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# Are bad health and pain making us grumpy? An empirical evaluation of reporting heterogeneity in rating health system responsiveness

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ABSTRACT

In recent years, the concept of responsiveness has been put forward as one desirable measure of the performance of health systems. Responsiveness can be defined as a system's ability to respond to the legitimate expectations of potential users regarding non-health enhancing aspects of care. However, since responsiveness is evaluated by patients on a categorical scale, their self-evaluation can be affected by the phenomenon of reporting heterogeneity. A few studies have investigated how standard socio-demographic characteristics influence the reporting style of patients with regard to responsiveness. However, we are not aware of studies that focus explicitly on the influence that both the patients' state of health and their experiencing of pain have on their reporting style on responsiveness. This paper tries to bridge this gap by using data regarding a sample of about 2500 patients hospitalized in four Local Health Authorities (LHA) in Italy's Emilia-Romagna region between 2010 and 2012. These patients have evaluated 27 different aspects of the quality of care, concerning five domains of responsiveness (communication, privacy, dignity, waiting times and quality of facilities). Data have been stratified into five subsamples, according to these domains. We estimate a generalized ordered probit model, an extension of the standard ordered probit model which permits the reporting behaviour of respondents to be modelled as a function of certain respondents' characteristics, which in our analysis are represented by the variables "state of health" and "pain". Our results suggest that unhealthier patients and patients experiencing pain are more likely to report a lower level of responsiveness, all other things being equal.


## 1. Introduction

In recent years, the concept of responsiveness has been put forward as one desirable measure of the performance of health systems. Responsiveness concerns a system's ability to respond to patients' legitimate expectations regarding the non-health enhancing and non-financial aspects of health care. "Responsiveness is defined as the way in which individuals are treated and the environment in which they are treated, encompassing the notion of an individual's experience of contact with the health system" (Valentine et al., 2003a). The concept covers eight dimensions of quality of care, perceived in terms of respect for human dignity and of the interpersonal side of healthcare (Valentine et al., 2009). Human rights make reference to concepts such as respecting patient autonomy and dignity, while the interpersonal nature of care (or "client orientation") focuses on patient accommodation and the quality of basic amenities (Rice et al., 2012). The eight domains typically used to represent responsiveness are as follows: *autonomy*, *choice*, *clarity of communication*, *confidentiality of personal information*, *dignity*, *prompt attention*, *quality of basic amenities* and *access to family and community support*. Table 1 provides definitions of these domains.

The evaluation of health systems' responsiveness has become an important, evidence-based means of identifying the strengths and weaknesses of health systems, of appraising their evolution over time, and of informing policy reform (Jones et al., 2011). The importance of this instrument has been confirmed at the

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**Table 1**
Domains of responsiveness.

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| *Autonomy*: respect for patients' views of what is appropriate, and allowing patients to make informed choices. |
| *Choice*: an individual's right or opportunity to choose a healthcare institution and health provider, and to request a second opinion and access specialist services when required. |
| *Clarity of communication*: the offering of a clear explanation to patients and family regarding the nature of the illness, together with details of treatment and of any available options. |
| *Confidentiality of personal information*: privacy in the environment in which consultations are conducted, and the concept of the privileged communication and confidentiality of medical records. |
| *Dignity*: the opportunity for patients to receive care in a respectful, caring, non-discriminatory setting. |
| *Prompt attention*: the opportunity to receive care rapidly in emergencies, or readily with short waiting times in the case of non-emergencies. |
| *Quality of basic amenities*: the physical environment and services often referred to as 'hotel facilities', including clean surroundings, regular maintenance, adequate furniture, sufficient ventilation and adequate space in waiting rooms. |
| *Access to family and community support*: the extent to which patients have access to their family and friends when receiving care, and the maintenance of regular activities (e.g. the opportunity to carry out religious and cultural practices). |

*Note*: Source: Rice et al. (2012). The eight domains of responsiveness are defined by the World Health Organization (see Valentine et al. (2003a) for a full exposition of these domains). The response categories available to respondents are: 'very good', 'good', 'moderate', 'bad' and 'very bad'.

international level by the European Ministerial Conference on Health Systems, culminating in the Tallin Charter (WHO, 2008) which points to the importance that policy makers should place on the evaluation of health systems' performance (WHO, 2008). At the national level, the same has been recently confirmed by recent guidelines published by the National Institute for Health and Care Excellence (NICE), a non-departmental public body within the UK Department of Health, designed to guide British policy makers in several areas of healthcare. These NICE guidelines specifically indicate the users' perspective as an instrument with which to evaluate the UK health system (NICE, 2012).

Health system responsiveness has been investigated both by adopting an international comparison perspective (see, for example, Valentine et al., 2008; Blendon et al., 2003; Robone et al., 2011; Rice et al., 2012), and by more fully evaluating this performance indicator at a national level (Puentes Rosas et al., 2006; Pelzer, 2009; Njeru et al., 2009; Kowal et al., 2011; Radishan et al., 2011; Adesanya et al., 2012). Our paper falls within the latter category, since it considers the influence of patients' characteristics on the evaluation of health system responsiveness using Italian data.

Health system responsiveness is usually measured through the self-evaluations of respondents which rate their experiences according to a categorical scale (usually a 5-point scale ranging from "very good" to "very bad"). One common problem is that when individuals are faced with an instrument comprising ordinal response categories, their interpretation of the response categories may systematically differ across populations or populations subgroups, also depending on their preferences and norms (Rice et al., 2010). In such a case, a given level of performance is unlikely to be rated equally by all respondents. This phenomenon has been termed "reporting heterogeneity".

A few studies have investigated how standard sociodemographic characteristics (such as gender or education) influence the heterogeneity in the reporting of health care users about responsiveness (Puentes Rosas et al., 2006; Sirven et al., 2012; Rice et al., 2012). The findings of such studies show that reporting heterogeneity is an issue in the case of self-reporting on the question of responsiveness. However, to the best of our knowledge, there are no studies that specifically focus on the influence that patients' state of health and experiencing pain have on their reporting behaviour with regard to the matter of responsiveness. Valentine et al. (2003b) represents the only paper we are aware of that considers the influence of patients' self-reported health on their reporting of responsiveness. However, they only use this relationship as a control in the regression model, and do not investigate the way in which self-reported health affects the reporting behaviour of patients. Sirven et al. (2012) investigate the influence on responsiveness of much more narrow measured health measures than self-reported health, by using a dummy based on the Euro-d scale, which is considered as a standard measure of depression (Dewey and Prince, 2005), and a dummy indicating whether the respondent has difficulties with basic activities of daily living (ADL) or instrumental activities of daily living (IADL). Moreover, Sirven et al. (2012) only investigate a few of the responsiveness domains we consider in our analysis (for example, they do not consider *dignity* or *confidentiality*). There is evidence in the literature regarding the fact that the experience of pain has a negative influence on patients' satisfaction with clinical outcomes (Baker et al., 2007), but not on non-clinical outcomes such as responsiveness. Our paper helps to bridge these gaps in the literature by exploring a relationship which no other study has explicitly considered before.

Our study uses a representative sample of patients (about 2500 individuals) hospitalized in the Italian Emilia-Romagna Region. The Italian National Health Service (NHS) is based on the principle of the universal coverage and comprehensive insurance of most health risks. It is mainly financed through general taxation, and it provides standard levels of care for the entire population. Central government funds the different Regional Health Services by means of a formula based substantially on a per capita rule, albeit adjusted to take account of certain epidemiological factors. The Regional Health Services allocate funds to Local Health Authorities (LHAs) on a per capita basis, adjusted once again for the aforesaid epidemiological variables. The LHAs use these resources to fund all health care provided to the population under their responsibility, both through providers under their direct control, and through independent public and private healthcare service providers.

Selecting five domains of the instrument developed by WHO for measuring hospital responsiveness, we investigated in a large sample of patients from nine Italian general hospitals, located in 4 LHAs, whether the level of own pain or own health results in reporting heterogeneity of responsiveness. If our hypothesis were proven true, the use of plain responsiveness measures for comparisons of hospitals with different severity should be reconsidered.

## 2. Description of the questionnaire and survey

In order to investigate our research hypothesis, we use a dataset collected by the Agency for Health Care and Social Services of Emilia-Romagna (ASSR) regarding patient satisfaction with the hospital services offered by the Italian NHS. The ethical approval of