

## Editorial

# Adjustment for patient characteristics in satisfaction surveys

The ideal quality indicator measures a specific aspect of the quality of health care and nothing else. Unfortunately, this is often not the case, particularly for outcome indicators, which often reflect a variety of patient characteristics that are not under the provider's control. Take patient satisfaction surveys: we all know of grumpy patients who complain even when they receive the best care, and of patients who are thankful and uncomplaining even in the worst conditions. Comparisons of mean satisfaction scores between health care providers who do not serve the same profile of patient population may be biased. Unadjusted results of satisfaction surveys are often mistrusted by providers, particularly those who fare poorly in comparison with others, and are therefore not used to improve care.

## Current practice

A common solution is to perform statistical adjustment of satisfaction scores for any available patient characteristics, such as age, sex, education, and health status [1–3]. For example, in this issue of the Journal, Lin *et al.* [4] adjust their comparison of patient satisfaction in solo and group practices for patient age, sex, education, and type of illness. The underlying model is that patient satisfaction is determined by two separate sets of causes: the health care provider, and patient characteristics, which act as confounders (Figure 1). Statistical adjustment removes the influence of these confounders, and produces a presumably purer and more trustworthy measure of patient satisfaction.

This model would work fine if health care was a standardized product directed at customers with identical needs. But health care is finely individualized, and patient characteristics determine the nature of the health care that is provided. By adjusting for patient characteristics, we may adjust unwittingly, at the same time, for associated characteristics of health care, that is, for quality of care. This would amount to over-adjustment. Over-adjustment is a serious concern because variables that are adjusted for become invisible to users of quality indicators. When we decide to adjust for a variable, we say in effect that nothing can be done about its influence on satisfaction. This is a serious decision, which should not be taken lightly.

## Detailed model

Let us examine more closely how patient characteristics relate to patient satisfaction (Figure 2). Patients give different

ratings of satisfaction with care because they differ in (i) the type and specific aspects of health care provided to them, (ii) their perception and experience of care, (iii) their expectations about care, and (iv) their tendency to praise or criticize—to rate high or low—while completing a survey questionnaire. The part about health care is a bit tricky: some differences in health care are legitimate and reflect appropriate adaptation of care to the patient's health problem, others are undesirable and reflect poor quality. The depicted model is probably incomplete. The point is that most paths leading from 'patient characteristics' to 'satisfaction assessment' interact with paths leading from 'health care provider' to 'satisfaction assessment'. Hence the risk of over-adjustment. The only interesting exception is what I call here the tendency to give a positive opinion, which is completely out of the provider's sphere of influence. It would be nice if we were able to adjust for this tendency when comparing providers, if only we knew how to measure it.

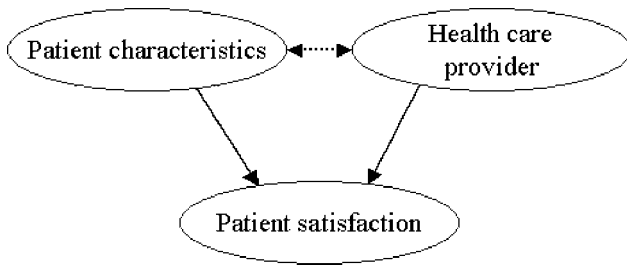
## Socio-demographic characteristics

To illustrate these issues, consider the common finding that older patients report higher satisfaction scores than younger patients [1–3]. Suppose that hospital A caters to younger patients than hospital B does, and hence has lower satisfaction scores. Should we adjust for age or not? If the age-related difference is due to younger patients being inherently more able to express criticism than older patients, perhaps due to differences in education between cohorts, adjustment for age would be advisable. But if the age difference is due to hospitals being better suited to fulfil the expectations of older generations, it could be argued that hospital A is indeed doing a less satisfactory job than hospital B.

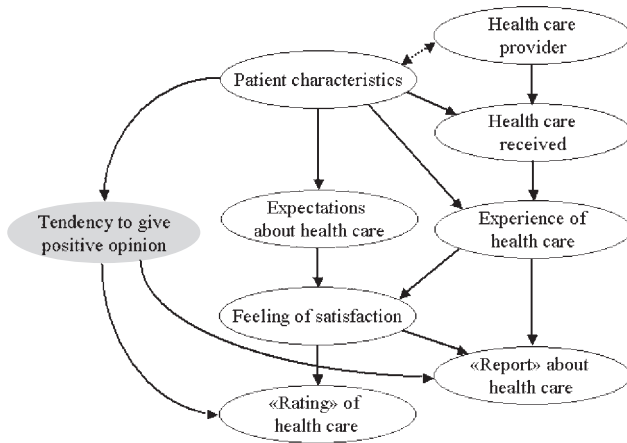
Similarly, disabled persons [5] and racial or ethnic minorities [6] are more likely to report poor quality of care. Is this because these groups have a different way of answering satisfaction questions, or because they experience discrimination or health care that is insensitive to their needs? The latter explanation sounds too plausible to be easily dismissed. If it were true, adjusting for disability status or ethnic group would erase meaningful differences in patient satisfaction.

## Health status and health care

However, patients may express different levels of satisfaction because they received different types of health care for



**Figure 1** Simple model for case-mix adjustment of satisfaction scores. Satisfaction is influenced by two separate groups of variables: patient characteristics and health care characteristics.



**Figure 2** Detailed model for case-mix adjustment of satisfaction scores or patient report scores. Patient characteristics are associated with the type of health care received, how care is experienced by the patient, expectations regarding care, and a global tendency to give a positive or negative opinion. These intermediate variables influence ratings or reports of health care.

perfectly legitimate reasons. Consider health status. Poor health, both mental and physical, is associated with lower satisfaction with hospital care [7]. Sicker patients undergo longer hospitalizations, receive more aggressive treatment, and have a greater likelihood of suffering from medical complications. Their experience is almost inevitably more unpleasant than, say, that of an otherwise healthy patient who is admitted for minor surgery. On the other hand, a sick and perhaps depressed patient may tend to give lower ratings, so that adjustment for mental health may be advisable. Regarding physical health, the critical question is: to what extent was the unpleasant experience of sicker patients inevitable even with the best care—it would be fair to adjust for this—and how much of it was avoidable, being caused by sub-optimal quality of care—no adjustment allowed for that. An additional concern is that when health status is measured at the same time as the patient’s satisfaction with care, poor health may simply reflect poor care. Adjustment for post-treatment health is

probably not a good idea. On the other hand, pre-treatment health status and the nature of the clinical problem that caused the admission deserve to be considered for inclusion in a case-mix adjustment model for satisfaction survey results.

## Ratings and reports

It is sometimes argued that ratings are subjective, and hence vulnerable to a host of biases, while reports are objective; therefore patients’ feelings, expectations, and rating tendencies are irrelevant for reports, and no adjustment is necessary. In reality, the distinction is not that clear (Figure 2). Most reports rely on subjective appraisal. When a patient is asked whether he was informed about the side effects of medications ‘completely’, ‘in part’ or ‘not at all’, he has to average the amount of information he has received for each medication, and decide which of the response options fits best. This process may be influenced by the respondent’s mood, tendency to rate with more or less severity, desire to please the provider, or overall feeling of satisfaction with care. Different frameworks for case-mix adjustment of ratings and reports of care are in my opinion unnecessary.

## Conclusion

We need a more explicit framework for deciding what patient variables should be adjusted for in patient satisfaction surveys. The model depicted in this editorial (Figure 2) is a starting point. We should think about the reasons why case-mix adjustment is performed, define and operationalize variables that are relevant in a given situation, and develop robust methods for their measurement, instead of relying by default on whatever variables are recorded in the administrative database.

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