Social Science Research 50 (2015) 139–146

Contents lists available at ScienceDirect

Social Science Research

journal homepage: www.elsevier.com/locate/ssresearch

Measuring the level of social support using latent class analysis

Letícia Marques Santos [a,*], Leila Denise A.F. Amorim [b], Darci Neves Santos [a], Maurício L. Barreto [a]

[a] Instituto de Saúde Coletiva, Universidade Federal da Bahia, Rua Basílio da Gama, s/n°, Campus Universitário, Canela, Salvador, Bahia 40110-040, Brazil
[b] Instituto de Matemática, Universidade Federal da Bahia, Rua Barão de Jeremoabo, s/n, Campus Universitário, Ondina, Salvador, Bahia 40170-115, Brazil

ARTICLE INFO

Article history:
Received 13 August 2013
Revised 12 November 2014
Accepted 18 November 2014
Available online 27 November 2014

Keywords:
Social support
Latent class analysis
Mental health
SSS-MOS

ABSTRACT

Different instruments have been used to measure social support in epidemiological studies of which the most widely used is the Medical Outcomes Study Social Support Scale (SSS-MOS). However, these studies lack measures of the level of social support on health risks. We used latent class analysis (LCA) to distinguish subgroups with different levels of perceived social support and tested the consistency of these subgroups by their associations with the prevalence of Common Mental Disorders (CMD). This is a cross-sectional study of 1013 mothers living in the city of Salvador, Brazil in which psychosocial data were collected through home visits using the SSS-MOS and the Self Reporting Questionnaire-20. For each dimension of social support analysed here, we selected models with two classes using LCA. Multivariate logistic regression models were used to estimate the association between participants' perceived social support and the prevalence of CMD to verify the consistency of the groups defined by LCA. There was a clear difference in the reporting of perceived social support between those classified as high or low using LCA. The probability of perceiving several types of social support was lower in the subgroup classified as low level of social support (13.7–59.8%), and it was much higher in the group classified as high level of social support (84.3–98%). A greater prevalence of CMD was found among mothers with lower levels of social support. LCA seems to be a useful tool to improve measurement of perceived social support by separation into two levels in which the lower level is associated with an increased prevalence of CMD.

1. Introduction

Social support refers to the provision of psychological and material resources by a social network, aimed at improving an individual's ability to cope with stress (Cohen, 2004). It is an important predictor of physical and psychological health and well-being and plays a significant causal role in chronic non-communicable and infectious diseases, as well as in their treatment and rehabilitiation (Cohen and Syme, 1985; Cohen, 2004; Uchino et al., 2012). Social support is also associated with reductions in cancer mortality rates (Pinquart and Duberstein, 2010), a reduced risk of coronary heart disease (Uchino et al., 1996), improved prognosis and survival for cardiovascular and brain diseases (Berkman and Glass, 2000), protection

* Corresponding author. Fax: +55 71 33360695.
E-mail addresses: marquesleticia@hotmail.com (L.M. Santos), leiladen@ufba.br (L.D.A.F. Amorim), darci@ufba.br (D.N. Santos), mauricio@ufba.br (M.L. Barreto).

http://dx.doi.org/10.1016/j.ssresearch.2014.11.009
0049-089X/

against depression and anxiety (Kawachi and Berkman, 2001; Stansfeld, 2002; Cohen, 2004), and an improved ability to cope with stress resulting from chronic illness (Stansfeld, 2002).

There is evidence that social support and social ties benefit an individual's mental health and psychological well-being (Turner and Marino, 1994; Kawachi and Berkman, 2001). Several studies have emphasized the effect of social support on reducing the symptoms of depression, anxiety, social phobia, and Common Mental Disorders (CMD) (Costa and Ludemir, 2005; Maulik et al., 2009; Moak and Agrawal, 2009; Kim, 2010). The positive effects of social support on mental health may be observed at any age, independent of the source that provides it, as long as the individual perceives him/herself to be socially integrated and supported (Cornwell and Waite, 2009a).

Over the years, increasing efforts have been made to achieve better measures of social support, disentangling a set of dimensions, which include informational support, tangible help, emotional support and integration (Krause and Markides, 1990), social disconnectedness and perceived isolation (Cornwell and Waite, 2009b), and social health (Cella et al., 2007). However, debate about the quality of instruments that measure social support is minimal (Uchino et al., 1996; Gonçalves et al., 2011). Few studies have analysed the quality of social support measures used in survey research (Sherbourne and Stewart, 1991; Berkman and Glass, 2000; Griep et al., 2005; Gonçalves et al., 2011; Uchino et al., 2012) and when such studies have been conducted, analysis has been restricted to an evaluation of the instrument's dimensionality, and occasionally to aspects related to construct validity (Sherbourne and Stewart, 1991; Griep et al., 2005; Gonçalves et al., 2011).

Furthermore, studies do not adequately respond to issues related to the choice of cut-off points in quantitative scales with different levels of risks for health or behavioural outcomes (Uchino et al., 1996; Gonçalves et al., 2011). This hampers recognition of specific characteristics of any given subgroup that could be at a greater risk of health problems (Corin, 1994). A more refined analysis of social support measures is necessary to improve recognition of their impact on health.

One of the most widely used instruments in epidemiological research is the perceived social support scale (SSS-MOS) developed for the Medical Outcomes Study (Sherbourne and Stewart, 1991; Berkman and Glass, 2000; Griep et al., 2005). This scale was constructed at the end of the 1980s and was designed to cover five dimensions of social support, such as emotional support (expressions of positive affect, empathy, care and trust); affective support (expressions of love and affection); material support (provision of material help); informational support (provision of information that helps the individual to deal with difficulties); and positive social interaction (the availability of company for leisure activities) (Sherbourne and Stewart, 1991).

The scale is considered an adequate measure of perceived social support (Berkman and Glass, 2000), and it has been adapted and validated for the Brazilian population (Griep et al., 2005). Several studies on the SSS-MOS conducted in different countries (Sherbourne and Stewart, 1991; Mahmud et al., 2004; Griep et al., 2005; Espínola et al., 2007; Robitaille et al., 2011) focus on presenting its psychometric properties, but nobody has yet used it to provide a clear definition for cut-off points in the original scale for the identification of levels of perceived social support associated with different risks to mental or physical health. Instead of choosing a cut-off point for the sum of responses for each item, some studies use a continuous score to represent social support (Aflakseir, 2010), while others classify scores below the median (Griep et al., 2005) or the first tertile (Andrade et al., 2005; Pinto et al., 2006) as representative of a low level of perceived social support. There are also studies that merely provide the chosen score for cut-off – 75 points (Hasselmann et al., 2008), 57 points (Salinero-Fort et al., 2011), 33 points (Costa and Ludemir, 2005) – with no explanation about how the authors reached these scores or what they represent. Thus, the criteria for classifying the scores of the SSS-MOS and characterizing levels of perceived social support seems to be somewhat arbitrary.

From this perspective, latent class analysis (LCA) is a useful statistical technique for clustering individuals into subtypes within a population when there is no prior knowledge about which individual belongs to which subpopulation. This method is used to analyse multivariate categorical data and model associations between observed variables that provide an imperfect measure of a non-observable (latent) variable. The discrimination of subgroups (also called classes) arises from an evaluation of response patterns and the probabilities associated with each of the observed variables. This allows us, for example, to identify a group of subjects with a high probability of reporting low levels of social support, according to their responses to items on a scale (Collins and Lanza, 2010).

LCA is increasingly used in public health studies to identify metabolic syndrome (Boyko et al., 2012), immunological patterns (Figueiredo et al., 2013) and incidence of respiratory symptoms in children (Spycher et al., 2008), and has proven to be an efficient method for disentangling groups and creating more homogeneous subgroups. In relation to instrument consistency, LCA has been used to identify the subtypes of Antisocial Personality Disorder (Bucholz et al., 2000), Attention Deficit/Hyperactivity Disorder (Rasmussen et al., 2002), and patterns of problem behaviour (Lang et al., 2006). These studies aim to improve diagnostic validity by relying on empirical evidence, and moving towards more valid and useful classification criteria.

Working with a large sample of women to whom the Medical Outcomes Study Social Support Scale was applied, this study aims to distinguish subgroups with different levels of perceived social support by using the LCA technique. We also seek to analyze the agreement between the classifications as defined by an analysis of response patterns using LCA, compared to that obtained using the median as a cut-off point of the original score, as used by many investigators. Finally, we test whether the different levels of perceived social support identified here are associated with prevalence of Common Mental Disorders (CMD).