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Using Q-methodology to guide the implementation of new health care policies

Summary box

- New health care policies may be implemented with considerable variability and can have unintended consequences or fail to achieve expected outcomes.
- Q-methodology can guide the implementation of new health care policies by highlighting areas of agreement and dissent among different policy stakeholders.
- Q-methodology requires relevant stakeholders to rank a set of statements relating to a given policy: results are factor analysed to group participants by their viewpoints.
- This offers policy makers a way of identifying the diverse landscape of viewpoints, anticipating likely barriers to and levers for implementation of new policies.

Stand-first Abstract

There are many challenges in the development, implementation and evaluation of healthcare policy. One challenge is understanding how different stakeholders view a particular policy and what impact these views may have during implementation. Q-methodology is one approach that can be used to help policy makers and researchers actively engage with those who are important in policy implementation, and anticipate their responses. Q-methodology combines qualitative and quantitative research methods to systematically explore and describe the range of viewpoints about a topic. Participants are required to rank a set of pre-defined statements relating to the topic, according to their own viewpoint. Factor analytic techniques then identify people who are like-minded in the way they view the topic and enables areas of consensus and divergence in viewpoint to be clearly defined. This mapping of viewpoints allows those working in policy implementation to anticipate likely barriers and levers in implementing new policies.

Introduction

There are many challenges in the development, implementation and evaluation of healthcare policy.(1) Developing and prioritising clinical topics and interventions for policy can be difficult in a climate of competing and sometimes conflicting interests. Successfully putting new policies into place requires knowledge of the context, including how a given policy will fit with stakeholder values. Assuming that the basic resources are available, the main stumbling blocks to policy implementation often include the attitudes and associated behaviours of key interested parties – those responsible for delivering the policy and those in the target population whose cooperation is required for its success (the policy stakeholders).

Q-methodology combines qualitative and quantitative research methods to explicate and describe the range of viewpoints about a particular topic.(2) It uses factor analytic techniques to identify people who are like-minded in the way they view the topic and illuminates both divergence and convergence between these viewpoints. This paper introduces Q-methodology and illustrates its potential value in predicting and responding to challenges in developing, implementing and evaluating health care policy.

How to do Q-methodology: general principles and methods

Q-methodology uses factor analysis (a technique that reduces a large number of variables into a smaller number of categories or factors) to group people according to how they interpret statements about a topic, whereas traditional factor analytic approaches look for correlations between characteristics such as how responses to different items in a questionnaire can be grouped together.(3) The method requires participants to consider and respond to a set of statements (the Q-set) about a particular topic using a ranking technique (a Q-sort). Figure 1 summarises the process.

The Q-set statements are selected to be broadly representative of the opinions being studied. They are usually identified by a search of existing research literature and documents relating to the topic, often supplemented with interviews or focus groups to ensure a range of opinions is covered. Most Q-methodology studies find that between 40 to 80 statements cover the debated topic adequately.(2)

Participants are chosen from those who have an interest or known views on the topic. Large sample sizes are not needed and participants should be strategically sampled to ensure all potential viewpoints are covered. For example, when studying views on a health care policy, participants may include patients, health care workers, administrative staff, managers and commissioners. As a guide, 40 to 60 participants is usually considered adequate, however fewer may be needed in certain contexts.(4, 5)

Statements are ranked (Q-sorted) by the participants, usually according to whether they agree or disagree with each statement in comparison to the other items. Ultimately a quasi-normal distribution of items is created called the Q-sort (Figure 2). Further information to aid interpretation is often gathered about the sorting pattern either by a post-sort interview or questionnaire. Questions focus on why the participant sorted particular statements at either extreme of the Q-sort, but may also be about the placement of neutral statements and overall viewpoint.

In Q-methodology it is the participants that are inter-correlated and factored rather than the traits or tests (4). Completed Q-sorts are subject to data reduction techniques - usually centroid factor analysis or Principal Components Analysis - using dedicated Q-method software. These techniques are used to identify participants with highly correlated Q-sorts by comparing the positions of statements on each individual Q-sort with each other Q-sort.(3) Participants who sort statements in a statistically similar pattern are considered to have shared viewpoints - these are the factors. Establishing the optimal number of interpretable factors requires a judgement based on a range of information: the number of sorts loading significantly against each factor, the number of sorts that load on no factors at the set significance level and the number that are 'confounded', that is load significantly on more than one factor. A range of tests and techniques can help with creating a 'rough cut' of the number of likely factors, but ultimately the selection is based on interpretability in light of all available information, including qualitative data.(2)

Q-method software combines the Q-sorts in each factor to create an 'idealised' sort that best represents the views of those individuals whose sorts load highly and significantly on that factor. The final output is a narrative description of each viewpoint created by an in depth analysis of the pattern of the items, paying particular attention to items placed in a way that distinguishes one viewpoint from all others. In some cases, analysis reveals consensus

statements where levels of agreement (or disagreement) are similar across factors. Additional interpretation is supported by data obtained from post-sort questions.

[A case example: a policy on screening for depression in primary care](#)

In 2006, the UK primary care pay-for-performance scheme, the Quality Outcomes Framework (QOF), introduced an incentive to screen for comorbid depression in patients with one or both of diabetes and coronary heart disease. The policy was withdrawn in 2013 because of doubts over benefits.⁽⁶⁾ We aimed to characterise socially-shared viewpoints on comorbid depression and chronic physical illness to understand why the policy did not meet the desired response.⁽⁷⁾

The study drew upon a systematic review and qualitative interview study of patient beliefs to identify 57 distinct statements about co-morbid depression.^(8, 9) Example statements included “Symptoms of my physical health problem can overwhelm me into depression” and “Treating my physical health problems will help my depression”.

We identified 31 participants with depression symptoms who also had diabetes and/or coronary heart disease. Participants Q-sorted the 57 statements in relation to whether or not (and how strongly) they agreed or disagreed with each statement. A post-sort interview was conducted to explore their sorting pattern. Following a centroid factor analysis, five viewpoints were taken forward since they produced the best fit of interpretable viewpoints recognisable from comments made during the sorting procedure.

The five statistically distinct viewpoints revealed a range of beliefs about the cause of depression, shame associated with depression, influences on recovery and the value of support.

“The best thing for my depression is to see a health professional” was a consensus status in that it was ranked as neutral across all viewpoints. This suggests participants did not have strong views about the benefit of health professionals in improving their depression or were ambivalent about it. This study also identified viewpoints where there is no link seen between depression and other health conditions. This may explain why some patients fail to understand the purpose of depression case-finding and provides insight into why the incentive scheme did not deliver the hoped for benefits. The findings suggest the need for a more flexible, personalised approach to case-finding for depression.

[Why use Q-methodology in healthcare policy implementation?](#)

Patient surveys, focus groups and qualitative interviews are typically used to understand viewpoints associated with failures, delays and variations in the implementation of policy. Surveys are useful for identifying the number of people who, for example, believe a policy is not working in practice and, against a range of predefined items, why they think this may be the case. Analysis may link participant characteristics to attributions, for example showing that certain views are associated with a particular role in the implementation pathway. Qualitative analysis of individual interviews or focus groups can be useful in highlighting themes in a discussion providing for example a richer explanation about the reasons people believe a policy has succeeded or failed, but numbers make it difficult to link particular themes to individual attributes.

Q-methodology is an alternative, relatively accessible and low cost approach to understanding viewpoints and gives additional information by clarifying the components of a

particular way of thinking and the specific way these components fit together for individuals. What Q-methodology offers in addition to the above approaches is a way to identify and systematically describe the diverse landscape of viewpoints; to know in a more detailed way ‘who you are working with’, how they see the problem in relation to other issues, and where barriers and levers are likely to exist. It can also be used to allow policy makers to see and understand a perspective with which they disagree, an outcome that can be useful in conflict resolution.(10)

Understanding challenges in healthcare policy with Q-methodology

The first challenge in healthcare policy is deciding where to start in the face of competing priorities. Health care resources are finite and decisions need to be made by policy makers about which treatments are commissioned .(11) Priority setting or rationing involves difficult trade-offs and implies that health benefits for certain groups of patients or types of illness are more valued than others. Health care policy stakeholders will differ in their priorities for these decisions, perhaps because of differences in the context in which they work. Q-methodology could help policy makers clarify healthcare priorities by reducing the complexity of multiple opinions to a manageable number of shared viewpoints highlighting areas of consensus and disagreement. It can show the intensity of preferences and opportunity costs associated with different health care policy decisions, particularly if the instructions for the Q-sort are framed in a way that reflects policy choices. It also allows policy making to be open to reflexive consideration within the broader context of the multiple different ways in which the policy, and the problem the policy seeks to address, can be constructed.(12) In this type of analysis, stakeholders are asked through the Q-methodology process to help policy makers fully understand the context and different values and interpretations of the “reality” of the stakeholders.(13, 14)

Policy conflicts that have been resolved with the help of Q-methodology include controversial airport expansion in Amsterdam(15), environmental waste management(16) and large carnivore conservation priorities(17).

Q-methodology also allows decision makers to identify statements where there is a consensus, or at least some common ground, between different participants. This can lead to a new policy agenda by uncovering and addressing a fuller range of alternatives that move beyond polarized viewpoints and allow the problem to be redefined with greater traction. A US hospital used Q-methodology in its strategic planning.(18) From the competing viewpoints of hospital management, board of directors and medical staff, Q-methodology provided a list of priority objectives that had consensus among the stakeholders whilst justifying the cessation of several programmes. A similar approach was taken with obesity policy making in the Netherlands. Despite competing points of view, a consensus was found in proposing alternative health facilitators and shows the value of Q-methodology for overcoming health related policy conflicts.(19)

The second challenge is policy implementation. For example, antenatal screening policy states that women should be able to make an informed choice, without bias from healthcare professionals, when deciding to take up antenatal screening tests. We found that women interpreted informed choice in antenatal screening in different ways, challenging policy assumptions that all women want to make decision about antenatal screening without advice from healthcare professionals. Some women, particularly those from minority ethnic groups,

wanted health professionals to give advice and make recommendations.(20) The findings had implications for the role of health professionals in providing information and supporting informed decision-making, to improve quality of care and equity of access.

The third challenge is evaluating policy translation into practice. Our study of depression case-finding (above) showed how Q-methodology can help explain why or not a policy initiative has been successfully implemented. Research involving people with diabetes showed that the lack of adherence to diabetic lifestyle modifications can be explained by the mismatch between patients' understanding of illness and self-management of health and lifestyle.(21) Some patients are reluctant to change their lifestyle due to a perceived lack of control over their future health. The study suggests clinical practices tailored to patients' beliefs are more likely to be effective than a one-size-fits-all approach.

Q-methodology may lead to suggestions on how to adopt the policy in practice to improve uptake in harder to reach groups.(22) Q-methodology allows reflexive appraisal of policy initiatives and can identify stakeholders that are marginalised in terms of their consideration in policy. Q-methodology can allow for the simultaneous study of objective and subjective issues to determine an individual's opinion and forecast their likeliness to engage with a new policy in the healthcare workplace.(23)

Challenges, limitations and uncertainties

Q-methodology can help our understanding of policy implementation across populations and at the individual level. However, there is little in terms of published evidence on how Q-methodology outputs have actually been used to plan or implement policy more effectively. All the studies we present have depended upon the translation and presentation of Q-methodology outputs so that they are readily accessible to the relevant policy makers and can be used to modify subsequent practice. Further methodological research is needed into the best ways to present Q-methodology outputs to ensure they have the maximum impact on the target population of policy-makers and practitioners.

Furthermore, while Q-methodology is useful for identifying a range of views about a particular policy initiative, it is not useful for helping to understand the prevalence of those views in a population, and their association with socio-demographic characteristics. One method for achieving this aim involves developing synopses or "Q-blocks", which are comparable to the viewpoints identified in a Q-methodology study; they are then built into a questionnaire which can be readily applied in survey research to estimate the prevalence of each viewpoint in a large sample (24). Undertaking further Q-block research would determine the proportion of people that fit within different viewpoints if this is desired,(25) although policy making decisions should not exclude a viewpoint that is relatively uncommon if the viewpoint has potentially a large impact on uptake, for example if that viewpoint is particularly characteristic of an influential group of professionals.

Conclusions

Q-methodology has the potential to help achieve the successful development, implementation and evaluation of new healthcare policies. It allows researchers attempting to implement their findings into routine care to understand how their recommendations will work in the real world and identify issues that may limit the impact of their research findings. Policy implementations that undertake a Q-methodology study as part of the evaluation may identify

important viewpoints that limit the implementation of the policy or guideline that may not be otherwise adequately explained by commonly used methods.

Linked information:

<https://qmethod.org/> - For more information on Q-methodology and links to resources such as software.

Case Study: Gender equality in medical schools(26)

The number of women represented at senior levels in academic medicine remains low despite initiatives to increase gender equality. This study in one UK medical school aimed to identify academics' viewpoints on addressing gender inequality and especially to identify attitudinal barriers to policy initiatives designed to improve equality. The Q-set was developed from interventions previously applied to address barriers to gender equality in academia and medicine. Participants were chosen to provide a range of experience in their current academic department, by gender and by pay grade. Participants were asked to rank the statements by how important they thought the intervention was for promoting gender equality in the School of Medicine. Participants answered written questions about their placement of the interventions. The Q-sorts were analysed with a principal component analysis followed by a latent class analysis to look for correlations between participant attributes and statement placement. Six factors (viewpoints) were identified with strong divergence in opinions on whether good practice or positive action was the most appropriate strategy for achieving gender equality. The authors concluded that identifying areas of agreement and discord via Q-methodology makes a useful contribution to decision making in areas where contentious action may be needed to overcome attitudinal barriers to positive action.

Case Study: Informed choice in antenatal screening(27)

The western concept of informed choice in antenatal screening may be viewed differently by other cultures. This study aimed to explore perceptions of informed choice in antenatal screening in women from China, Hong Kong and Pakistan. The Q-set was adapted from a similar study conducted within the UK.(20) Participants were women with at least one child aged under 3 and the study was conducted in China, Hong Kong and Pakistan. Participants were asked to rank the statements by about how they would prefer to make informed choices about antenatal screening. A post-sort interview discussed their placement of the statements. The Q-sorts were analysed with a principal component analysis. Five factors (viewpoints) highlighted the ethical dilemmas healthcare professionals had in facilitating informed choice for antenatal screening where policy and practice guidelines adapt predominantly individualistic approaches. The women's preferences for decision-making with health professionals and/or their partner had minimal emphasis on individual rights which suggested the need for clarification of the role of health professionals in supporting and facilitating decision-making to enhance women's autonomy. The study concluded that policy and practice guidelines needed to be (re)framed to facilitate decision making processes for antenatal screening using relational approaches to autonomy.

We have read and understood the BMJ Group policy on declaration of interests and declare the following interests: none.

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