

# **Assessing quality in cross-country comparisons of health systems and policies: towards a set of generic quality criteria**

Mirella Cacace, Stefanie Ettelt, Nicholas Mays and Ellen Nolte

Mirella Cacace (corresponding author), Visiting Professor of Regional Health Economics, Leuphana University Lüneburg, Scharnhorststrasse 1, 21335 Lüneburg, Germany

Stefanie Ettelt, Lecturer in Health Policy, Department of Health Services Research and Policy, London School of Hygiene and Tropical Medicine, London WC1H 9SH, UK

Nicholas Mays, Professor of Health Policy, Department of Health Services Research and Policy, London School of Hygiene and Tropical Medicine, London WC1H 9SH, UK

Ellen Nolte, Director Health and Healthcare, RAND Europe, CB4 1YG, Milton Road, Cambridge, UK

## Abstract

There is a growing body of cross-country comparisons in health systems and policy research. However, there is little consensus as to how to assess its quality. This is partly due to the fact that cross-country comparison constitutes a diverse inter-disciplinary field of study, with much variation in the motives for research, foci and levels of analyses, and methodological approaches.

Inspired by the views of subject area experts and using the distinction between variable-based and case-based research, we briefly review the main different types of cross-country comparisons in health systems and policy research to identify pertinent quality issues.

From this, we identify the following generic quality criteria for cross-country comparisons: (1) appropriate use of theory, (2) explicit selection of comparator countries, (3) rigour of the comparative design, (4) attention to the complexity of cross-national comparison, (5) rigour of the research methods, and (6) contribution to knowledge. This list may not be exclusive though publication and discussion of the list of criteria should help raise awareness in this field of what constitutes high quality research. In turn, this should be helpful for those planning, undertaking, or commissioning, cross-country comparative research.

## **Introduction**

There has been a long-standing interest in cross-country comparisons of health systems and policies among policy analysts and policy makers. However, while the body of literature in the field has expanded over time, less attention has been given to the systematic assessment of the quality of studies in the field. Arguably, the concept of ‘quality’ itself is problematic, given that it is multi-dimensional and means different things to different audiences and in different circumstances. While there are assessment tools for some types of research or methods [1,2], these are not designed to capture the particular challenges of cross-country comparisons of health systems and policies. Furthermore, research on health systems and policies constitutes a diverse inter-disciplinary field of study, with much variation in relation to rationales for research, disciplinary perspectives, foci and levels of analyses, and methodological approaches.

In this paper, we attempt to identify criteria that may serve as a useful guide to assess the quality of cross-country comparative health policy research. Our interest in this topic was stimulated by participation in the European Health Policy Group (EHPG), a group that has met twice a year since the early 2000s to discuss research relating to health systems and policies in Europe and beyond. The question of what distinguishes more and less illuminating cross-country analyses has formed the basis of many of the EHPG’s discussions. As a result, in spring 2011, we invited EHPG members to define what they considered to be ‘high quality’ work in international health system comparisons, with the opportunity to nominate up to five publications and to explain why they regarded these as high quality comparisons. The survey was completed by eleven EHPG members representing different disciplinary backgrounds and countries (the US, the UK, Germany, the Netherlands and Italy). With two respondents cooperating, we received a total of ten responses.

The most frequently mentioned indicators of high quality in cross-country comparative studies identified by survey respondents were: the ability to explain a health policy or health system phenomenon; a contribution to policy learning of practical relevance for policy-makers; the application of theory to inform the analysis; the use of a consistent comparative framework; the judicious selection of comparator countries; the availability and appropriate use of data; and an awareness of context and cultural sensitivity. We have used these views as

a point of departure to help develop a comprehensive set of criteria applicable to different types of cross-country comparison.

We define ‘health systems and policies’ as the organisation and governance of health care and wider health policy at the macro-level (countries and regions), which include “the issues related to the organizational structure, the model of financing, the regulation and planning of the system, the ways to create physical and human resources and to provide services” [3,4]. By ‘cross-country comparison’ we mean “an approach to knowing social reality through the examination for similarities and differences between data gathered from more than one [country]” [5]. We acknowledge that the geographical boundaries of health systems are not always identical with territorial or political boundaries [6] and that health care in some countries is argued to consist of several sub-systems. Our main focus is on studies which concentrate on countries as units of comparison, recognising that cross-country comparisons are sometimes undertaken by studying parts of each system.

We do not discuss the challenges encountered in undertaking cross-national comparisons, such as the complexities involved in accessing comparable data or standardising definitions. Rather, our interest is in developing potential criteria that may serve as a useful guide to assess the quality of cross-country comparative health policy research.

## **Cross-country comparisons of health systems and policies**

There is debate as to whether cross-country comparison, and comparison in general, constitutes a distinct method to be set alongside the experimental, statistical and case study method [7], or whether it is simply an area of interest within established disciplines (such as comparative politics) [8]. Lijphart [7] suggests that comparisons are a “broad-gauge general method, not a narrow specialised technique”. In line with this suggestion, we see cross-country comparisons as a distinctive field of interest, reliant on comparison, which we interpret as a distinct method.

While it can be argued that all scientific research is comparative in nature, to some degree [9], cross-country comparisons explicitly examine the differences or similarities between national (sub-) systems and policies. In contrast to other types of social policy research, cross-country comparison is a particularly diverse field that faces a distinctive set of challenges because of

its focus on “large macro-social units” [10]. Cross-national comparisons therefore deal with entities of substantial complexity, both as wholes and in their parts, such as their ways of financing, approaches to service delivery, regulation, or the methods they use to assess the performance of providers.

## **Rationales for cross-country comparisons**

Marmor et al. distinguish three purposes for undertaking cross-country comparative work in the field of health systems and policies: learning *about* national systems and policies; learning *why* they take the forms they do; and learning lessons *from* other countries for application elsewhere [11]. Learning *about* systems and policies in other countries focuses on exploring differences and similarities; typically, such analyses remain largely at a descriptive level although they frequently form the basis for more analytical analyses. Comparisons of this nature are frequently labelled country profiles or reports. Examples include early work by the OECD [12,13], as well as the health system reviews published by the European Observatory on Health Systems and Policies [14] or the Commonwealth Fund’s international profiles of health care systems [15].

The second group of studies (“learning why”) aims to explain why systems and policies exist the way they do and why they have developed in a certain way. These studies commonly seek to explain an observation – a ‘puzzle’ – from which they try to generalise by identifying factors that appear relevant to generating a particular outcome. Studies falling into this category can serve a range of purposes, such as testing a theory and its generalisability; generating hypotheses; developing a classification or typology; tracing processes (e.g. of policy implementation) over time; explaining past developments; or predicting future trends [8]. Most of these studies are retrospective [16] and tend to be of limited practical use for policy makers [11]. Notable examples include Immergut’s analysis of the influence of political institutions on the trajectory of health policies in Sweden, France and Switzerland [17], and Tuohy’s study, which seeks to explain health policy change and stability in the United States, Britain and Canada by comparing the distinctive institutional design of these systems and the resulting “logics” of change [18].

Studies in the third category of cross-country comparative research (“learning from”) seek to understand systems, processes and developments in one group of countries to inform policy learning in another. One of the strengths of this approach stems from the observation that

political events and processes in one context can often be clarified and illuminated by comparing them with similar events and processes in other contexts [9]. The focus is often on a particular policy challenge common across countries and on how different systems address this issue so as to identify ‘best practice’ and/or the potential to transfer policy or practice from one country to another [16,19]. Comparator countries can be seen as ‘laboratories’ for experimentation [20], and experiences drawn on to develop policies and system solutions for domestic policy problems. Examples for these types of studies include the comparative studies by the European Observatory on Health Systems and Policies [21,22] , and studies published as part of the Commonwealth Fund’s International Program in Health Policy and Innovation [23].

The purpose of a study determines the choices made by the researchers about the level of analysis, the research method, or the use of theory and other factors shaping the study. In the analysis that follows, we draw attention to differences in the purposes of studies where they are likely to matter in relation to criteria for the quality of cross-country comparisons.

### **Distinguishing comparative designs: variable-oriented and case-oriented cross-country comparisons**

There are a number of ways of classifying cross-country studies. Lor [24] helpfully distinguishes between *comparative research design*, namely whether a study compares a larger or smaller number of cases; *comparative strategy*, which draws on Ragin’s distinction between variable-oriented and case-oriented research [10]; and *general methodology*, i.e. the type of methods of data collection (see Figure 1).

(Figure 1 about here)

A *variable-oriented* strategy as identified in Figure 1 seeks to assess the relationship between aspects of cases (variables) across a sample of observations, usually in order to be able to specify general patterns that hold for the sample as a whole, thereby enabling predictions or inferences to be drawn [10]. The focus of the analysis is on the variables not the cases from which they are derived. Causation is inferred from co-variation rather than from the combination of factors present (conjunctures) when a particular outcome is also present. In contrast, a *case-oriented* strategy aims to understand the dynamics of a small number of cases, selected for their analytical or theoretical significance. Causality is seen as conjunctural; that

is, effects are created by the precise combinations of factors present in specific examples of a phenomenon, each taken as a whole.

The two comparative strategies tend towards different methodological preferences, although this is not deterministic. Thus, variable-oriented research is often associated with quantitative methods and case-oriented research with qualitative methods, but not invariably. The distinction between variable oriented and case oriented comparisons also affects the selection of case studies for comparison, with the former more likely to draw on a larger number of countries. However, the number of countries selected for comparison is likely to depend on a number of other factors, such as the purpose of the study or the extent to which a country is seen as an entire macro-social unit, which will impact on the number of countries that can be compared confidently. In some cases, it may be more illuminating to select individual regions for comparison across countries rather than entire countries, in particular if a large degree of in-country variation is observable.

This ‘large n’ approach contrasts starkly with the fine-grained, comparative case studies most often undertaken in, say, sociology [8]. In the multi-disciplinary field of health system and policy research, the differences in assumptions, strategies and methods complicate any assessment of quality. In what follows, we discuss the quality issues associated with variable-based and case-based cross-country comparisons. In part, these reflect the usual quality concerns associated with different research methods. However, we particularly focus on the issues that are specific to, or are exacerbated by, cross-country comparisons.

### **Variable-oriented cross-country comparisons of health care systems and policies: examples and challenges**

Variable-oriented approaches to cross-national comparisons of health systems have most often evolved from the health economics perspective [25,26]. Such studies crucially depend on the availability of a sufficiently wide range of variables across a large number of countries over time. Much of the early work examined health care expenditure and its determinants, with later work in the 1980s and 1990s increasingly seeking to understand how different methods of financing and delivering health care contributed to overall spending levels [27–29]. This emphasis on inputs subsequently gave way to an increasing interest in also measuring outcomes, reflecting rising cost pressures and broader concerns about accountability of health systems. A prominent example of this shift was the World Health

Report 2000 with its ranking of the world's health systems [30]. The report not only played an important role in stimulating a wide ranging debate on health system performance, but the criticisms of its methods helped identify the outstanding methodological challenges in conducting international comparisons using available data and in interpreting their results [31].

There is now a wide range of international data available that allow for, and are being employed in, cross-national comparisons, such as those by the OECD, the WHO and the European Union's statistical office, Eurostat. In recent years, continuous efforts have been made to address gaps in data availability and to adapt datasets to capture different country contexts. These developments have required considerable investments of national governments and international organisations to improve the richness and comparability, of data. While such data provide a useful source to help understand variation between countries, such comparisons remain problematic. This is, in part, because of limitations in the availability, quality and completeness of data, but, perhaps more importantly, because of a frequent lack of an appropriate underlying theory guiding the selection of data, justification for countries to be included, and approach to analysis [32].

One example is provided by studies that employ a production function approach, usually examining factors indicative of health care ('health care inputs') and other explanatory variables for their impact on some health measure ('health care output') using regression analysis. A review of related studies has noted that the findings of such analyses have been mixed, often identifying relationships that run counter to what would have been expected although more recent work has provided more consistent evidence [33]. Other studies have examined the association between specific characteristics of different types of health care systems and selected health outcomes. For example, Elola et al. studied 17 health systems in Western Europe, distinguishing national health service (NHS) systems (e.g. Denmark, Ireland, Italy, Spain, the United Kingdom) from social security systems (e.g. Germany, Austria, The Netherlands) [34]. Controlling for socioeconomic indicators, they found, in a cross-sectional analysis, that countries with NHS systems achieved lower infant mortality rates at similar levels of GDP and health care expenditure than did social security systems.

These types of study provide important insights. However, one major weakness relates to the cross-sectional nature of many, so failing to take account of lagged relationships between 'intervention' and outcome. Unavailability of data often means that the usual approach is to

associate current outcomes with contemporary inputs although it is possible that inputs in earlier periods would also have affected outcomes today [35]. Furthermore, a cross-sectional design will not adequately address causality and frequently studies fail to set out the plausibility of the relationships they explore, giving the impression that the modelling was driven by data availability rather than plausible mechanisms [36]. Also, observed associations between variables can be highly misleading when not taking adequate account of context.

Importantly, although notable exceptions exist [37], the majority of studies of this type employ indicators of population health such as life expectancy and total mortality that are influenced by many factors that lie outside the health sector so it is frequently difficult to attribute an observed variation in population outcomes to specific activities in the health system [38].

### **Case-oriented cross-country comparisons of health systems and policies: examples and challenges**

The predominant approach to ‘case-oriented’ comparative research is to undertake comparative case studies in which each ‘case’ is considered analytically as a whole. At a minimum, quality in case-oriented comparison depends on the accuracy of description across countries linked to an acute awareness of the importance of understanding the relevant context in which documents, statements, interviews and observations take place. Indeed, some writers argue that contextual description and understanding is a basic condition for all successful cross-country comparison [39].

Case-oriented comparative studies typically, although not exclusively, draw on qualitative and quantitative methods and data from a range of sources (see Figure 1). These may be used sequentially or simultaneously. For example, quantitative analysis may be used to formulate the cross-country comparison or to corroborate the findings from qualitative research or *vice versa* [8]. The full potential of using mixed methods is often overlooked in cross-national research [40]. However, comparative research can benefit greatly from methodological triangulation, in particular since cultural sensitivity and the need for contextualisation pose additional challenges to the quality of studies. The nested design is a mixed method approach that links intensive case-study analysis with statistical analysis [41]. For example, Rothgang et al. used a nested design to examine the changing role of the state in health care systems in countries of the OECD [42]. The key consideration when assessing the quality of such studies

is whether the sequencing and/or inter-relationship between the methods and data sources is clearly related to answering the study question and is adequately followed through in the analysis rather than allowing different methods to produce disconnected pieces of evidence [43] .

The combination of an emphasis on detailed description, contextual richness and triangulation between different methods and sources of data across a number of macro-social units can produce major analytical problems in reducing what can become a vast array of data to manageable proportions, as well as in isolating key explanatory factors influencing the phenomenon of interest across countries. Qualitative Comparative Analysis (QCA) is a response to these difficulties and to the difficulty facing conventional variable-oriented approaches to cross-country comparisons such as regression when there are often too few cases available for robust analysis either for empirical reasons or because of the theoretically driven need to study only carefully selected cases . QCA is a method for analysing the complex causal pathways in as economical a way as possible, by converting qualitative data into binary numerical form using Boolean logic.

## **Quality criteria for cross-country comparisons of health systems and policies**

The previous sections introduced Ragin’s distinction between variable oriented and case oriented studies, which we – inspired by Lor – applied to cross-country comparisons in health systems and policy research. This distinction is particularly useful to avoid a potentially oversimplistic focus on aspects of quality that may result from the (sometimes parochial) methodological and analytical preferences of individual research disciplines and to help identify generic criteria of study quality. In exploring characteristics of variable oriented and case oriented studies, we have identified a number of issues that affect the quality of comparative work.

While many of these echo those established for undertaking rigorous research more generally, certain aspects are likely to be particularly salient in defining quality in comparing large ‘macro-social’ units; for example, the need to pay explicit attention to the importance of

contextual differences and related complexity arising from differences in the political, cultural and institutional arrangements within which health systems sit [8].

With these specific challenges in mind, and based on the brief overview of comparative studies in the earlier sections of this paper, we propose six criteria to assess the quality of cross-country comparisons from a cross-disciplinary perspective. In part, these criteria reflect issues raised by members of the EHPG in our initial survey, although we have added to the list by explaining the relevance of each criterion for different types of research. The criteria are likely to vary in importance for different studies, given the variation in study objectives. They are also likely to be implemented differently, depending on whether variable-oriented or case-oriented comparisons are being assessed. Inevitably, the criteria need to be interpreted sensitively, not deterministically. They are a guide. They are:

1. *Appropriate use of theory*: Cross-country comparisons should make appropriate use of theory to inform the research design and the comparison (i.e. selection of countries) as well as the analysis and interpretation of the data if the goal is explanation (“learning why”). Theory should underpin the selection of variables (in variable-based comparisons) or case study design and analysis (in case-oriented comparisons). However, not all studies aim to be explanatory. Some aim to generate hypotheses or theories for future testing. In such cases, the decision to avoid using a priori theory as a guide should be explicitly justified (e.g. to allow for analytic induction).
2. *Explicit selection of comparator countries*: The selection of countries for comparison should be justified and reflect the aims of the study, i.e. the purpose of the comparison and the question to be addressed. As noted earlier, while there may well be different purposes motivating cross-country comparative studies, the choices made when selecting countries should be explicit and relevant (e.g. not simply reflecting convenience).
3. *Rigour of the comparative design*: The comparative study design should be rigorous, systematic and in line with the aims of the study. In case-based research, the use of a consistent comparative framework can help to make the comparison more reliable. The specific aspects of rigour that matter most will depend on the purpose of the comparison. Comparisons that seek to explain a phenomenon, thus aimed at “learning why”, are likely to be held to a higher standard of plausibility than more descriptive

4. *Attention to the complexity of cross-national comparison:* Both case-oriented and variable-oriented designs have to address the complexity associated with comparing large macro-social units in cross-country comparisons. For variable-oriented comparisons this means selecting variables that appropriately reflect all the factors relevant to the phenomenon to be compared, while demonstrating an awareness of the limitations of the comparability of data gathered in different national contexts and associated with different cultural and linguistic backgrounds to avoid misinterpretation. Case-oriented comparisons should provide the richness of contextual description adequate to meet the aims of the comparison.
5. *Rigour of the research methods:* It is evident that this criterion applies to all types of research, whether it involves cross-country comparison or not. At the most basic level, rigour in research means an internal consistency between the stated goals or research questions and the methods applied to be able to achieve these. Other issues relating to rigour may, however, be slightly different for variable- and case-oriented comparative research, although they are not mutually exclusive. In relation to variable-oriented research, the availability, completeness and quality of data are crucial; case-oriented research will perhaps more strongly depend on the accuracy and richness of descriptive detail, as well as the integration of data, if different types of data are used in combination. For both types of comparisons, the strengths and weaknesses of the data and analysis should be critically discussed. Consideration of these issues can be supplemented by using quality checklists specific to individual methods used in comparative studies.<sup>1</sup>.
6. *Contribution to knowledge:* Cross-country comparisons should make a distinct contribution to knowledge, although the type of contribution may depend on the purpose of the study. There is a distinction between a contribution to theory (or other

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<sup>1</sup> These are e.g. the Critical Appraisal Skills Programme (CASP) for qualitative methods, the Effective Public Health Practice Project (EPHPP) for controlled and uncontrolled cohort studies, the Cochrane Effective Practice and Organisation of Care (EPOC) Group's work for interrupted time-series studies, the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) checklist for process evaluations, and the Grading of Recommendations Assessment, Development and Evaluation (GRADE) for systematic reviews.

forms of scientific development such as methods), which would typically be more highly valued by an academic audience, and a contribution to policy learning, which would typically be more appreciated by policy makers and analysts.

We are confident that these criteria are sufficiently broad and generic to apply across the field of health systems and policy research. As presented, the list may overstate the difference between different types of comparisons and there may be other aspects of quality that we have overlooked. However, we hope that setting out the six criteria helps raise awareness in this field of what constitutes high quality research, which may be helpful for those planning, undertaking, or commissioning, cross-country comparative research.

In a next step, our criteria for high quality cross-country comparisons should be applied to comparative studies to assess their practicability and usefulness, and to identify areas for improvement. This exercise, which is going beyond the scope of this paper, will provide valuable feedback and a ‘reality check’ on our list of criteria.

## **Conclusion**

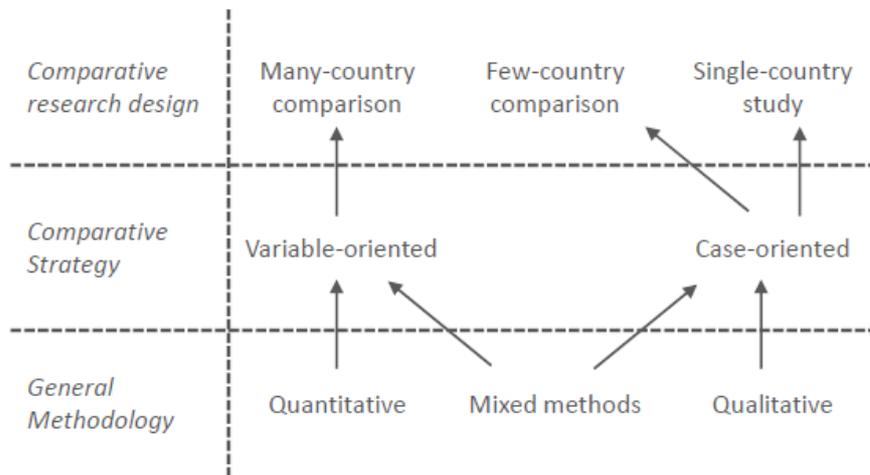
We introduced our argument with the observation that there is little consensus on how to approach quality in cross-country comparisons of health systems and policies. Comparisons represent a diverse field that faces a distinctive set of challenges because it focuses on comparing ‘macro-social units’. Furthermore, as research on health systems and policies is also a multi-disciplinary enterprise, differences in assumptions, strategies and methods, and indeed purposes of comparison, complicate any easy assessment of quality. Our approach to define what constitutes high quality research in this field is to link criteria that relate specifically to the challenges of cross-national comparisons to general criteria that reflect the principles of good social research.

We have identified six criteria which we think will help assess the quality of cross-national comparisons of health systems and health policies: (1) appropriate use of theory, (2) explicit selection of comparator countries, (3) rigour of the comparative design, (4) attention to the complexity of cross-national comparison, (5) rigour of the research methods, consistent with the principles of good social research, and (6) contribution to knowledge.

This list draws together quality criteria already established in social research in general and combines them with aspects that are pertinent to comparative studies and cross-country comparisons, in particular. We think these are particularly relevant to health system comparisons, given the complexity of each health system and the ‘macro-social’ units (countries) each is embedded in.

Publication and discussion of the list of criteria should help raise awareness in this field of what constitutes high quality research, which may be helpful for those undertaking, or commissioning, cross-country comparative research.

**Figure 1: Relationship of comparative research design to methods**



Source: Lor [24], adapted

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