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Consistency of priorities for quality improvement for nursing homes in Italy and Canada: A comparison of optimization models of resident satisfaction

Sara Barsanti[a,*], Kevin Walker[b], Chiara Seghieri[a], Antonella Rosa[a], Walter P. Wodchis[c]

[a] Laboratorio Management e Sanità, Institute of Management, Scuola Sant'Anna di Pisa, Italy
[b] Institute of Health Policy, Management & Evaluation, University of Toronto, Canada
[c] Institute of Health Policy, Management & Evaluation, University of Toronto, Institute of Clinical Evaluative Sciences, Toronto Rehabilitation Institute, Canada

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ABSTRACT

The paper seeks to identify aspects of care that may be easily modified to yield a desired level of improvement in residents' overall satisfaction with nursing homes, comparing data across Canada and Italy. Using a structured questionnaire, 681 and 1116 nursing home residents were surveyed in Ontario in 2009 and in Tuscany in 2012, respectively. Fourteen items were common to the surveys, including willingness to recommend (WTR), which was used as the dependent variable and measure of global satisfaction. The other analogous items were entered as covariates in ordinal logistic regression models predicting residents' WTR in each jurisdiction separately. Regression coefficients were then incorporated into a constrained nonlinear optimization problem selecting the most efficient combination of predictors necessary to increase WTR by as much as 15%. Staff-related aspects of care were selected first in the optimization models of each jurisdiction. In Ontario, to improve WTR the primary focus should be on staff relationships with residents, while in Tuscany it was the technical skill and knowledge of staff that was selected first by the optimization model. Different optimization solutions might mean that the strategies required to improve global satisfaction in one jurisdiction could be different than those for the other jurisdictions. The optimization model employed provides a novel solution for prioritizing areas of focus for quality improvement for nursing homes.

1. Introduction

Measuring the quality of nursing homes (NHs) has become a generally accepted practice, to varying degrees of formality, in many developed nations [1]. In some OECD countries, such as Australia, England, Finland, the Netherlands, Canada, and the United States, NH quality measurement is understood to include subjective resident perceptions of quality, such as residents' satisfaction, which are complementary to the more objective clinical indicators of quality, such as the incidence of pressure ulcers or pain, available from resident functional assessment data [2,3]. The extent to which subjective measures are included in systematic quality measurement, however, has been limited [1].

Surveys to measure perceptions and experience typically include various items relating to different domains (as combinations of items) such as comfort, safety, dignity, and involvement in care among others. Subjective resident perceptions of quality may include overall ratings of care or experience or "willingness to recommend" (WTR). Examining the relationships between overall ratings and specific items or domains can provide policy makers and providers with guidance on which domains are most important to NH residents and might be prioritized for quality improvement. One such analysis found that being treated with dignity and staff-resident relationships were the two domains most strongly associated residents' overall ratings of quality in Ontario, Canada [4]. Similarly, of 11 domains tested, Burack et al. [5] found that being treated with dignity had the strongest association with resident's overall satisfaction with NHs in New York State, concluding that this domain should be a starting point for NH improvement. In making this conclusion, Burack et al. [5] failed to consider how well NHs were already performing on each of the domains tested. In fact, being treated with dignity was their highest rated domain and, therefore, had the least room for improvement.

More detailed studies have assessed both NH performance on specific items or domains alongside approaches to identifying pri-

* Corresponding author at: Laboratorio Management e Sanità, Institute of Management, Scuola Sant'Anna di Pisa, Piazza Martiri della Libertà 27, 56125, Italy.
E-mail address: s.barsanti@sssup.it (S. Barsanti).

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orities for improvement. One study conducted in the Netherlands prioritized items for NH improvement based on both their current ratings and respondent ratings of the importance of each item [7]. They identified working with a care plan and shared decision making as priorities for quality improvement. In a study from the United States, Becker & Kaldenberg identified priorities by combining (low) performance and (high) correlations with willingness to recommend the NH [6]. Although being treated with dignity, nurses' skill and nurses' friendliness were most strongly correlated with willingness to recommend, they identified services provided by aides (items included information provision, assistance with meals, response to the call button and responsiveness to ideas) as the domain that should be the top priority for quality improvement because of its high correlation with willingness to recommend *and* its low rating.

Implementation of user-oriented care (stressing personal autonomy, dignity, respect, quality of life, etc.) is still an ongoing challenge for elderly care [8]. As jurisdictions seek to improve NH quality, if there is limited local data, policy makers and NH providers may look elsewhere, particularly to territories with broadly similar structural characteristics, for change ideas and opportunities. The above cited studies suggest services provided by aides and care planning should be prioritized. However, these priorities are only valid if: 1) the selected domains have the same importance in each jurisdiction, and 2) current performance levels on these domains are the same in each jurisdiction. It is not clear whether the distinct priorities across countries, as identified above, reflect differences in the value placed on particular domains in different countries or differences in performance of NHs in different countries. To the best of our knowledge, no study has compared which domains of NHs are associated with overall measures of satisfaction and should be prioritized for quality improvement across multiple jurisdictions.

The purpose of this paper is to address this gap in knowledge. We propose that optimization techniques [9–11], that identify domains with low current performance, but strong relationships with overall performance ratings, can be applied to resident survey data from Ontario, Canada, and Tuscany, Italy, separately, to identify priorities for improvement in NHs. We explore whether the items selected by optimization models, and, therefore, those domains on which healthcare managers and professionals should focus their improvement strategies, are the same in the two jurisdictions. Such information can be taken into account to improve service by targeting and prioritizing those important, but low performing, domains [12].

2. Methods

2.1. Study setting

Tuscany (Italy) and Ontario (Canada) were selected as the settings for this study because NHs in these jurisdictions have many similarities and because they both have a strong interest in health care quality measurement. With respect to the first reason, regulation and quality assurance for NHs is the purview of the centralized government (national and provincial governments in Italy and Ontario, respectively), but other activities, including distributing funding and access to NHs, have been regionalized in both Italy and Ontario. NHs receive public funding for nursing and personal care, but residents are required to contribute a co-payment, the amount of which is conditional on the resident's, and, in Tuscany, also their family's ability to pay, and is subsidized by the government. While NHs are publicly funded in both Tuscany and Ontario, there are both privately and publicly owned facilities. In both jurisdictions, admission to NHs is needs-based (individuals requiring frequent assistance with personal care and onsite 24-h nursing care and supervision), but once eligibility has been determined by regional authorities, residents may select which homes to apply to. A more detailed description of LTC in Ontario and in Tuscany is reported in the appendix of this manuscript.

Regarding the second reason for the study setting, Tuscany and Ontario are two jurisdictions with strong interest in health care performance measurement and management [13–15] and both are at formative stages in the development of their performance measurement and management for LTC [16–18]. Moreover, Tuscany and Ontario both have a particular interest on patient and resident satisfaction [19–21], which is less commonly, included in performance measurement systems for LTC [4,18]. At the provincial-level, Ontario relies mostly on objective measures of quality from administrative datasets and has had little systematic measurement of user-reported indicators. In Italy, quality measures have been mostly limited to measures of service coverage for older people [22]; however, quality measures in some regions, such as Tuscany, include patient reported indicators [18].

2.2. Data collection

2.2.1. Ontario

Structured interviews with residents from 30 NHs in Ontario were conducted from November 2008 to February 2009 using a modified version of the Smaller World Survey of Resident Satisfaction [23]. This survey included 66 items on a variety of domains including (the number of questions pertaining to each domain is shown in parentheses): comfort (7), privacy (2), spiritual (1), security (5), food (7), activity (9), staff (3), dignity (8), autonomy (10), relationships (4), clinical care (5) and global satisfaction (5). Most items used a three point scale (Yes, Sometimes, No) with not applicable and do not know options.

The sample of 30 NHs was selected from a group of 72 NHs, which had previously participated in senior management and staff surveys conducted by the study team. All NHs in Ontario were first invited to participate in the senior management survey. Of the 353 NHs that participated in this survey, 100 were randomly selected, stratified by profit-status, and invited to participate in the staff survey. In addition to participating in these surveys, to be eligible for the resident survey, NHs had to have at least 80 English-speaking residents, have adopted the Minimum Data Set Resident Assessment Instrument, and be located within a 2-h drive from Ottawa or Toronto, Ontario. Of the 72 homes that participated in both the senior management and staff surveys, 40 met these criteria. 30 homes were randomly selected to participate in the resident survey; 6 homes refused and were replaced from the remaining 10 homes using random selection. Residents were pre-screened by NH staff for inclusion in the study. Exclusion criteria included severe cognitive impairment measured using the Minimum Data Set Cognitive Performance Score (CPS 5 and 6) and non-English speaking. Home administrators compiled a list of eligible residents and provided their names, birthdates and length of stay to the study team, which was used to randomly select a target of 30 residents per home. Trained interviewers approached these residents to seek their participation. Agreeable residents were brought to a private location within the home where consent was taken and the structured interviews took place. If residents were unwilling to be approached by study interviewers to explain the study or were unable to provide informed consent, they were replaced using random substitution. Data collection followed the protocol approved by the University of Toronto Health Sciences Research Ethics Board.

2.2.2. Tuscany

In 2011, all 298 NHs in Tuscany were first invited by the Regional Authorities to participate in the development of a performance