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# **Marital status, social capital, economic stress, and mental health: A population-based study**

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## **Abstract**

The associations between marital status and poor mental health are investigated, and whether social capital, trust, and economic stress attenuate the associations between marital status and poor mental health. The public health survey in Skåne (southern Sweden) 2008 is a cross-sectional study including 28,198 persons aged 18–80. Logistic regression models investigate associations between marital status and mental health, adjusting for age, country of birth, education, emotional support, instrumental support, trust in others, and economic stress. A 13.8% prevalence of the men and 18.2% of the women had poor mental health. Significantly higher odds ratios of poor mental health for the unmarried, divorced and widows/widowers compared to married/cohabitating remained throughout the analyses. Trust and economic stress only moderately attenuated these associations.

**Key words:** Social capital, trust, economic stress, mental health, Sweden.

## **Introduction**

Marital status is an important social factor associated with health. Non-married men and women have higher cardiovascular disease (CVD) and all-cause mortality rates compared to married men and women (Eaker et al., 2007). Marital status is also associated with psychiatric health outcomes. Never being married, widowed, or divorced are associated with higher suicide rates (Masocco et al., 2008) as well as higher risk of depression (Akhtar-Danesh & Landeen, 2007, Kouvonen et al., 2008, Romans, Cohen & Forte, 2011). It is thus plausible that an association between marital status and mental health is present in the more general population for obvious reasons of loneliness, lack of emotional support and lack of practical support in everyday life.

Social capital entails high civic engagement and social participation among citizens, high generalized trust in other people, high trust in institutions and generalized reciprocity (Putnam, 2000). One of the four main hypothesized pathways by which social capital affects mental health is through psychological and psychosocial pathways (Kawachi et al., 1999). In this study we follow Coleman (1988, 1990) and Putnam (1993, 2000) who define social capital as a concept separated from social support as opposed to the definition of Bourdieu (1986). A previous study demonstrates that unmarried men and women and divorced men have lower social capital than married men and women (Lindström, 2011). Social capital is also challenged by authors who claim public welfare policy in general life conditions and public health care policy aimed at decreasing socioeconomic differences are crucial health predictors (Pearce & Smith, 2003).

The marital status and poor mental health index (GHQ12) reflects mental health aspects, such as sleep disturbance due to uneasiness, depressive mood and loss of confidence during the past weeks. GHQ12 is also used as a proxy to measure mental health in the general population. Although there are more complex instruments than the GHQ12 index to measure mental health in a population, there is little difference in the validity (Goldberg et al., 1997). The GHQ12 instrument is associated with age, birth country, education, economic stress, and social capital (Petersen & Lindström, 2010), and may be associated with emotional support and instrumental support

available in the public health survey. Poor mental health measured with GHQ12 is more prevalent among women than men (Lindström, 2004) and more women are divorced and widows compared to men (Lindström, 2009).

The first hypothesis is that the unmarried, divorced and widowed categories will have poorer mental health than married persons. The second hypothesis is that this association may be mediated by trust and reduced economic stress. Trust and economic stress are thus expected to attenuate the association between marital status and poor mental health when included in the statistical model used in this study.

### **Methods and materials**

The 2008 Skåne public health survey in southern Sweden is a cross-sectional study of 28,198 persons randomly selected from the official population registers of persons living in Skåne born in 1928-1990 who answered a postal questionnaire in the autumn of 2008 (55% participation). Two reminder letters were sent.

The dependent variable is the respondent's self rated mental health measured by (GHQ12), described by Goldberg et al. (1997). Depending on the answers obtained from the twelve items, respondents are classified with either "good" or "poor" mental health. The data is stratified by *sex*. Age and Swedish versus other nativity are included. *Education* is divided into 13 years or more, 10-12 years and 9 years or less. *Emotional support* reflects the possibility of care and personal value encouragement. It had four options: "Yes, I am absolutely certain to get such support", "Yes, possibly", "Not certain", and "No". The three latter alternatives are defined as low emotional support. *Instrumental support* entails individual access to guidance, advice, information, practical services and material resources with the same options as emotional support and is dichotomized correspondingly. *Economic stress* is assessed with the item "How often during the past twelve months have you had problems paying your bills?" with the four options "never", "occasionally", "every second month", and "every month". *Generalized trust in other people* is a self rated item "Generally, you can trust other people" with the four options: "Do not agree at all", "Do not agree", "Agree", and "Completely agree". These options are dichotomized with the two first alternatives indicating low trust and the latter two as high trust.

*Marital status* has four options: married/cohabitating, never married/living alone, divorced/living alone, and widow/widower/living alone.

Poor mental health prevalence (%), sociodemographic characteristics, social support, trust, and economic stress are calculated, and bivariate poor mental health odds ratios are calculated for the other variables. Crude, age-adjusted, and multiple adjusted odds ratios and 95% confidence intervals of mental health are calculated according to marital status. The confounding and mediating factors are added successively to the models (table 1). The model fit is assessed with Nagelkerke  $R^2$ . The logistic regressions are performed using the SPSS software package version 17.0.

## **Results**

A 13.8% prevalence of the men and 18.2% of the women report poor mental health. Among men 73.5% were married/cohabitating, 18.2% unmarried, 6.3% divorced and 2.0% widowers. Among women, 69.2% were married/cohabitating, 15.7% were unmarried, 9.2% were divorced, and 5.8% were widows, respectively. Odds ratios (OR:s) and bivariate logistic regression analyses of poor mental health are significantly higher among younger people, among persons born in countries other than Sweden, OR 2.1 (1.8-2.4) (men) and 1.8 (1.6-2.0) (women), with high education (13 years or more), OR 1.2 (1.0-1.4) (men) and 1.2 (1.1-1.4) (women), low emotional support, OR 2.5 (2.2-2.8) (men) and 2.6 (2.3-2.8) (women), low instrumental support, OR 2.1 (1.9-2.3) (men) and 2.4 (2.2-2.6) (women), economic stress every month, 5.5 (4.5-6.8) (men) and 4.9 (4.1-5.8) (women), low trust, 2.1 (1.9-2.3) (men) and 2.3 (2.1-2.5) (women) (not shown in table).

Table 1 shows that unmarried men, divorced men, and widowers as well as unmarried, divorced, and widows among women had significantly higher odds ratios of poor mental health throughout the multiple regression analyses, even after inclusion of all other factors including trust and economic stress in the final model. The odds ratios are mainly attenuated by the initial introduction of age in the models. The information criterion Nagelkerke  $R^2$  shows that both trust and economic stress add some information to the model, and they attenuate the odds ratios to a limited

extent. Trust and economic stress added together in the final models with all confounders included produce the best model fit.

## **Discussion**

After adjustments for confounders, significantly higher odds ratios of poor mental health for the unmarried, divorced and widows/widowers remain throughout the analyses. Considering the Nagelkerke  $R^2$  information criterion, economic stress adds only somewhat more information to the models for both men and women than trust. Poor mental health odds ratios for unmarried, divorced, and widow/widower marital status groups compared to the married/cohabitating group remain significant throughout the analyses, and are mainly attenuated by the introduction of age, not predominantly by trust or economic stress. The introduction of trust and economic stress, respectively, does not meet the criteria for mediator variables, at least not for mono-causal mediator variables (Baron & Kenny, 1986). The only substantial but small odds ratio reductions for poor mental health after the introduction of trust and economic stress are for divorced men compared to married men and divorced women compared to married women. The result that divorced status is associated with more economic stress than widowers and widows is plausible, given the differing social and economic circumstances. Trust, which slightly reduces poor mental health odds ratios for widowers, widows, and divorced and unmarried women, has no substantial mediating role in the relationship between marital status and poor mental health. Some further attenuation is observed for divorced men compared to married men and for unmarried men compared to married men and unmarried women compared to married women when trust and economic stress are combined in the final models.

The distribution of other sociodemographic variables in a similar 2000 Skåne public health survey corresponds with the distribution of population sociodemographic characteristics in official registers (Carlsson et al., 2006), and comparisons for the 2008 investigation yield similar results. The risk of selection bias is thus rather small. Confounders as well as intermediate causal factors are adjusted for in the analyses. The Nagelkerke  $R^2$  values are almost always comparatively low in logistic regression models. The important information concerns whether the values increase when a new

variable is added to the model. The cross-sectional design makes it impossible to infer causality.

## **Conclusions**

The significantly higher odds ratios of poor mental health for the unmarried, divorced and widows/widowers remained throughout the analyses. Trust and economic stress only moderately attenuated these associations.

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**Table 1. Age-adjusted and multiple adjusted odds ratios (OR, 95% CI) of poor mental health according to marital status. Men (N=12,726) and women (N=15,472). The public health survey in Skåne 2008.**

	%	OR <sup>a</sup>	OR <sup>b</sup>	OR <sup>c</sup>	OR <sup>d</sup>	OR <sup>e</sup>	OR <sup>f</sup>	OR <sup>g</sup>
<b>Men</b>								
Married/ cohabitating	11.6	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Unmarried	20.7	2.0	1.6	1.6	1.4	1.4	1.4	1.3
		1.8-2.2	1.4-1.8	1.4-1.8	1.2-1.6	1.2-1.6	1.2-1.6	1.1-1.5
Divorced	20.6	2.0	2.2	2.2	1.8	1.8	1.6	1.5
		1.7-2.4	1.8-2.7	1.8-2.7	1.5-2.2	1.4-2.2	1.3-1.9	1.2-1.9
Widower	15.6	1.4	1.8	1.9	1.7	1.6	1.7	1.6
		1.0-2.0	1.3-2.6	1.3-2.8	1.2-2.5	1.1-2.4	1.1-2.5	1.1-2.4
(Missing)	(677)							
R <sup>2</sup> (Nagelkerke)		0.022	0.035	0.052	0.087	0.100	0.115	0.124
<b>Women</b>								
Married/ cohabitating	15.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Unmarried	27.3	2.0	1.5	1.6	1.5	1.4	1.4	1.3
		1.8-2.2	1.3-1.7	1.4-1.7	1.3-1.6	1.2-1.5	1.2-1.6	1.2-1.5
Divorced	20.5	1.4	1.7	1.6	1.4	1.3	1.2	1.2
		1.2-1.6	1.5-2.0	1.4-1.9	1.2-1.6	1.1-1.6	1.0-1.4	1.0-1.4
Widow	16.0	1.0	1.6	1.5	1.5	1.4	1.4	1.4
		0.8-1.2	1.3-2.0	1.2-1.9	1.2-1.8	1.1-1.8	1.1-1.8	1.1-1.7
(Missing)	(826)							
R <sup>2</sup> (Nagelkerke)		0.018	0.045	0.053	0.105	0.120	0.125	0.137

a Crude.  
b Adjusted for age.  
c Adjusted for age, country of origin and education.  
d Adjusted for age, country of origin, education emotional support and instrumental support.  
e Adjusted for age, country of origin, education, emotional support, instrumental support and horizontal trust.  
f Adjusted for age, country of origin, education, emotional support, instrumental support and economic stress.  
g Adjusted for age, country of origin, education, emotional support, instrumental support, horizontal trust and economic stress.