02-1.45)	24.8	1.18 (1.01-1.38)
45-54	32.6	1.74 (1.47-2.07)	29.1	1.47 (1.27-1.71)
55-64	38.8	2.27 (1.93-2.69)	37.1	2.11 (1.82-2.45)
65-80	46.0	3.06 (2.60-3.60)	45.5	2.99 (2.59-3.46)
(Missing)	(204)		(312)	
Born in Sweden/born in other country than Sweden				
Sweden	32.1	1.00	30.0	1.00
Other country	43.7	1.64 (1.48-1.82)	43.2	1.77 (1.51-1.95)
(Missing)	(204)		(312)	
Education				
13-year	20.5	1.00	19.2	1.00
10-12 years	32.7	1.88 (1.71-2.08)	33.2	2.08 (1.91-2.28)
-9 years	50.5	3.96 (3.56-4.41)	51.7	4.49 (4.06-4.97)
(Missing)	(1215)		(1829)	
Economic stress				
Never	31.4	1.00	30.2	1.00
Occasionally	37.0	1.28 (1.16-1.43)	33.1	1.14 (1.04-1.25)
Half the year	42.5	1.62 (1.31-1.99)	37.6	1.39 (1.16-1.66)
Every month	59.1	3.16 (2.58-3.88)	46.8	2.03 (1.73-2.39)
(Missing)	(427)		(559)	
Trust (horizontal)				
High	30.0	1.00	27.0	1.00
Low	39.0	1.49 (1.38-1.62)	38.8	1.71 (1.59-1.84)
(Missing)	(636)		(856)	
Marital status				
Married/cohabitating	32.9	1.00	30.9	1.00
Unmarried	31.5	0.94 (0.85-1.04)	26.9	0.82 (0.74-0.91)
Divorced	41.8	1.47 (1.26-1.70)	34.8	1.19 (1.06-1.34)
Widow/widower	45.3	1.69 (1.31-2.18)	49.2	2.16 (1.88-2.49)
(Missing)	(392)		(557)	

Table 3. Age-adjusted and multiple adjusted odds ratios (OR, 95% CI) of lack of internal health locus of control according to marital status. Men (N=12,726) and women (N=15,472). The public health survey in Skåne 2008.

	OR(95% CI)[a]	OR(95% CI)[b]	OR(95% CI)[c]	OR(95% CI)[d]	OR(95% CI)[e]
Men					
Married/ cohabitating	1.00	1.00	1.00	1.00	1.00
Unmarried	**1.41 (1.26-1.57)**	**1.32 (1.17-1.48)**	**1.29 (1.14-1.45)**	**1.27 (1.13-1.43)**	**1.25 (1.11-1.41)**
Divorced	**1.31 (1.12-1.52)**	**1.23 (1.04-1.44)**	1.16 (0.98-1.38)	1.09 (0.93-1.29)	1.05 (0.88-1.24)
Widower	1.19 (0.92-1.54)	1.15 0.87-1.53)	1.09 (0.82-1.46)	1.13 (0.85-1.50)	1.07 (0.80-1.43)
R^2	0.055	0.115	0.119	0.129	0.132
χ^2 (chi square, significance)	0.000	0.000	0.000	0.000	0.000
Women					
Married/ cohabitating	1.00	1.00	1.00	1.00	1.00
Unmarried	1.10 (0.99-1.22)	1.07 (0.95-1.20)	1.02 (0.91-1.15)	1.03 (0.92-1.16)	0.99 (0.88-1.12)
Divorced	1.00 (0.88-1.12)	0.92 (0.81-1.06)	0.89 (0.78-1.02)	**0.84 (0.73-0.96)**	**0.82 (0.72-0.95)**
Widow	**1.43 (1.24-1.66)**	**1.21 (1.03-1.43)**	**1.22 (1.02-1.45)**	1.17 (0.99-1.38)	1.18 (0.99-1.40)
R^2	0.048	0.117	0.125	0.125	0.131
χ^2 (chi square, significance)	0.000	0.000	0.000	0.000	0.000

a Adjusted for age.
b Adjusted for age, country of origin and education.
c Adjusted for age, country of origin, education and horizontal trust.
d Adjusted for age, country of origin, education and economic stress.
e Adjusted for age, country of origin, education, horizontal trust and economic stress.