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# The effect of urban-area unemployment on the mental health of citizens differs between Slovak and Dutch cities

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## ABSTRACT

Conclusive evidence on the association of mental health problems (MHP) with area unemployment is lacking in regard to Central European cities. We obtained data on residents aged 19–64 from Slovak and Dutch cities from the FP7 EURO-URHIS 2 project. Multilevel logistic regression showed that the association between MHP (GHQ-12-total score  $\geq 2$ ) and area unemployment was strong in the Netherlands, but absent in Slovakia. Slovak citizens from the most favourable neighbourhoods had nearly double the risk of MHP than their Dutch counterparts. Individual-level socioeconomic characteristics did not explain area differences. The effect of urban-area unemployment seems to differ between Central European and Western European countries.

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## 1. Introduction

The urban context is known for a frequently higher prevalence of mental health disorders (Pinto-Meza et al., 2013; Galea et al., 2005; de Vries et al., 2003). This especially concerns deprived neighbourhoods (Mair et al., 2008; Matheson et al., 2006). This phenomenon is explained in two ways. First, there is a higher occurrence of stressors in deprived urban areas, such as crowding and noise (Guite et al., 2006), a densely built environment (Galea et al., 2005), more crime and violence in the area, a lack of green spaces (Sugiyama et al., 2008) and a lack of economic resources (Pattyn et al., 2011), which may function as triggers of mental health problems (MHP). Second, a selective migration of residents may occur to and within cities; i.e. people with poor (mental) health tend to move to poor urban neighbourhoods (Piro et al., 2007) or those with poor mental health are less able to move out of poor urban neighbourhoods than their neighbours with good mental health.

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Studies that examined the effect of neighbourhood socioeconomic position on mental health disorders are not consistent in their findings (Mair et al., 2008). Some studies concluded that living in socially and economically deprived neighbourhoods contributed to an increased risk of mental health disorders independent of individual characteristics (Galea et al., 2007; Matheson et al., 2006; Ross, 2000). Others reported that a higher prevalence of mental health disorders in socioeconomically disadvantaged neighbourhoods is the result of a concentration of residents with low socioeconomic status in deprived neighbourhoods (Pikhartova et al., 2009; Reijneveld and Schene, 1998; Propper et al., 2005).

To our knowledge only three studies have estimated the prevalence of mental health problems in urban areas in the healthy adult population in Central European (CE) countries (Pikhartova et al., 2009; Nicholson et al., 2008; Bobak et al., 2006). From those, only one (Pikhartova et al., 2009) examined the association between depressive symptoms and socioeconomic area deprivation (in the Czech Republic). The other two (Nicholson et al., 2008; Bobak et al., 2006) provide evidence that the so-called East–West health gap is also present for mental health. They found a higher prevalence of depressive symptoms in the urban population in Poland and Russia compared with the Czech Republic.

However, a direct comparison of a Central and a Western European (WE) country regarding mental health problems in

deprived urban areas has not yet been performed. Thus, we wanted to compare Slovakia and the Netherlands, two countries which are both participating in the EURO-URHIS2 project. These countries are in different stages of economic development, offering the possibility of observing potential differences or similarities in factors associated with the mental health of urban residents.

The Slovak Republic is a former communist country which was established in 1993 after the peaceful split of Czechoslovakia into Slovakia and the Czech Republic. The formerly centrally planned economy has been transformed into a market economy and in 2004 Slovakia joined the European Union (EU) with other 9 “new” Member States. Slovakia is among the world’s top 70 in terms of total gross domestic product (GDP) (World Bank, 2011). The annual average unemployment rate in 2012 represented 14% (Eurostat, 2013a). The Netherlands is among the world’s top 20 in terms of total GDP (World Bank, 2011) and is one of the founding members of the EU. As opposed to Slovakia, it belongs among the EU countries with the lowest unemployment rates. In 2012 the annual average unemployment rate was 5.3% (Eurostat, 2013a). Both countries belong to the countries with the lowest at-risk-of-poverty rates, having 13% and 11% of citizens, respectively, who live with an income below 60% of the national median income after social transfers (European Commission, 2013a, 2013b).

The main aims of this study were (1) to examine whether the prevalence of MHP was higher in deprived neighbourhoods regarding area unemployment; (2) whether the association of MHP with area unemployment differed by country; and (3) whether this could be explained by the socioeconomic characteristics of citizens. We restricted our analysis to people aged 19–64 years.

## 2. Methods

### 2.1. Sample and procedure

Data was collected within the European Urban Health Indicators project (EURO-URHIS 2) in the two largest cities in Slovakia – Bratislava (capital; 432,801 inhabitants in 2010) and Kosice (233,886 inhabitants in 2010) – and in two comparable Dutch cities, Amsterdam (capital; 779,808 inhabitants in 2010) and Utrecht (311,367 inhabitants in 2010). In each city a representative sample of 800 persons aged 19–64 years was approached, stratified by gender. All respondents received identical self-administered postal questionnaires in their own language along with a stamped return envelope. Questionnaires were accompanied by a cover letter informing about the project and a confidentiality statement on each returned questionnaire.

Regarding the Slovak cities, the sample was randomly selected by the Population Registry Office of the Slovak Republic. In order to motivate respondents, a raffle (9 gift vouchers of €10) and gift incentives (a bookmark with calendars) were used. Non-respondents were contacted repeatedly by two postal reminders and by telephone. Data collection lasted from September 2010 to March 2011.

Regarding the Dutch cities the sample was randomly selected from the municipal population register in each city. As an incentive to participants, a raffle (4 gift vouchers of €50) was used in Amsterdam and a lottery (2 vouchers of €100) was used in Utrecht. Non-respondents in Amsterdam were contacted in two additional mailings and in Utrecht also approached by phone calls. Data collection lasted from September 2010 to January 2011.

Invalid addresses ( $n=156$ ), deaths ( $n=5$ ) and an inability to complete the questionnaire due to living/working abroad ( $n=20$ ) were deducted from the original Slovak sample size. Thus, the overall response rate in Slovakia was 44.5% ( $n=631$ ); refusals concerned 18.4% ( $n=261$ ) and other non-response 37.1% ( $n=527$ ). Other non-response concerned respondents who did not give any

response and had invalid/unreachable phone numbers. Respondents did not differ from non-respondents regarding gender (Cohen’s  $W=0.09$ ).

The overall response rate in the Netherlands was 42.6% ( $n=673$ ), after invalid addresses ( $n=22$ ) were subtracted. No deaths or incapacities to complete the questionnaire occurred. Refusals represented 8.7% ( $n=137$ ) and non-respondents 48.7% ( $n=768$ ). Respondents did not differ from non-respondents regarding gender (Cohen’s  $W=0.13$ ).

### 2.2. Measures

The original questionnaire of EURO-URHIS 2 was translated from English into Slovak and Dutch and back translated afterwards. Differences between the original and back translations were discussed by the research team to optimise the translation.

#### 2.2.1. Individual-level data

Mental health problems were measured by the General Health Questionnaire (GHQ-12) (Goldberg, 1992). The GHQ-12 was developed as a screening tool to detect individuals that have, or are at risk of developing, psychiatric disorders. It measures common mental health problems/domains of depression, anxiety, somatic symptoms and social withdrawal. The questions of the GHQ regard the past 2 weeks (e.g., constantly under strain, feeling unhappy and depressed). Next, respondents have to rate how usual this is for them on a four-point scale. We scored responses bi-modally (0–0–1–1), with reversing of responses where needed, so that the higher the score, the more problems a respondent has met. Having mental health problems was then defined as a GHQ-total score  $\geq 2$ , following the manual. Missing data were imputed if numbering maximally two, using the average score. The Cronbach’s alpha in our sample was 0.88.

Socioeconomic status of respondents was measured by educational level, household income and economic activity. Education (The European health interview survey, 2006) was assessed by a question on the highest educational level attained. Responses were divided into three categories. No formal education and primary education were categorised as low educational level. The other two groups represent respondents with secondary and university education, respectively.

Composition of the household concerned the number of adults aged 18 and over and children aged 0–17 who lived in the household. Household income was measured by self-reported annual household income (The European health interview survey, 2006). The income per capita was adjusted for household size by the OECD modified scale by dividing by the number of adults and children in the household (OECD, 2011). This was then divided into tertiles of adjusted household income (low, medium, high) and was separately categorised for Slovakia and for the Netherlands.

Economic activity of respondents was measured by a question about their occupational category, which comprised (1) employed, (2) unemployed, (3) housewives, (4) students, (5) long-term work disabled and (6) pensioners. The housewives category may include also men who stay at home. Respondents answering with option 1 were tracked as economically active and with options 2 to 6 as economically inactive.

#### 2.2.2. Neighbourhood-level data

Neighbourhood unemployment rate was chosen as the measure of area deprivation, as it might be a source of urban stressors and have an impact on the mental health of residents in a neighbourhood. Slovak neighbourhoods concerned local administrative units on the lower level (the LAU 2 level) as defined by Eurostat (Eurostat, 2010). Dutch neighbourhoods concerned areas

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