Combining Quantitative and Qualitative Research – a Case Study from Survey Methodology

KRISTIINA MANDERBACKA, DSocSc
Senior researcher
National Research and Development Centre for Welfare and Health
Health Services Research Unit

MARJA JYLHÄ
Professor
School of Public Health
University of Tampere

Abstract

This paper presents a case study of combining two different approaches to examine the content and continuity of a single-item survey measure of self-rated health. Results from a qualitative and a quantitative study are discussed in order to illustrate the way the methods can complement each other in methodological research of survey measures. The results of the two studies are discussed in relation to one another, and the potential advantages of combining methods in methodological research of survey measures are discussed also in more general terms. In addition, other ways of combining the approaches in methodological studies are suggested.

Keywords: survey methods, self-rated health, health status indicators

Introduction

The health of populations and population groups, and factors influencing them, are important issues both in population research and in terms of health policy development. In addition to data on mortality, measures on morbidity, functional status, health behaviour and use of health services are used to collect information about a population's health. At present, various research instruments have been developed to capture the overall health status of the respondents. These include complex summary measures and health profiles as well as single-item indicators. Summary measures, such as the Nottingham

Health Profile (Hunt and McKenna 1991) and the Short Form 36-instrument (Ware and Sherbourne 1992), compile evidence from several dimensions of health to single scores or score profiles. One of the most common indicators used in population research is the self-rated health measure asking the respondent to assess his or her overall health on a one-dimensional scale of (usually) three to five points, e.g. from excellent to poor. It is also one of the measures recommended for health monitoring by the WHO (de Bruin et al. 1996) and the European Union Commission (COM95, 449).

In a survey approach, methodological research deals with issues of reliability and validity, usually analysed with sophisticated statistical methods specially developed for these purposes (see e.g. Bohrnstedt 1983, Groves 1989). The self-rated health measure has received much methodological interest. It has been found to have good overall reliability (see, e.g. Lundberg and Manderbacka 1996, Martikainen et al. 1999) as well as good predictive validity specially for mortality (for recent reviews, see Benyamini and Idler 1999, Idler and Benyamini 1997) but also for functional decline (Ferraro et al. 1997, Idler and Kasl 1995) and subsequent morbidity (Blank and Diderichsen 1996). There is also evidence of its concurrent validity in relation to more complex health measures (see Rowan 1994). As for its content validity, a number of studies have examined its 'determinants' or content domains (for a review, see Bjorner et al. 1996).

The studies usually agree that self-rated health is associated with the number and severity of diagnosed medical conditions. Further, functional ability, physical fitness, experienced symptoms, psycho-social well-being, and use of health services have been found to be connected to self-rated health. In general, it seems that in population studies self-rated health is more or less strongly associated with any other indicator of health status. Thus, self-rated health is clearly a measure of health status and not, as sometimes suggested, predominantly a measure of general well-being. However, not much is known about whether the domains that are important to 'poor' self-rated health also are influential when health is assessed as 'good', or, in general, which elements people consider, and in what way, in evaluating their health in global terms.

This paper presents a case study of combining two different approaches to examine the content and the continuity of self-rated health. Results from a qualitative and a quantitative study are discussed in order to illustrate the way in which the methods can complement each other in methodological research of survey measures. In a way, both studies share the same research question in that both examine which elements of health are combined when assessing overall health and whether the same elements are combined throughout the scale, i.e., independent of whether health is assessed to be excellent, average or poor. From the survey research perspective, both of these approaches aim at examining the content validity of the self-rated health measure.

The quantitative study: the continuity of the self-rated health measure

The first study discussed here (Manderbacka et al. 1998) examined the continuity of self-rated health using data from the 1994 Finnish Survey of Living Conditions (SLC), a cross-sectional face-to-face interview survey collected by Statistics Finland. The data is representative of the Finnish non-institutional adult population. On the statistical level, the study examined the associations between two sets of health-related variables and self-rated health. The independent variables included (1) measures of risk factors and (2) measures of health problems and functional limitations. Whether self-rated health is continuous or not is not only interesting theoretically, but also has practical consequences: If different parts of the self-rated health measure are determined by different elements of health, the use of the measure as a scale in statistical analysis would be erroneous.

The measures of risk factors included body mass index, leisure time physical exercise and alcohol use, and the variables of health problems included a general measure of long-standing illness, a summary measure of limitations in mobility, short-term disability and indices of somatic and psychological symptoms. The statistical analyses were made using logistic regression analysis. Separate models were fitted for two dependent variables: (1) average self-rated health as opposed to excellent/good health and (2) poor, i.e., poor or very poor self-rated health as opposed to excellent/good health. The data, indicators, methods and results are presented in detail in the original paper (Manderbacka et al. 1998).

To briefly summarise the findings, with the exception of alcohol use, the studied risk factors and health behaviours showed a clear association throughout the self-rated health measure. The more unhealthy the behaviour or the larger the health risk, the greater were the odds for average and poor health. All variables concerning health problems showed a clear association throughout the self-rated health measure. The more problems were reported, the higher were the odds for average and especially for poor health. Exceptionally high odds ratios were found for long-standing illness and limitations in mobility. For those reporting long-standing illness, the odds ratios for average health vs. excellent or good health were 2.98 for men and 3.99 for women, and the odds ratios for poor health were 19.2 and 35.8, respectively, compared to those without long-standing illness. Although the confidence intervals were wide, the lower limits were well above 1.00. The figures were similar for limitations in mobility.

In accordance with previous results concerning the content domains of self-rated health (see Bjorner et al. 1996), these results suggest that health problems and functional

limitations are important elements of self-rated health. The exceptionally high odds ratios suggest a close conceptual connection. The results also suggest that risk factors and health behaviours are important elements in self-ratings, which is also in accordance with previous studies. The association between short-term disability and self-rated health is unexpected, since previous research has suggested that acute illnesses do not affect self-ratings – whether they impose restrictions on everyday activities or not (Goldstein et al. 1984). The results are in line with those of Mackenbach and colleagues (1994) who found that socio-demographic and behavioural factors have, in general, similar but mirrored patterns of association with excellent and poor health.

Nevertheless, the results also raise some questions. First, statistical associations between different sets of variables do not necessarily mean that the respondents actually consider these elements of health when making the assessment. The second question is whether the most important elements of health are included in the survey data, or whether some basic elements were missed and whether these would imply discontinuity.

The complementary study: how do the respondents explain their health assessments?

To find out how the respondents construct their answers to questions about self-rated health, a small-scale qualitative study was conducted on a sub-sample of the respondents of the SLC. Semi-structured interviews were conducted with 42 respondents several months after the original survey interview. The interview schedule included questions about the background characteristics of the respondent, a question asking the respondent to describe his or her health, and (most of) the SLC questions on health. After presenting each survey question, direct questioning (e.g., Groves et al. 1992) was used to ask the respondent to state the reasons for answering the way he or she did; for instance: "What makes you say so?" and probes like "Is there anything you would like to add?" were used. The interviews were taped and transcribed verbatim. A qualitative content analysis was made to find the themes brought up by the respondents when giving reasons for their self-ratings. The data, methods and results are presented in detail in the original paper (Manderbacka 1998).

The respondents were found to present, in general, multiple elements as reasons for their assessment. A basic element mentioned was health problems and the assessment ranged from 'excellent' to 'poor' depending on their presence and severity and on functional limitations. Experienced symptoms as well as everyday illnesses, i.e. common contagious diseases, were found to modify the assessment. A group of respon-

dents was also found who, along with health problems, also presented fitness and health behaviour as a basis for their assessment. In these cases the health assessment was strongly qualified with assessments of one's physical fitness and mental vigour, which in turn were connected by the respondents to health(y) behaviours.

The results were, in general, in line with those from the quantitative study presenting basically the same elements of health as reasons for self-ratings. The results also indicate that acute illnesses would have an effect on self-ratings of health. Although the results found among the 42 respondents cannot be generalised to the whole SLC population, they give credibility to the interpretation that the finding in the quantitative study may not merely be an artefact related to the indicator used to measure acute illnesses. Compared with the quantitative results, the qualitative study gives a more complex picture of self-ratings of health. The results also suggest some elements of health that were largely missed in the quantitative data, namely physical and mental fitness.

In addition, the results suggest that the health that respondents assess in a survey interview is a varied, concrete, contextual, often multidimensional concept that includes even contradictory elements combined in different ways by the respondents to form 'my present state of health'. Further, the respondents enjoy remarkable freedom in choosing which elements of health they take into account, and in what way, when assessing their health. For different individuals, at different points of time and, most likely, also in different situations, different elements of health are more important components of self-ratings than others. As certain health problems, disease or functional limitations appear, it is very likely that they are at least considered in the assessments of health. However, it is less clear that the absence of individual health problems was actively taken into account in self-ratings of health.

The contextual and complex nature of self-ratings does not, however, imply that they were completely individual or arbitrary. These studies, as e.g. the studies by Jylhä and colleagues (Jylhä 1994, Jylhä et al. 1998), indicate that at least people in Western culture largely share the understanding of the dimensions that belong to the realm of 'health' and, thus, constitute the relevant dimensions to be taken into account in the self-ratings of health.

Combining methods in methodological research

Beyond new insights concerning the self-rated health measure, what more can be learned from the example presented? First, the theoretical frameworks of the two studies come from different traditions. The quantitative study deals with survey methodology and what Groves (1989) calls the psychometric perspective dealing with questions of reliability and validity. The aim of the qualitative study was to look at the survey interview

as an interactive episode (e.g. Schaeffer 1991). It draws on ideas of cognitive psychology (e.g. Tanur 1992) and discourse analysis (e.g. Potter and Wetherell 1987) in trying to examine what the respondents are talking about when they are talking about their health in general. It seems clear that the theoretical frameworks behind the quantitative and qualitative studies cannot readily be combined and that this should not be attempted, either. As Brannen (1992) suggests, each data set should rather be related to the theoretical framework underpinning it, and the ways the data sets complement or contradict each other should be analysed.

Secondly, apart from the different theoretical frameworks, the qualitative and quantitative methods have rather different strengths and weaknesses (see e.g. Brannen 1992, Bryman 1992, Hammersley 1992). The quantitative approach is well suited and has sophisticated techniques for analysing issues of validity and reliability of survey measures on the statistical level, whereas the qualitative approach is better suited for examining ambiguous or undefined concepts, processes and contextual detail. The approaches are clearly not substitutable with each other – either in methodological or in empirical studies. Instead, they need to be used to study different research questions or different aspects of the research question.

Health can be seen as an example of complex concepts, the content and meaning of which cannot be defined precisely beforehand. When studying complex concepts like health, qualitative research can be useful in giving answers to the question: 'What is it?', that is, to explore the dimensions that are major constituents of health to the respondents and in the everyday world. After gaining a better understanding of the concept studied, quantitative data and methods can be used to study the prevalence of these factors, and/or their association with other indicators on a population basis.

There are different ways in which the qualitative approach can complement the quantitative approach in methodological studies both of the survey indicators and of the survey interview. In the example presented, the qualitative approach was used to gain a more comprehensive and detailed picture of the content and meaning of a survey health question. In addition, the qualitative approach can be used in studying the ways in which the meanings of the survey indicators are negotiated in the interview, which can add to our understanding both of the indicators and of the survey interview as an interactive process. Moreover, qualitative research can be used to examine cultural differences in the content and determinants of 'health'. This kind of information would help to understand and interpret results of quantitative comparative studies across different countries and cultures.

Finally, conducting two types of research is a difficult and time-consuming task – especially since it is rare for a single researcher to be equally competent in both qualitative and quantitative methods or to be equally well oriented in their theoretical backgrounds.

Simultaneously, combining data and methods is also a learning experience giving the researcher a possibility to increase both analytical skills and insights into the theoretical traditions behind each approach. When dealing with different frameworks, study questions, and methods of analysis we also have to consider the tensions between theoretical frameworks as well as the relationships between results produced through different data and methods (Brannen 1992). This in turn might give us new insights into the survey indicators, develop our understanding of the theoretical ideas behind different approaches, and show ways in which to develop the survey interview as an interactional event.

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