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Lonely hearts don't get checked: On the role of social support in screening for cardiovascular risk

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ABSTRACT

Objective. Regular cardiovascular risk screening can prevent cardiovascular disease through timely implementation of lifestyle changes or medication. However, few studies have investigated what factors promote regular screening for risk factors like hypertension and high blood cholesterol. The aim of this study was to investigate the relationship between social support and adherence to cardiovascular risk screening.

Methods. We analyzed data from the Spanish National Health Survey—a cross-sectional representative survey conducted by the Spanish Ministry of Health in 2012 (N = 21,007). Participants reported whether they had their blood pressure and cholesterol levels measured by a health professional in the previous 12 months. Social support (i.e., the perception that emotional and practical support was available when needed) was measured with a validated scale. Multiple logistic regressions were conducted adjusted for demographic and health-related factors.

Results. Compared to individuals who reported a lack of social support, individuals who perceived sufficient social support were on average twice more likely to report participation in blood pressure screening, OR = 2.06, 95% CI [1.60, 2.66] and cholesterol screening, OR = 2.85, 95% CI [1.99, 4.09]. These effects were uniform across different demographics and were replicated in a previous wave of the survey. Factors associated with worse screening adherence were low social class, being single or widowed, smoking, alcohol consumption, and no history of cardiovascular risk.

Discussion. Perceptions of social support are positively related to cardiovascular risk screening adherence. Future research should investigate what type of social support most effectively increases screening participation among high risk populations.

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Cardiovascular disease (CVD) is currently the world's number one killer. In 2012 it was responsible for 3 out of every 10 deaths (World Health Organization, 2014). Regular screening for cardiovascular risk can significantly reduce the burden of CVD by timely implementation of lifestyle changes or medication (World Health Organization, UNAIDS, 2007). However, screening uptake rates in Europe are suboptimal, especially among those at high risk and of lower socio-economic status (Filippidis et al., 2014; Galán et al., 2006; Garcia-Retamero and Cokely, 2011; Kaplan and Keil, 1993; Rodin et al., 2012; Rodríguez-Artalejo et al., 2003). Although cardiovascular screening is often part of the annual medical visit in Europe, medical visits alone may be insufficient to ensure optimal screening coverage and equity, with healthcare professionals potentially contributing to screening inequalities (Rodríguez-Artalejo et al., 2003). In view of these results, research into what social, behavioral, or motivational factors can increase cardiovascular screening adherence is needed. However, to the best of our knowledge there is little empirical evidence available. One exception is a study conducted by Ashida et al. (2010) who showed that social encouragement is related to increased intentions to undergo blood pressure, cholesterol, and glucose screening in Mexican–American adults. These results suggest that social support from others can have a positive influence on cardiovascular screening adherence.

An increasing amount of research in social epidemiology shows that social support protects from CVD. Compared to people who have less social support, people who have more social support are at a smaller cardiovascular risk: they are less likely to develop CVD and less likely to die from CVD if they develop it (Barth et al., 2010). Theories postulate that one of the ways in which social support promotes health is through encouraging positive health-related behaviors (Cohen, 1988; Gallant, 2013; Kouvonen et al., 2012; Shiovitz-Ezra and Litwin, 2012; Uchino, 2009). This suggests that social support can facilitate adherence to regular screening, thereby reducing cardiovascular risk.

More evidence for the role of social support in preventive behavior comes from research on cancer screening adherence. Both structural

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and functional social support have been related to greater adherence to breast (Allen et al., 1999; Katapodi et al., 2002; Taylor et al., 1998) and colorectal cancer screening (Honda and Kagawa-Singer, 2006; Kinney et al., 2005). Structural support refers to the characteristics of one's social network (Allen et al., 1999; Keating et al., 2011; Kinney et al., 2005), while functional support refers to the perception that support is available when needed (Wills and Ainette, 2012). For example, people are more likely to participate in cancer screening if members of their social network participated before (Keating et al., 2011) or if the social network approves of screening (Allen et al., 1999; Honda and Kagawa-Singer, 2006). However, there are substantial differences between cancer screening and cardiovascular screening, and the unique role of social support in cardiovascular screening still needs to be established.

Social support can promote screening through provision of information about the importance or availability of screening (informational support), the opportunity to discuss openly about personal health concerns or doubts (emotional support), or practical assistance like driving someone to the health center (instrumental support) (Fischer Aggarwal et al., 2008; Wills and Ainette, 2012). Screening for cardiovascular risk is recommended to start as early as age 20, and should be repeated at least every two years or more often depending on results (Greenland et al., 2010). In addition, research shows that regular medical visits alone cannot ensure screening (Rodríguez-Artalejo et al., 2003). This implies that an additional initiative from the side of the patient may be required for screening completion. Altogether the need for frequent and regular checks and the need for an initiative from the patient suggest that informational, emotional, and instrumental social support can have a strong positive influence on cardiovascular screening adherence. This suggests that social support will be positively related to cardiovascular screening adherence, such that people who lack social support are less likely to get screened, while people who have sufficient social support successfully adhere to screening guidelines.

Alternatively, social support may only be beneficial when screening is more invasive or the screening results are potentially more psychologically distressing. To illustrate, cancer screenings often involve invasive and unpleasant testing (e.g., colonoscopy and mammography). In addition, the presence of a positive result can indicate the presence of a severe diagnosis. No wonder that under such conditions, greater perceived support from friends or family has been related to more frequent cancer screening (Allen et al., 1999; Honda and Kagawa-Singer, 2006; Katapodi et al., 2002). Cardiovascular screening, on the other hand, involves relatively non-invasive techniques like blood pressure measurement and a simple blood test. In addition, a positive result only indicates the presence of an elevated risk factor as opposed to a severe diagnosis. Thus, beneficial effects of social support may be restricted to more invasive and psychologically distressing testing and may not exist for more harmless and simple tests like those that screen for cardiovascular risk.

Finally, the provision of social support can have beneficial effects on preventive health behavior only when it is perceived as constructive and positive. Social network members can fail to provide the needed support, can exert negative influence on health behavior, or provide assistance that is perceived as intrusive, causing negative effects on health (Rook, 2015; Taylor, 2011). To investigate the influence of constructive social support, in this research we used a measure of *perceived* social support, defined as the satisfaction with the functional and affective aspects of one's social network (e.g., the perception that emotional and instrumental support is available when needed) (Broadhead et al., 1988).

We investigated if social support was related to cardiovascular screening adherence in probabilistic national samples (i.e., general population) in a South European country—Spain. We aimed to quantify the relationship between social support and cardiovascular risk screening after controlling for the effect of socio-demographic factors and other potential predictors of screening adherence.

Method

We obtained data from the adult National Health Survey (NHS) conducted by the Spanish Ministry of Health, Social Services and Equality, and the National Statistical Institute. The survey is a part of a periodic cross-sectional survey wave investigating health outcomes in Spanish citizens that is part of the European Health Survey project.[1]

Our primary data set was the NHS 2012, conducted between July 2011 and June 2012. The survey covered the whole territory of Spain. Multi-stage stratified random sampling was used to obtain a representative sample of the Spanish adult population (15 years or older) (Spanish Ministry of Health, Social Services and Equality and National Statistical Institute of Spain, 2012). To be able to provide reliable national estimates, 24,000 households distributed across 2000 census sections were contacted. The census sections were initially grouped in 7 strata according to the size of the municipality to which they pertained and were selected with a probability proportional to this size. Twelve households were then randomly selected within each census section. If the selected household could not be included (e.g., it was empty or the residents refused to participate), the missing case was replaced with one with similar characteristics from a replacement household sample. From each household one adult was randomly selected to participate in the survey. Data were collected via a computer-assisted personal interview by trained interviewers. Data collection was uniformly distributed across the 12-month period. The response rate was 90% and the final public data set included data from 21,007 adults.

We used the results of a previous wave of the survey, NHS 2007, conducted between June 2006 and June 2007, to cross-validate the results from NHS 2012. NHS 2007 employed similar methodology to NHS 2012, with the difference that it did not contain data on marital status, had a larger percentage of missing data, and the interview was not computer-assisted. In NHS 2007, 31,300 households distributed across 2236 census sections were initially contacted. The response rate was 96% and the final public data set included data from 29,478 adults.

Both surveys included similar modules covering information about health and the use of health services. For this research, we obtained the measures described below. Unless otherwise specified, the two surveys used the same instruments and questions.

Measures

Social support

Social support was measured with the validated Spanish version of the Duke-UNC Functional Social Support Questionnaire (Bellon Saameno et al., 1996; Broadhead et al., 1988). The questionnaire consists of 11 items measuring functional and qualitative aspects of perceived social, emotional, and practical support (examples: "I get useful advice about important things in life", "I get invitations to go out and do things with other people", "I receive help when I am sick in bed"). Responses ranged from 1 (much less than I would like) to 5 (as much as I would like). The final score is a sum of all items, where a larger score indicates more social support (Cronbach's alpha NHS 2012 = .91; NHS 2007 = .96). Factor analysis using the principal components methods and a Varimax rotation resulted in the extraction of two components consistent with previous research (Bellon Saameno et al., 1996; Broadhead et al., 1988): affective/confident support (7 items) and functional/connectedness (4 items), explaining 66% of the variance in NHS 2012 and 63% in NHS 2007.

Cardiovascular screening

Participants indicated if they had their (1) blood pressure and (2) cholesterol level measured by a health professional in the past 12 months.

Control variables

Participants indicated if they had ever suffered from a chronic disease,[2] diabetes, hypertension, high cholesterol, and heart disease (yes or no). Participants indicated their weight and height, from which we computed a body-mass index (BMI = weight in kg / (height in m)^2). In addition, participants indicated their smoking habits on a scale ranging (1: I smoke daily, 2: I smoke

[1] More information and technical details about the sampling, measures, and execution of the surveys are available on the website of the Spanish Ministry of Health: http://www.mssi.gob.es/estadEstudios/estadisticas/encuestaNacional.

[2] NHS 2007: This question was not included in this survey. Instead, participants indicated if they have suffered from each one of 29 chronic conditions. Hence, participants were coded as having suffered a chronic disease if they had indicated yes for any of these conditions.

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