

**From Theory to Practice:
Are we capable of operationalising the Capability Approach?**

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In addition to the considerable literature on Sen's Capability Approach which comes from the disciplines of Development Economics and Philosophy, there is now a modest, but increasing amount of literature on how, and indeed whether, the Capability Approach (CA) should be used within the discipline of Health Economics. This paper begins with an introduction to the CA before moving on to summarise some of the conceptual arguments that have been made in favour of adopting the CA within Health Economics. A reaction will then be offered to various concerns that have been raised about the CA. Some practical challenges associated with operationalising the approach will be highlighted at appropriate points throughout the paper and possible solutions offered for discussion.

The discussion offered in this paper has been prompted by the author trying to operationalise the CA within the specific context of assessing the quality of life of patients with chronic pain. As this is very much a work in progress, there will be a description of a possible approach for arriving at an index of capability which is currently being considered and discussion at HESG relating to this approach will be especially welcomed!

1. An Introduction to the Capability Approach

The Capability Approach (CA), originally developed and advocated by Amartya Sen, has now become recognised as a mainstream alternative to both income and utility based measures of well-being and quality of life. The strength of the approach, which focuses on the ability of individuals to lead a life that they have reason to value, is its wide informational base compared to rival approaches, which reduce well-being to single a category (either utility or income) (Nussbaum and Sen 1993).

Functionings & Capability

There is an important distinction within the Capability framework between functionings and capabilities. Sen defines functionings as: the various things that a person manages to do or be in leading a life (Nussbaum and Sen 1993, p31). Some functionings are very elementary, such as working or being literate, while others may be more complex, such as achieving self-respect, or even being in good health.

The capability of a person is defined as the alternative combinations of functionings the person can achieve, and from which he or she can choose one collection (Nussbaum and Sen 1993, p31). Alkire (2005) defines capability as “a set of real opportunities that you could use in one way or another, the paths that lie open before you” (p121).

Specifying the Evaluative Space

In order to use the CA in an evaluative exercise one is initially required to specify the ‘evaluative space’; this means answering the question: what are the objects of value? In standard utilitarian analysis the evaluative space would consist of the individual utilities. The CA sees the evaluative space in terms of functionings and capabilities to function. One could continue by asking: how *valuable* are the respective objects?

Sen then calls for two further distinctions which, in turn, lead to a fourfold classification of points of evaluative interest. One distinction is between (1.1) the promotion of the person’s *well-being*, and (1.2) the pursuit of the person’s overall *agency goals*. The second distinction is between (2.1) *achievement*, and (2.2) the *freedom to achieve* (Nussbaum and Sen 1993, p35). We now have four different concepts of advantage, set out in Figure 1:

Figure 1: Value Purposes

	Well-being	Agency Goals
Achievement	Well-being Achievement	Agency Achievement
Freedom to Achieve	Well-being Freedom	Agency Freedom

The terms in Figure 1 require careful explanation. Well-being is a narrower concept here than agency success; the important distinction is that agency goals are not restricted to the advancement of the person’s own well-being. Well-being refers simply to the person’s own state. A person’s agency goals could be altruistic in that

the individual may value functionings which benefit family, friends or society in general. Agency freedom is freedom to achieve whatever the person, as a responsible agent, decides he or she should achieve (Alkire 2005b, p219).

It is suggested by Sen that in determining whether a person requires assistance from the state (e.g. to overcome hunger or illness) a person's well-being may arguably be more relevant than his agency success (Nussbaum and Sen 1993, p36). Furthermore, "for adult citizens, well-being freedom may be more relevant to state policy, in this context, than well-being achievement" (Ibid, p36). The state has a duty, in this case, to provide the individual with adequate opportunity to overcome their hunger and it is this opportunity, or freedom, that is important rather than the actual outcome. Robeyns (2006) discusses this issue with reference to a particular principle which has been labelled "luck-egalitarianism". Under this principle each person should have the same real opportunity (capability), but individuals should also be held responsible for their own choices. Clearly, to implement this principle the appropriate specification would involve a focus on capabilities, rather than functionings.

Happiness & Desire

It is the wider informational base that sets the CA aside from standard utility-based approaches. There is no insistence within the CA that we value only happiness, but instead we can treat the state of being happy as one among several objects of value. Likewise, there is no insistence that we focus only on desire fulfilment; desire is regarded by Sen as "useful but imperfect evidence –frequently distorted- of what the person herself values" (Nussbaum and Sen 1993, p48). A central feature of Sen's argument is that valuing is not the same thing as desiring, and that the strength of desire is influenced by considerations of realism in one's circumstances (Sen 1999, p14).

2. Arguments for adopting the Capability Approach within Health Economics:

Four arguments have been advanced for the adoption of the CA within health economics, as outlined below.

Health versus quality of life

Coast (2007) and Grewal, et al (2006) note that economists' attempts to assist resource allocation decisions are currently focussed very strongly upon the measurement of health, with the use of proxies for health (life expectancy and *health-related* quality of life measures) dominating the empirical economic evaluation literature. Many such measures of quality of life (not just those used in the formulation of QALYs) in fact measure one influence on quality of life (i.e. health) rather than quality of life more broadly. There is, however, evidence to suggest that value elicitation mechanisms such as SG and TTO *do* lead respondents to consider non-health aspects of their lives when formulating their responses (Baker and Robinson 2004). Qualitative work alongside a standard gamble exercise showed that respondents considered age, living situations, religious beliefs, families, professions and anticipated adaptation alongside experience of the actual illness/ health state. Nevertheless, the derived estimates are invariably treated as if they do measure only health and a direct mapping between health dimensions and utility is thus inferred. Consequently, the way that QALYs are often operationalised (such as via the EQ-5D 'tariff' values) may not adequately measure what is important to people.

In researching chronic pain and especially through discussion with chronic pain sufferers, it quickly becomes apparent that chronic pain impacts a number of aspects of a sufferer's life that are not typically included within existing (health-related) quality of life measures. Increased anxiety and depression, and limitations relating to activity and work, would be detected to some degree by EQ-5D or SF-36 for example, but chronic pain sufferers are also more likely to experience issues such as social isolation, disruption to marital relationships and parenting responsibilities, and difficulty maintaining a positive identity. Furthermore, whereas many people with chronic pain can walk a specific distance, this will be with some degree of pain, and where they may maintain some aspects of usual activities these may be a very much reduced set of the usual activities of a healthy person.

Related to this distinction between health and quality of life is the consideration that a person's distinction between 'health needs' and 'social service needs' is often unclear (Grewal et al 2006). Given a desire for integration of those services provided by different government departments/ agencies, Grewal et al argue that using measures in economic evaluation which artificially distinguish between health-related quality of life and quality of life more generally seems inappropriate.

One important first step in operationalising the CA would be to determine which functionings or capabilities are relevant and of value within the context of the research question. Qualitative research would be as important as quantitative research to determine which functionings are included in a measure of capability. Care would be needed, however, to ensure that when questioned the 'target population', i.e. 'service users', give a list of functionings/capabilities which are genuinely important to them, and respondents are not prompted to give a list of functionings/capabilities that the funding body expects to be improved. In other words, there is a danger that dimensions will be selected, although not necessarily intentionally, in order to make the intervention appear successful.

Coast, et al (2007) recognise that there may be questions about how appropriate measures resulting from a qualitative phase will be for capturing the impact of health interventions. Grewal et al (2006) identified five dimensions which were of value to older people: attachment, security, role, control, and enjoyment. Coast et al highlight the fact that there is no single dimension that refers specifically to 'health'. It could reasonably be argued though that the dimensions are still perfectly acceptable, as health is desirable for the ability to achieve these broader dimensions.

As will be explored in Section Five, when capabilities/functionings were identified which were valuable to chronic pain patients in our research, respondents were asked specifically which aspects of their quality of life were affected by their pain. It would be expected therefore that the capability-based questionnaire which was subsequently developed would detect improvement if an intervention was successful in relieving pain. But, in addition to this, if changes in the respondent's living circumstances, support mechanisms, work environment, etc, impact on the particular capability set of interest then this is likely to be detected also. This sensitivity is an advantage of using a broader view of quality of life rather than narrow health-related quality of life. Not all health problems can be cured, so we should also be acknowledging the importance of interventions aimed at making it easier to live with illness, or which simply make life better for people; medical interventions are clearly not the only means of achieving this. Of course, there will need to be some safeguard to ensure that not only those dimensions expected to indicate significant improvement are selected.

The involvement of service users in the process of selecting dimensions for quality of life instruments is a good thing if it means that we capture those changes (good or bad) that have the most impact on people's lives. There is also a strong case for broadening our focus and seeking to measure changes in quality of life and not simply the affect on a loose concept of health. The CA certainly allows, perhaps even requires, us to do both of these things; but, do we need capability if our aim is essentially just to extend the scope of the QALY? The answer is, probably not. Rather limited adoption of the CA would offer one means of developing new multi-attribute health state classification systems on which to base what could be termed a super-QALY, but would not be the only means of achieving this objective.

Capability captures the real concern of individuals

In qualitative work with older people, Grewal et al (2006) found that the ability to function was a major theme emerging from their findings. This was despite the fact that there was no distinction in the questioning between functioning and capability. When discussing factors reducing quality of life, informants included issues such as their inability to achieve enjoyment because of poor health or their inability to feel secure because of worries about their partner's health.

This reason links together with the first argument above, suggesting that not only should we be asking service users which dimensions are valuable to them, but that the response we get from them may well be expressed in terms of capability. It would then seem appropriate when we evaluate the intervention that we do so also in terms of impact on the capability set.

Functionings versus Capability

Many current measures of health-related quality of life (such as EQ-5D, SF-6D, etc) focus on functionings, such as the performance of usual activities, social activities or self-care; this places them within the evaluative space of well-being achievement, as defined by Sen. It has already been stated that well-being freedom would be more relevant than well-being achievement for informing a decision over whether an individual requires assistance from the state, i.e. healthcare from the NHS or social support from other agencies. There are several reasons why this is the case.

One reason for moving beyond functionings to focus on capability is the fact that evaluation based on well-being freedom must take into account a greater amount of information. Consider Sen's comparison of two persons who are both undernourished. We could easily arrive at the conclusion that two people who are equally undernourished are equally in need of assistance, but when we move beyond a focus on this simple outcome we may discover that while one individual is starving due to lack of resources the second possesses the means to feed himself but is choosing to fast.

A second reason for considering capability is that freedom may have intrinsic importance for the person's well-being achievement (Nussbaum and Sen 1993, p39). If choosing is seen as a part of living then "even 'well-being achievement' need not be independent of the freedom reflected in the capability set. In that case, "both 'well-being achievement' and 'well-being freedom' will have to be assessed in terms of capability sets" (Ibid. p39).

A further advantage of considering capability is that it introduces more formally a degree of responsibility on the part of the individual. Individuals are provided with 'adequate opportunity' to overcome difficulties. Given that they have adequate opportunity to achieve a range of different outcomes, the individual will choose one outcome based on an assessment of their own desires and opportunity cost. Adopting the capability approach can therefore fit comfortably within a policy context in which greater patient choice and involvement is encouraged.

The NHS may offer support to help you to stop smoking, but it is your decision as to whether you utilise or ignore this service. You may have had pain killers prescribed to you, but choose on occasions not to take them in order to be free of unpleasant side-effects.

Extra-welfarism, which aims at broadening the informational base for evaluation in health by introducing characteristics of the individual alongside utility, has been criticised by Birch and Donaldson (2003) for introducing the potential to override the individual's opportunity cost. A purer version of the capability approach can broaden the informational base while respecting, even promoting, the consideration of opportunity cost by the individual.

Capability also goes some way to addressing the problem of adaptation, which is highlighted by Verkerk et al (2001). It was a concern when evaluating a project to integrate medical and non-medical services for the elderly into a single help desk that the elderly might change their expectations and aspirations as their conditions changed. Verkerk et al (2001) state that:

If the internal standard of the respondent moves in the same direction as the level of services, the effect of the new service will be difficult to measure. In other words, the subjective element of quality of life makes the standard questionnaires vulnerable to the coping mechanism.

Both the healthy and sick person may report high achievement in terms of being mobile or performing usual activities, although for the sick person this may reflect adaptation or some form of coping strategy. The usual activities of the sick person may be limited to the daily tasks associated with caring for them self within the confines of the home. It is clear that we would expect the capability of the healthy person to be greater than that of the sick person in this case.

Considerations and expectations shaping preferences among health states

A plausible case for relying on preferences to rank health states is that health should be evaluated in terms of well-being, and that well-being should be measured by preference. It is argued by Hausman that “people’s preferences among health states depend on nothing other than the *expected* impact of their health states on their well-being” (Hausman 2006, p259, emphasis added); as these expectations are frequently incorrect, evaluating health states by preferences among health states will not therefore coincide with an evaluation in terms of well-being.

Hausman stresses that it is difficult to compare health states: “there is a world of difference between the knowledge consumers draw on and the knowledge available to individuals asked to express preferences among health states” (Hausman 2006, p260). He concludes that in order to evaluate health states we should avoid relying on preferences and instead consider the reasons supporting them, which will include “how health states affect how people feel” and the impact on “the whole range of people’s objectives” (Ibid. p274). It appears then that we should ‘consider’ health states in terms of ‘raw’ well-being, rather than relying on preferences, which are not an adequate proxy. Hausman suggests no alternative means of evaluating health states once they have been described in terms of well-being.

It is acknowledged more generally that the typical member of the population does not have a complete set of values and preferences which can be accessed and processed quite readily. Furthermore, features of the elicitation technique, and the framing of questions, may exert strong systematic effects on responses, raising doubts about their validity as measures of people's true preferences (Loomes 2006).

Cookson suggests an alternative interpretation of the QALY as “a cardinal and interpersonally comparable index of the value of the individual's capability set” (Cookson 2005, p817). Cookson notes that standard health state valuation methods specify the health state, but not the wider capability set, and hence the use of these methods to value capability sets would mean “relying on the individual's own perceptions of his (unspecified) capability set and changes therein” (Cookson 2005, p823).

The difference between the standard QALY (what Cookson refers to as the health QALY) and the ‘Capability QALY’ is that the health QALY represents one important component in the individual's well-being (i.e. health), whereas the capability QALY represents all of the individual's well-being. Cookson sees the advantage of his capability QALY as being its acknowledgement of the non-separability of health and non-health components of well-being.

A weakness of the capability QALY is that it does not escape the need to evaluate health states, or states of well-being, through the use of preferences. Furthermore, far from bridging the gap between respondent's expectations/guesstimates of the level of well-being associated with a health state and the actual well-being of those experiencing the health state, the capability QALY appears to require respondents to stretch their expectations/imaginings to an even greater extent. Cookson concedes himself that:

There is no mechanism for making sure different individuals are considering the same list of functionings when formulating their answers. Nor is there any mechanism for correcting potential misconceptions and errors in people's predictions about how changes in health status will influence their broader capability set. (Cookson 2005, p823)

In a reply to Cookson, Anand (2005) argues that, at the moment, health state descriptive systems used for generating QALYs appear to neglect many non-health dimensions of well-being and that, while QALYs do appear compatible with capability, measures such as EQ-5D may need to be extended if we are to move

towards more direct application of the CA. Perhaps then what we would generate is a 'Super-Capability Adjusted Life Year' (SCALY).

It seems that there are two issues with using standard preference elicitation techniques: (i) to what extent and how accurately members of the public can predict/imagine how a particular health state will impact on their well-being; and (ii) how to minimise procedural variance.

There is undoubtedly a trade-off between giving respondents very detailed information about the health states they are valuing and avoiding overloading them with an excess of information, which may cause them to use crude simplifying strategies. Certainly there appears to be optimism among some that if researchers 'perfect' the study design then respondents will perform 'well'. Accepting that a reliance on preferences isn't so bad after all does not, however, mean that the CA is surplus to requirement. With some modification to existing health status classification systems, it does appear feasible that respondents' will form reasonably appropriate perceptions of their own capability set and changes therein; so, on this evidence things look good for the SCALY.

But, however many dimensions we add on to our existing health status classification systems, and however broad these extra dimensions may be, Cookson still envisages that the focus will be on achieved functionings as opposed to capability (Cookson 2005, p827). Cookson's capability QALY was certainly one of the earlier and more complete suggestions as to how we can adopt capability within health economics; but, we could progress one or two steps further with the SCALY.

It could be assumed that respondents would easily be able to identify with a set of familiar capabilities and would make as good an attempt, or better, at valuing well-being expressed explicitly in terms of changes in capability as opposed to valuing estimated well-being based on a standard description of a health state. In this case it would be worthwhile to:

1. use qualitative work to identify the capability set, i.e. those capabilities which are considered valuable by the 'target group' and which are relevant to the research question
2. design an instrument to measure the affect of the intervention on the chosen capability set

3. define all of the possible outcomes (different states of well-being) to be valued in terms of the capability set

3. Criticisms of and concerns relating to the Capability Approach

Two related criticisms are that existing measures of health-related quality of life do not just focus on health, but include dimensions such as usual activities, and that, even if we accept that these measures should be extended, this can be done without relying on capability¹. It is felt that these two points have been acknowledged and addressed, if not convincingly then at least at length, in the discussion so far and so the reader will be spared further repetition. This leaves us with one rather crucial concern to address.

Can we ever hope to measure a person's capability set?

The main question here is: will any questionnaire (or interviewer) be able to accurately and realistically capture the underlying *ability* to function as opposed to just recording *achieved* functioning? There are two related questions: (i) if the ability to achieve something is valuable then why would we not observe it as an outcome? And (ii) if a person does not choose to perform something, how do they know if they are able to?²

4. One method of applying the Capability Approach: Work so far

Sen as well as others (Alkire 2002; Robeyns 2005b) have argued against a reliance on a central list of capabilities, and for small-scale projects, such as ours, it is suggested that capabilities are selected through participatory methods (Alkire 2002; Robeyns 2005b).

In the qualitative phase of the wider study, a series of focus groups were held, from which information was gathered on how chronic pain impacts on quality of life. Framework analysis was used to identify a list of key capabilities from the raw data collected during the focus groups; all of these key capabilities are, to a significant extent, restricted by chronic pain. The list of capabilities was then presented to and

¹ Thank you to John Brazier for raising these two points at iHEA (2007).

² Once again, thank you to John Brazier for raising this question

reviewed with participants from the focus groups during a series of individual interviews. The final list of capabilities was then developed into a questionnaire.

Focus Groups

The questions used in the focus groups were taken directly from a topic guide and are reproduced below:

1. To start, I would like us to try and list *any* activities, freedoms or roles which you regard as being valuable and which you consider as contributing to a good quality of life.
 - If clarification is needed: These could include, for example, paid employment, having independence, informal childcare, or leisure activities.
 - Why do you feel that this particular activity/ role/ freedom is valuable?
2. Due to pain, or any treatment which you receive due to your pain, are you unable or restricted in your ability to do any of the activities or roles that you have just described as being valuable to you?
 - What impact do these restrictions have on your quality of life? For example, they may lead to a sense of frustration, isolation, loss of earnings.
3. Are there any valuable activities/ roles/ freedoms that you didn't include on the original list, because your pain means that you are unable to achieve these things?
4. Do you find that pain limits your freedom?
 - In what way?
5. Do you find that pain limits your independence?
 - In what way?
6. Do you find that pain has an impact on your relationship with others?
 - In what way?

Participants were all chronic pain patients recruited from a single Pain Management Clinic in Norfolk. Participants were divided into six groups comprising:

1. Men, aged 65 years or above, and retired
2. Women, aged 60 or above, and retired
3. Men, aged 18-65, in paid employment
4. Women, aged 18-60, in pain employment
5. Men, aged 18-65, not employed
6. Women, aged 18-60, not employed

Framework Analysis

Data from the focus groups was analysed using framework analysis, which is a method of classifying and organising data according to key themes, concepts and emergent categories (Ritchie and Lewis 2003). Initially ten 'key capabilities' were

identified, which were used as main headings and under which were listed a number of related functionings.

Interviews

The purpose of the interviews was to review the list of key capabilities and functionings identified from the initial qualitative data.

Interviews began with an explanation that the list of capabilities that was about to be presented to the participant for discussion in the interview was directly based on discussion from the focus groups. Participants were reminded that in the groups they had been asked how their pain restricted their freedom and ability to achieve important tasks or roles, and that the moderator had then asked them to further explain how this had an impact on their quality of life and what aspects of quality of life were affected.

It was explained that in the interviews things would be considered from the other direction; they were now going to be asked to consider a list of ten aspects of a good quality of life, and listed under each of these was a number of examples of activities/freedoms that were symptomatic of the achievement of each of the ten aspects of a good quality of life.

Once the list of capabilities and functionings had been introduced to the participant the full list was given to the participant to read through. Next, the interviewer read out each capability and each functioning in turn and participants were asked if the meaning of each 'statement' was clear and if the participant agreed that each was important. When all of the capabilities had been discussed the participant was asked if there was anything that they could think of which had been missed off the list. Following the interviews the number of key capabilities was reduced from ten down to nine and a number of amendments were made to the wording of the functionings.

Final list of Key Capabilities:

1. To be able to have self-respect
2. To be able to enjoy social interaction
3. To be able to fulfil the role of parent/grandparent
4. Being able to remain physically & mentally active
5. Being able to have a positive & individual identity
6. Being able to be independent/ have control

7. Being able to participate in a loving relationship
8. Being able to enjoy good physical & mental well-being
9. Being able to take enjoyment from life

Design of the Questionnaire

The capabilities were summarised in one or two words, which were used to form the section headings for the questionnaire and the functionings were used as questions, under each of which was listed four possible responses/levels. For example:

Self-Respect

I feel that I am treated with respect by others:

- All of the time
- Most of the time
- Rarely
- Never

Data Collection

Fifty new patients who were, once again, recruited through the Pain Management Clinic completed an initial questionnaire and agreed to being sent a further four follow-up questionnaires over a period of 12 months. As well as completing the capability-based questionnaire, participants completed EQ-5D. The 50 participants were recruited from September to November 2007. The age of the respondents ranged from 26 to 87, with a mean age of 58. 52% of the total sample population was male.

Initial Results

Table 1 shows how strongly each of the six groups is represented among the subjects who completed the initial questionnaire.

Table 1: Number of Respondents in Each Group

Group	Description	Number of Respondents in group
1	18 – 65, male, employed ¹	7
2	18 – 60, female, employed	3
3	18 – 65, male, not employed	13
4	18 – 60, female, not employed	5
5	65+, male, retired	6
6	60+, female, retired	16
		Total = 50

¹ Where employed refers to paid employment

Subjects were allocated to one of four groups according to the EQ-5D tariff value associated with their health state, following their completion of the EQ-5D. Details of

the four groups are summarised in Table 2. It was not possible to read off a tariff value for three of the respondents as they had missed at least one question on EQ-5D. Tariff values were taken from the 1995 report by the Measuring and Valuation of Health Group (time-trade off tariff of means).

Table 2: Summary of Four Groups

Group	Tariff Range	Actual Mean Tariff Value	Actual Median of Tariff Value	Number of Subjects in group	Mean age of subjects	Percentage of male subjects
1	0.538 – 0.796	0.664	0.673	20	59	45%
2	0.279 – 0.537	0.516	0.516	3	47	67%
3	0.020 – 0.279	0.125	0.088	12	59	52%
4	-0.239 – 0.019	-0.090	-0.074	12	57	58%

Tariff values for the sample population ranged from 0.796 to -0.239. To give some illustration of the range of health states to which these tariff values relate, a tariff value of 0.796 relates to a state in which the subject has:

No problems walking about; no problems with self-care; no problems with performing their usual activities; moderate pain or discomfort; no anxiety of depression

And a tariff value of -0.239 relates to a health state in which the subject:

Has some problems walking about; has some problems washing or dressing themselves; is unable to perform their usual activities; has extreme pain or discomfort; is extremely anxious or depressed

Approximately one quarter of the total sample population falls into the fourth group, with the lowest tariff values. Given the scaling of the tariff values (dead = 0 and healthy = 1), all of the subjects in Group 4 have a health state worse than death (all values were clustered at the lower (negative) end of the range).

As yet, we have no way of valuing attributes from the capability-based questionnaire and combining these into a single index. We can, however, look at responses from the capability-based questionnaire and reach an intuitive conclusion, as to whether quality of life appears to be worse for subjects whose health state – as defined by EQ-5D – is associated with a lower tariff value.

An initial, albeit very crude, method to summarise responses across the attributes listed under each of the nine sections of the questionnaire is a simple average of responses. First, responses on each individual attribute were given an arbitrary weight of 0, 1, 2 or 3. A weight of 0 was used if the respondent had selected level one (i.e. no problem), a weight of 1 was used if the second level was selected (i.e. if there was minor or infrequent difficulty/discomfort), and so on. The weights for all attributes in

a particular section were added together and divided by the number of attributes to give a value in the range 0 to 3. A higher mean value is associated with a greater degree of constraint on a respondent's capability to enjoy a good quality of life (i.e. a higher value represents a lower 'capability'). A Summary of the mean scores for the nine sections is provided in Table 3.

Table 3: Responses from the Capability-Based Questionnaire

Section	Total Sample Population		Group 1 (Best Health)		Group 4 (Worst Health)	
	Mean	Median	Mean	Median	Mean	Median
Self-Respect	0.98	0.93	0.79	0.86	1.38	1.29
Social Interaction	1.61	1.80	1.22	1.10	2.25	2.30
Role of Parent/Grandparent	1.91	2.00	1.51	1.67	2.47	2.67
Physically & Mentally Active	2.15	2.00	1.78	1.83	2.53	2.67
Identity	1.33	1.25	0.83	0.75	1.65	1.50
Independence & Control	1.30	1.29	0.84	0.86	1.84	1.86
Relationships	1.59	1.00	1.19	1.00	2.25	2.50
Physical & Mental Well-Being	1.69	1.67	1.45	1.50	2.11	2.13
Enjoyment	1.70	1.75	1.28	1.00	2.21	2.13

We can, based on the data in Table 3, say intuitively that there appears to be much agreement between the tariff values (associated with health-states defined by EQ-5D) such 'scores' from the capability-based questionnaire. But, can the capability questionnaire provide us with any more of a complete picture of quality of life for the respondents? Two dimensions from the capability questionnaire have been arbitrarily selected to give more of a flavour of what it is able to show; these are summarised in Tables 4 and 5.

Table 4 shows quite a clear division between the levels selected by respondents in group 1 and those in group 2, with those with higher tariff values (better health) selecting the levels indicating least problem and those with the worst tariff values selecting those levels indicating more severe problems, as expected. This distinction is not so clear for social interaction, where despite relatively high scores on EQ-5D respondents in Group 1 score badly in terms of capability.

Table 4: Ability to do things considered to be worthwhile & productive

Description	Frequency	
	Group 1	Group 4
Respondent was able to do things they considered to be worthwhile and productive as often as they wanted	6	-
With some restriction and difficulty	12	2
Rarely, and with great difficulty	1	4
Not at all	1	6

Table 5: Social Interaction

Description	Frequency	
	Group 1	Group 4
Respondent was able to go out and socialise in the same way and as often as they could before their pain	2	-
Most of what they could before and as often	4	-
Little of what they could before and less frequently	11	3
Respondent tended to stay at home due to their pain	2	9

5. Future Plans

The main question to be addressed at this stage of the project is whether we need to scale attribute levels and quantify trade-offs between the nine capabilities; and, if so, how. One method would be to use a standard preference elicitation technique such as standard gamble or time trade-off, in which case the end result would closely resemble the SCALY. A more radical approach would be to leave the data as it is and to restrict all economic evaluation to the approach of cost-consequence (Coast 2004; Coast, Smith et al. 2007). Without some formal way of summarising the findings, however, it would be a near impossible task to consider and weigh up all of the aspects of quality of life which are affected by a project for a comparison against the monetary cost. Alternative options would be to use willingness to pay or to find some structured approach for scaling functionings and quantifying trade-offs between capabilities through 'public deliberation'.

One avenue likely to be explored is a multi-attribute utility method based on work by Peacock, et al (2007). Their approach was developed in the context of assisting the setting of health service priorities using programme budgeting and marginal analysis, but also seems attractive for our purposes here, as will be discussed. There are six methodological steps, outlined below.

Methodological steps in the MAU approach (Peacock et al 2007, p899)

1. Identifying attributes in the MAU function
2. Describing attributes
3. Scaling attribute levels
4. Quantifying Trade-offs between attributes
5. Evaluating Programmes
6. Combining attribute scores

Peacock et al suggest that for stage one, an advisory panel defines attributes, which are relevant to the organisational context and the objectives of the decision makers. For stage two, the advisory panel constructs measurement scales for each attribute, against which programmes are to be evaluated. Stage three involves the panel scaling the different levels within the attributes, with their relative importance being determined on a 0-100 scale. It is suggested that 100 would represent 'excellent health' and 0 would represent 'death'. The panel would then assess the relative importance of each attribute, through the use of a 'swing weights' method. Next, the different programmes would be evaluated according to how well they perform with respect to each attribute. Finally, panel scores for each attribute would be combined using the MAU model to calculate the combined benefit score of a programme (Peacock et al 2007). A further stage is also suggested, which would involve the panel validating the results through discussion and deliberation.

Adopting the MAU approach to complete an evaluation based on capability

In the case of the work being undertaken on capability and chronic pain the first two stages described above can be considered complete. The panel in this case was chronic pain sufferers themselves, with the research team facilitating the process and conducting the analysis. Although an arbitrary scaling was used for the levels within the attributes/functionings in order to be able to present results in this paper, this method is far from ideal. It would be unreasonable to assume that the research team have somehow managed to set levels within the attributes so that the benefit of moving from the second to the first level, for example, is exactly equal to the benefit obtained from moving from the fourth to the third.

It is envisaged that the research team will ask groups of the general population to assign the top level a score of 100, the bottom level a score of 0 and then place the remaining two levels on the scale somewhere between these two extremes. This stage will involve healthy members of the population rather than patients so that issues

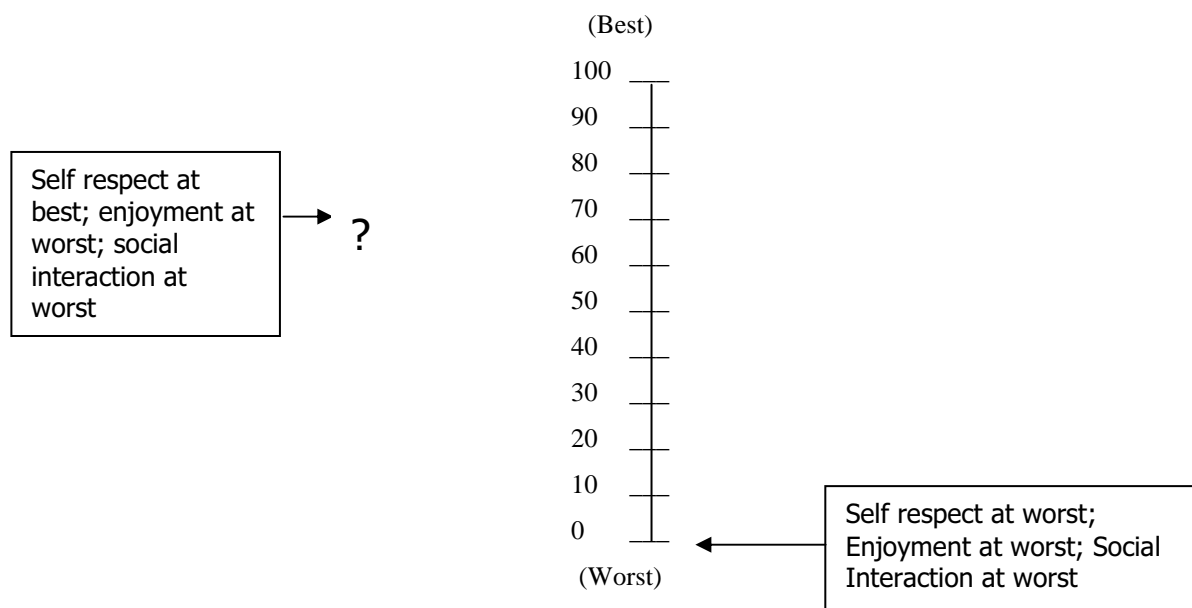
relating to adaptation are avoided. It is obvious that it will only be feasible to give each group a sub-set of attributes to work through as otherwise the task facing each group would be immense. It is also envisaged that the final scaling will be decided through a process of open discussion.

Each of the groups would then be asked to discuss and agree on the relative weights of a small number of key capabilities (i.e. attributes) using the swing weight method. This is a simple method in which respondents are asked how much an attribute contributes to overall well-being relative to other attributes by comparing hypothetical states/levels of well-being that 'swing' between the best and worst levels in each attribute. They then estimate the change in well-being that would result from changing each attribute from its worst to best level using a rating scale which has endpoints of 100 (all attributes at their best level) and 0 (all attributes at their worst level). Two forms of the swing weight method can be used, a 'bottom up method' and a 'top down method'. Here the bottom up method will be introduced.

Let us consider the three key capabilities relating to enjoyment, social interaction and self-respect. Each group of respondents would be asked to consider collectively the specific case of a person has no self-respect, is unable to achieve any social interaction and can find no enjoyment in their life. This state would be represented by a 0 (all attributes are at their worst level). They would then be asked to consider a new state in which, for example, the person could achieve complete self-respect, but could have no social interaction and was unable to find any enjoyment from their life. The group would be asked to decide where to place this state on a scale such as that illustrated in Figure 2.

The main benefit of this approach would be that the scaling of levels within attributes and the setting of weights for the key capabilities could be done following a process of public consideration and discussion, which is in keeping with the principles of the CA. What is more, the process itself is relatively straightforward. A possible weakness is that independence would be assumed between those attributes relating to one particular key capability.

Figure 2: Weighting attributes – bottom up method



6. Points for Discussion

At this stage in the project we have a set of capabilities and functionings, obtained through qualitative work with chronic pain patients; these have been developed into the capability-based questionnaire, which is currently being used to collect data from a further sample of fifty patients with chronic pain. Coast, Grewal et al have used Discrete Choice Experiments (DCE) to develop weights for their attributes, which reflect important aspects of life for older people, although their original objective was to use DCE, and was not to intentionally use capability.

So far, in the development literature capabilities and functionings have generally been assumed to have equal weight so that aggregation can be achieved by taking the mean, and the levels within functionings have been given an arbitrary score, much like we have done with our data in Section Four. This is an option, although it is unrealistic to assume that the capabilities are equally important and that the levels are exactly equidistant. Another option would be to leave what we currently have as a descriptive system and proceed with cost-consequence, although given the number of capabilities and functionings, the task of evaluating quality of life without the aid of some system of summarising the data would seem impossible.

If we proceed with a standard method such as SG or WTP then we would simply be re-inventing the QALY, or creating the SCALY! Thus we are exploring the approach

by Peacock et al, which is admittedly from another context, but which we believe may offer a useful and acceptable means of deriving a numerical weighting and summary system.

We are seeking the views of HESG, not least because it is a key issue to resolve, but because it is the stage of the project that we will be embarking upon in the next few months.

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