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Multi-criteria decision analysis to prioritize health interventions: Capitalizing on first experiences

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ABSTRACT

This paper capitalizes on a first set of experiences on the application of multi-criteria decision analysis (MCDA) in seven low- and middle-income settings. It thereby reacts to a recent paper by Peacock et al., highlighting the potential of MCDA to guide policy makers in highly specific decision-making contexts. We argue that MCDA also has a broader application in setting priorities in health, i.e. to indicate general perceptions on priorities without defining the allocation of resources in a precise fashion. This use of MCDA can have far-reaching and constructive influences on policy formulation.

1. Introduction

This paper capitalizes on a first set of experiences on the application of MCDA in seven low- and middle-income settings [1–7], building upon the conceptual basis of MCDA in health as described elsewhere [8]. It thereby responds to a recent paper by Peacock et al. [9] in this journal, in which the authors elaborate on the use of interdisciplinary methods to set priorities in health, and thereby highlight the potential of MCDA. We qualify a number of observations by Peacock et al. [9] on the types of policy questions MCDA can address, and on methodological aspects of MCDA. We also elaborate on the construction of a global database on intervention priorities.

2. Types of policy questions

Priority setting is sometimes referred to as a generic process on the rank ordering of interventions [10], but in reality covers a wide variety of policy questions at different levels of the health system. We distinguish two broad applications of priority setting studies: first, priority setting can be undertaken to inform policy makers in a specific context on e.g. the reimbursement of a single intervention, or to prioritize between only a few interventions, either at the national, sub-national or institutional level in a country. These decisions are taken in the presence of a known budget and might be limited by factors such as the currently available physical infrastructure, human resources or political consideration, at least in the short- to medium-term [11]. We label this 'context-specific priority setting'. These are also the type of policy questions Peacock et al. [9] refer to, and that programme budgeting and marginal analysis (PBMA) has traditionally and successfully addressed in a large number of studies in the past [12]. Indeed, as Peacock et al. [9] suggest, MCDA can play a role in this process to make decision-makers objectives and their value trade-offs consistent and transparent.

The second application of priority setting studies in a country, which goes beyond the scope of PBMA [9], is to guide decisions on a wide range of interventions, to provide general information on their relative rank ordering to arrive a more informed debate on resource allocation priorities.

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Because it is not meant to provide a solution to a specific resource allocation question, it need not be highly contextualized in terms of e.g. physical infrastructure and/or human resources constraints. Such general perceptions on priorities can have far-reaching and constructive influences on policy formulation, defining the set of options that are debated without defining the allocation of resources in a precise fashion. We label this 'generalized priority setting' (cf. Murray et al. [13]). In this context, MCDA can serve different aims. It can e.g. be used to elicit and define general, national-level, criteria for priority setting (and indicate their relative importance). The definition of such criteria makes the rationale of national-level priority setting decisions explicit, and thereby adds to the accountability and transparency of its process [14]. It follows up on the example of the Dunning committee in the Netherlands, that defined a funnel including four sieves (necessity, effectiveness, cost-effectiveness, and self-responsibility) that interventions need to pass to be included in a national insurance package [15]. As another example, Ghana has used criteria as identified through MCDA, to set its intervention priorities in the Ghana Health Sector Plan of Work 2007–2012 [3].

One step further, and perhaps the most important contribution of MCDA in the realm of generalized priority setting, is to provide broad classifications of interventions within a specific disease area. Applications include priority setting in HIV/AIDS control in Thailand [4], and across a broad set of interventions to guide decisions at the national-level in Ghana [1,3], China [5], Brazil [6], and Cuba [7]. However, because of its nature, MCDA can weigh the relative importance of quantifiable criteria only, and an initial rank ordering of interventions may only be based on those. Yet, it is obvious that any priority setting process should also account for non-quantifiable criteria such as ethical judgments [16], and these can be accounted for through a process of elaboration. In such a process, intervention ranks are discussed and can be modified, and this has been successfully tested in the prioritization of HIV/AIDS interventions in Thailand [4]. The resulting rank ordering – taking into account both quantitative and qualitative criteria – can then be a useful basis for policy making. Yet, such a ranking should never be interpreted in a formulaic sense given the political economic realm in which priority setting is taking place [11], and which may add further (irrational) criteria to the process. Instead, the resulting rank order of interventions might be best presented in three classifications: those that are 'priorities', those that are 'not priorities', and those that are in between (cf. classification of HIV/AIDS interventions in Thailand, Center for Global Development [17]). This information provides policy makers with broad indications of intervention (groups) that may be candidates for implementation (to foster the transparency of results, the performance of intervention on the individual criteria should also be made available to policy makers). Again, the availability of such information adds to the accountability and transparency of the priority setting process [14].

Whereas PBMA, by its nature, is in the literature typically related to 'context-specific priority setting', some exceptions exist. For example, an Australian study to guide decisions on the inclusion of eight interventions in the next cancer control strategy has been referred to as a PBMA study, while the study only provided broad descriptions of criteria and broad indications on the overall attractiveness of interventions [20]. However, what is or is not a PBMA study may not be of prime importance here, and may be an issue of semantics. Most important observation here is the conceptual distinction between 'context-specific priority setting' and 'generalized priority setting', and the different roles of MCDA in these respects.

3. Methodological aspects

Peacock et al. [9] highlight the importance of participatory action research, and the involvement of stakeholders in decisions on intervention priorities. The inclusion of perspectives of relevant stakeholders – and where possible the achievement of consensus – is indeed important, to improve accountability, credibility and acceptability of results by society [14,18,19]. The recent MCDA study on the prioritization of HIV/AIDS interventions in Thailand followed up on this, and revealed important differences between preferences of policy makers, people living with HIV/AIDS, and lay people [4]. The study did not aim to reach consensus between the stakeholders, and within the studies referred to above, there is no experiences yet on how to do so. It is not sure whether the process of elaboration may be useful in this respect given the risk of dominance of one group of stakeholders (less-experienced e.g. lay people) by another (well-educated and more-experienced e.g. policy makers).

The recent experiences show that different studies have identified different criteria for priority setting. This may reflect real differences in preferences between countries, but may also reflect differences in methodological approaches. Some studies [1–4] identified criteria through focus group discussions, and relevant criteria may be omitted because they have not been put forward strong enough or because participants may have simply forgotten to mention them. Other studies identified criteria on the basis of theory and the literature reviews [5–7,21], which may result in sets of different criteria than those relevant in the study context. One way forward is the definition of a comprehensive list of criteria – on the basis of the present experience and other literature – which is then elaborated upon in detail in e.g. a focus group discussion. This approach is currently being conducted in a MCDA priority setting study in Thailand, and proves an effective way to reduce the risk of omission of relevant criteria while also improving comparability of study results between studies (see below).

4. Towards a global database on intervention priorities

On the one hand, there will never be enough resources available to elicit preferences for criteria in all countries in the world. On the other hand, a single set of preferences for criteria would not adequately reflect socio-economic and cultural variations explaining these preferences. A question of interest is then whether general patterns exist on the preferences for priority setting criteria (both on the type of

criteria, and their relative importance) between countries. Multi-country studies could provide an answer to this, and first explorations are taking place. On the basis of such studies, a global database on the prioritization of interventions could be established, following the example of a WHO-CHOICE database on the cost-effectiveness of interventions [22], but then taking into account multiple criteria. This would then also involve the collection of evidence on the performance of interventions on those criteria. The resulting rank ordering of interventions, including quantitative criteria only, would then give national-level policy makers (very) broad guidance on the relative priority of interventions. Where more detailed is required (sub-)country level analysis should be performed.

5. Conclusion

Peacock et al. [9] have highlighted the usefulness of MCDA in context-specific priority setting, and we emphasize the potential of MCDA in generalized priority setting. First case-studies show the potential of MCDA to define general, national-level, criteria for priority setting, and provide broad classifications of intervention priorities. Important methodological challenges remain vis-à-vis the inclusion of different stakeholders and a comprehensive set of criteria. The construction of a global database would enable countries around the world to strike a balance between efficiency and equity in their prioritization of health interventions.

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