ASSESSING WOMEN'S QUALITY OF LIFE IN RURAL MALAWI: A CAPABILITIES INDEX

Giulia Greco

Thesis submitted to the University of London for the Degree of Doctor of Philosophy

Department of Global Health and Development

London School of Hygiene and Tropical Medicine

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I, Giulia Greco, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Abstract

The MaiMwana Project is a community-based intervention that organises women's groups (WG) in rural villages in Malawi. During the meetings, women discuss, develop and implement strategies to overcome maternal and neonatal issues. This intervention combines social strategies with empowerment, capacity building and knowledge across different sectors. It emphasises health promotion activities that rely on community engagement and participation aimed at changing behaviour of healthy individuals. The effectiveness of MaiMwana WGs is measured through a cluster randomised controlled trial design on maternal and neonatal mortality rates. However, the impact of the intervention is likely to occur on different aspects of women's wellbeing, not only on health.

Conventional economic evaluation techniques might fail to address comprehensively the complexity of community-based interventions such as the MaiMwana Project. Applying Sen's capability framework may provide an appropriate response to address this shortcoming. A crucial argument of Sen's approach is that wellbeing is the freedoms people have to pursue the kind of life they have reason to value. Social policies should aim to expand people's capabilities, and a policy is considered successful if it leads to an expansion of people's capability set. In order to assess and monitor progress in society, there is a need for developing multidimensional measures of wellbeing based on a broader evaluative space.

This thesis develops an outcome measure inspired by Sen's capabilities approach to assess women's wellbeing in rural Malawi.

To achieve this, the study has five objectives:

i. Identify a set of capabilities relevant to the context

ii. Propose a methodology to measure robustly these capabilities

iii. Aggregate the capabilities into a single metric (index)

iv. Validate and test the index.

During the exploratory phase, a series of focus groups was held in order to identify and value locally relevant dimensions of quality of life, or capabilities. The capabilities were assessed with a household survey on a sample of 345 women of reproductive age in Mchinji District, Malawi. The capabilities were aggregated into an index using four different methods: data-driven (principal component analysis), normative (equal weights and participatory exercise) and hybrid (survey ranking). The index was validated against the criteria of content validity, construct validity and reliability.

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Acronyms

BWS	Best Worst Scaling
CBA	Cost Benefit Analysis
CCA	Cost Consequences Analysis
CEA	Cost Effectiveness Analysis
CUA	Cost Utility Analysis
CV	Contingent Valuation
DALY	Disability Adjusted Life Years
DCE	Discrete Choice Experiment
ECHE	European Conference on Health Economics
FGD	Focus Group Discussion
GDP	Gross Domestic Product
HDA	Health Development Agency
HDCA	Human Development and Capability Association
HESG	Health Economists' Study Group
HRQOL	Health Related Quality Of Life
ICECAP-A	ICEpop CAPability measure for Adults
ICECAP-O	ICEpop CAPability measure for Older people
ICH	Institute of Child Health
iHEA	International Health Economics Association
ISOQOL	International Society for Quality of Life Research
LSHTM	London School of Hygiene and Tropical Medicine
NHS	National Health Service
ODI	Overseas Development Institute
OECD	Organisation for Economic Co-operation and Development
OPHI	Oxford Policy and Human Development Initiative

PACHI	Parent and Child Health Initiative (Lilongwe, Malawi)
PCA	Principal Component Analysis
QALY	Quality Adjusted Life Years
QoL	Quality of Life
UCL	University College London
UK	United Kingdom of Great Britain and Northern Ireland
UNDP	United Nations Development Programme
VPC	Volunteer Peer Counselling
WG	Women's Group
WHO	World Health Organisation
WHOQOL-Bref	World Health Organisation Quality of Life questionnaire (short form)
WTP	Willingness to Pay

Chapter 1 Introduction

1.1 Rationale of the thesis

Public health interventions are intended to protect health, to prolong and improve life and to prevent ill health in communities or populations; they are different from medical interventions, which are intended to prevent or treat illness in individuals (Nutbeam 1998; Rychetnik, Frommer et al. 2002). Public health programmes are considered to be "complex" because they often require behavioural changes of people and combine strategies that cut across multiple sectors (education, social care, health, employment) (Nutbeam 1998; Borghi and Jan 2008).

The importance of evaluating public health interventions was highlighted at policy level in the UK with the Wanless Reports (Wanless 2002; Wanless 2004). The second Wanless report recommends that good quality evidence on the cost-effectiveness of public health interventions is essential for making effective and informed decisions (Wanless 2004). As a result, the UK National Institute of Health and Clinical Excellence has been put in charge of providing guidance on the cost effectiveness of public health interventions (Lorgelly, Lawson et al. 2010).

Methods for assessing the cost-effectiveness of health care programmes have been used for a number of years and are well understood and accepted. However, these have mainly been applied to more narrowly defined 'clinical' interventions, such as those related to the use of medication or medical procedures. In contrast, the evaluation of public health interventions raises methodological challenges. By their nature, public health interventions are more likely to generate wider costs and benefits and are often targeted at communities rather than specific individuals.

The methodological challenges in the economic evaluation of public health interventions were first noted in the UK by a Health Development Agency (HDA) briefing paper (Kelly, McDaid et al. 2005) followed by a review of methods, challenges and recommendations conducted by Weatherly and Drummond as part of the Public Health Research Consortium (Weatherly, Drummond et al. 2009). One of the key challenges identified by them was how to identify, measure and value outcomes beyond health.

While recognising that well-established outcome measures for economic evaluation (QALYs and the relative quality of life measures such as the SF-6D and the EQ-5D) are based on Sen's critique of

Welfarism economics (Culyer 1971), it has been argued that such measures are limited in four ways: they focus exclusively on one dimension of wellbeing (health) and on the actual health gain (health functioning), rather than the freedom to achieve it; they are mainly concerned with the maximisation of health gain, although this is not all that people are concerned about; they are based on preferences that suffer from adaptation bias instead of being based on societal value judgment (Coast 2004; Anand and Dolan 2005; Lorgelly, Lawson et al. 2010). The literature thus suggests that assessing a community-based public health programme only on the basis of preferences for different health states is too narrow an approach.

Alternative approaches for measuring and valuing outcomes of public health interventions have been developed. Sen's capability framework has been suggested by some as an alternative paradigm for addressing the shortcomings of conventional economic evaluation tools (Coast, Smith et al. 2008; Smith, Lorgelly et al. 2012; Lorgelly, Lawson et al. 2010).

Interest in using Sen's Capability Approach for assessing the quality of people's lives is growing (Sen 1993; Sen and Nussbaum 1993; Verkerk, Busschbach et al. 2001; Phillips 2006). A central normative argument of his seminal work (Sen 1985; Sen 1992; Sen 1993; Sen 1999) states that individual advantage should not be seen merely as opulence or utility, and should not be assessed using people's preferences or desires, but instead in terms of the freedoms that people have to choose the kind of life they have reason to value. With this in mind, Sen argues that social and public policy should aim to expand people's capabilities, and a policy would be considered successful if it led to an expansion of people's capability set.

In recent years, the capability framework has gained prominence amongst academics and practitioners in many disciplines. In development and public policy, it is used for assessing poverty and social exclusion in terms of (lack of) capability as opposed to standard utility indicators such as GDP per capita or health states (Alkire 2002; Alkire and Santos 2013). Two research fora have been set up and build on Sen's approach: the Oxford Poverty and Human development Initiative (OPHI) and the Human Development and Capability Association (HDCA). The OPHI has developed a multidimensional poverty measure that can be used across countries (Alkire and Foster 2011). The HDCA comprises a multidisciplinary, international membership involving a range of institutions, a respected Journal of Human Development, and a widely attended annual conference.

The influence of the capability approach on public policy is reflected in many ways: the creation of the UN Human Development Index (Anand and Sen 1994) and the publication of the annual human development reports since 1990; the World Bank project *Voices of the Poor* that began in 2000 (Narayan 2000; Narayan, Chambers et al. 2000); in 2011, the UK government launched the Measuring National Well-being programme; and in France, former President Sarkozy set up the

Commission on the Measurement of Economic Performance and Social Progress in 2008. The Commission was chaired jointly by Joseph Stiglitz and Amartya Sen. The aim of the commission was to identify the limits of current measures of wellbeing and to explore the development and feasibility of new measurement tools. The OECD's Better Life Index, launched in May 2011, builds on the work of the Sarkozy commission and is used to assess the national wellbeing of OECD member countries, which are all middle/upper income nations (OECD 2013).

Despite the increasing interest in multidimensional wellbeing measures based on the capability framework, few studies have made an explicit attempt to develop an empirical methodology based on Sen's theoretical framework, and none has collected data for the specific purpose of measuring capabilities in a low income setting. Moreover, only one study in health economics has fully developed and tested a capability index: the ICECAP measures (Coast, Flynn et al. 2008; Al-Janabi, N Flynn et al. 2012).

1.2 The setting of the thesis in the MaiMwana Project

Set up in 2002, the MaiMwana Project (MaiMwana means 'mother and child' in Chichewa) is a development and research initiative that aims to improve maternal and newborn health in Mchinji District, Malawi (Lewycka, Mwansambo et al. 2010). The MaiMwana Project has been running two types of public health intervention. The first focuses on infant feeding counselling (Rosato, Lewycka et al. 2012); the second is a community-based participatory programme that organises women's groups (WG) in rural areas (Rosato, Mwansambo et al. 2011). This study relates to the Women's Group intervention.

Central to the community-based intervention is a four stage community action cycle: women gather together and engage in debates where they identify and prioritise health problems and needs; develop locally feasible and sustainable strategies to address these issues; implement the strategies with locally available resources; and evaluate them, after which the first phase starts again. Each WG is facilitated by a trained volunteer member of the local community who guides the participants of the group and their communities through the action cycle. The mechanism which underlies the action cycle is driven by self-awareness of health and illness, community empowerment, participation and local mobilisation (Rosato, Laverack et al. 2008; Rosato, Mwansambo et al. 2011).

MaiMwana Project interventions were set up to be evaluated using a cluster randomised controlled trial, designed by the Centre for International Health and Development at the University College of London (UCL). The trial was designed to detect an effect of the public health interventions on two outcome measures: maternal and neonatal mortality (Lewycka, Mwansambo et al. 2010). However, the WGs are likely to generate effects that fall beyond the health care sector and might impact the overall wellbeing of the people who participated in the programme, on other members of the household (Fitzsimons, Malde et al. 2012) and also on the community, such as feelings of self-worth, friendships, peer support, empowerment, knowledge (Borghi 2006).

Around two hundred Women's Groups are currently active in the district. At the outset, the groups identified and prioritised different maternal health problems, and have since engaged in a variety of strategies to address these. Limited data are currently available on the strategies implemented although analysis from project reports and a study by Rosato (Rosato, Mwansambo et al. 2006) show that the groups identified anaemia and malnutrition as two of the main threats to their health, and as a result the majority of the groups set up communal vegetable gardens and livestock rearing to improve their diet. Excess production from these agricultural activities was then sold to generate income. The groups identified diarrhoea as one of the major threats to the survival of their newborn children, and engaged with other members of the community in building wells and boreholes to provide clean and

safe water. They identified malaria as one of the causes of ill health, and lobbied the local authorities to deliver bed nets and to work towards a cleaner (malaria-free) environment. The district has since delivered 800 bed nets. The groups also recognised the dangers of delivering at home and the importance of being assisted by a skilled health worker during birth. The groups lobbied the local authorities and donors and as a result 11 mobile clinics have been established, 11 antenatal and under-5 clinics built, 33 bicycle-ambulances purchased and traditional birth attendants trained.

This information suggests that MaiMwana Women's Groups are likely to improve the quality of life of the groups' members, of their families and of the community. It is also possible that the empowering process through which the women identified and prioritised issues and then advocated for a response to address these was intrinsically valuable in itself.

In considering the design of the cost-effectiveness analysis of the MaiMwana Project, it became apparent that evaluating the Women's Groups only on the basis of lives saved would ignore the potential impact on other aspects of people's lives and could therefore underestimate the real value of the intervention. Further exploration was therefore needed to develop an appropriate methodology that could include both health and non-health outcomes and could identify, measure and value the broader impact of the intervention on people's lives.

This research takes Sen's conceptual framework as the foundation for developing a multidimensional index to assess women's quality of life in rural Malawi. The index is tested and validated in the context of the MaiMwana Project cluster randomised controlled trial. Its actual use in the economic evaluation of public health programmes, in particular for the evaluation of the Women's Group intervention in Malawi, will be a priority for future research.

1.3 Research aim and objectives

The primary aim of this research was to develop a multidimensional index based on Sen's capability framework to assess women's wellbeing in rural Malawi.

To achieve the primary aim, this study sought to meet the following specific objectives:

i. Identify a set of capabilities relevant to the study and context
ii. Propose a methodology to measure robustly these capabilities
iii. Translate the measurement into a single metric (index)
iv. Validate the instrument

The study thus attempts to answer the following research questions:

i. What are the dimensions of quality of life that are relevant for the target population?
ii. What is the most appropriate method for aggregating the different capabilities into a single measure?
iii. Is the capability index a valid and reliable measure?

1.5 Study design

The process of developing the capability index followed a number of steps:

1) Development of a theoretical framework informed by a series of focus group discussions with women of reproductive age for drawing the list of dimensions of quality of life, or capabilities;

2) Valuation of the capabilities using mixed-methods: qualitative weighting through a deliberative democratic process, and survey ranking;

3) Development of a measurement model: selection of indicators and questionnaire design;

4) Building of the capability set for a sample of women through a household survey;

5) Aggregation of the capabilities into one index using 4 different methods: data-driven (principal component analysis); normative (participatory exercise and equal weights); and hybrid (ranking);

6) Assessment of the validity and reliability of the index.

1.6 Structure of the thesis

This thesis is composed of a general literature review, an overview of the study setting, and three paper-style chapters which include chapter-specific literature reviews, a methodology, and discussion. The thesis concludes with a final discussion which aims to draw together and reflect on the findings of the three empirical chapters.

The content of the chapters is outlined below.

Chapter 2 provides the theoretical background to the study as whole. The literature review first presents different methods for the identification and valuation of health and non- health outcomes of public health programmes as well as highlighting the shortcomings of conventional techniques. In the second section of the literature review, the capability approach is explored as a more appropriate conceptual framework for the assessment of wellbeing and social policies. Existing applications of the approach are reviewed, the different methodologies used are analysed and the challenges and opportunities of adopting this normative tool are presented.

Chapter 3 describes the country setting and the study background.

Chapter 4 uses qualitative methods to select the dimensions of quality of life that will be part of the capability set. The list of capabilities is generated through a series of focus groups discussions.

Chapter 5 is a methodological paper on the aggregation of the index. The index is aggregated in four different ways. The implications on the identification of the "worse off" are investigated.

Chapter 6 is a mixed-method paper on the validation of the instrument. A series of validity and reliability tests are performed.

The final chapter presents a summary of the main findings and a reflection on the methodology used. It identifies the contribution of the research in light of existing knowledge. It concludes with the exploration of avenues for future research and policy implications.

The Appendix provides an analytical summary of the streams of research in quality of life and a summary table of the main empirical studies on the capability approach. A map of Malawi is presented with Mchinji, the study district, highlighted, followed by a diagram of the four stage community action cycle of the Women's Groups that was described in this chapter. Finally, the consent forms for the focus group discussions and the household survey in English and Chichewa, the topic guide for the focus group discussion, the final questionnaire in English and in Chichewa, and the WHOQOL-Bref questionnaire in English and in Chichewa are all presented.

1.7 Funding and ethics approval

The research was sponsored by the UK Medical Research Council with a 3 year Doctoral Training Award. The Central Research Fund of the University of London provided funds for the fieldwork in Malawi. The British Fund for Women Graduates granted additional financial support during the writing up stage of the thesis.

Ethics approval was granted by the London School of Hygiene and Tropical Medicine Ethics Committee on 26th August 2009 (approval 5557) and by the National Health Sciences Research Committee of the Government of Malawi on 9th September 2009 (protocol 659).

Written consent for the focus group discussions and the survey interviews was obtained from the participants after detailed explanation of the purpose of the exercise, and women were free to decline to be interviewed at any time. Participants who gave consent to take part in the study either thumb-printed or signed two copies of the consent form: one to keep and one for the researcher. The consent forms had also the researcher's signature.

Chapter 2 Literature review

Based on the rationale and the objectives of the thesis described in Chapter 1, the literature review was conducted on two main areas of research:

- Economic evaluation of public health programmes,
- Operationalisation of the capability approach.

For the economic evaluation of public health programmes, the first step in the review strategy was to search a number of electronic databases (PubMed, Embase, CabDirect) using search terms related to the following topics: 1) economic evaluation combined with public health; 2) economic evaluation combined with health promotion; 3) economic evaluation combined with community-based programme.

For the operationalisation of the capability approach, the literature search strategy started with the review of the main contributions of Amartya Sen to the field of wellbeing and welfare economics: *Commodities and Capabilities* (1985), Inequality Re-examined (1992), The Quality of Life (1993) and *Development as Freedom* (1999). Then, the work of Sabine Alkire, Ingrid Robeyns and Martha Nussbaum that relates to the capability approach was reviewed. The Oxford Poverty and Human Development Initiative and the Human Development and Capability Association (HDCA) provided an excellent starting point for reviewing published and unpublished work related to empirical applications of the capability approach.

In addition, reference was made to economics and econometrics textbooks, doctoral theses from University College London, LSHTM, University of Cambridge and University of East Anglia; as well as grey literature on the websites of numerous organisations (Organisation for Economic Co-operation and Development (OECD), UK Office for National Statistics, World Bank, World Health Organisation (WHO), United Nation Development Programme (UNDP), National Bureau of Economic Research, Institute of Fiscal Studies (IFS), UK Department for International Development, LSE Centre for Analysis of Social Exclusion (CASE) and development gateways (Eldis, id21).

Moreover, programmes of relevant conferences were searched for abstracts related to the two main research areas: Human Development and Capabilities Association, New Directions in Welfare, International Health Economics Association (iHEA), Health Economists' Study Group (HESG), and International Society for Quality of Life Research (ISOQOL).

The bibliographies of review materials identified via the above search criteria were screened for relevance, as were articles that referenced the same review articles. The entire literature review was limited to articles in English and Italian languages.

2.1 The economic evaluation of public health programmes

2.1.1 The main challenges

The term public health encompasses broad determinants of health including education, poverty and participation. Public health interventions aim to protect health, prolong life and improve the life of people (Weatherly, Drummond et al. 2009; Nutbeam 1998; Rychetnik, Frommer et al. 2002). They are distinguished from clinical interventions, which are intended to prevent or treat illness in individuals. Public health programmes often target communities or groups of people rather than individuals, and are usually focused on health promotion activities. Health promotion according to the Ottawa Charter for Health Promotion (World Health Organisation 1986) is "the process of enabling people to increase control over, and to improve, their health". Health promotion programmes rely on community engagement and participation aimed at changing the lifestyle or the behaviour of healthy individuals. They tend to be complex and may often combine educational, social and political strategies with aspects of empowerment, capacity building and knowledge across different sectors (Nutbeam 1998; Borghi and Jan 2008). For example, a smoking ban could have an impact on the entertainment and restaurant sector, or a programme for preventing teenage pregnancies could have an impact on the education sector.

Some effects of these programmes are thus likely to occur outside the health care sector and this should have an impact on the choice of health and non-health outcomes to measure and value (Weatherly, Drummond et al. 2009).

The concept of 'health outcome' suggests a change in the health status of an individual, group or population which is caused by a planned intervention or series of interventions, regardless of whether such an intervention was intended to change health status. By contrast, a 'non-health outcome' suggests a change beyond health status that occurs on other dimensions of well-being (Nutbeam 1998). While acknowledging the broad WHO definition of health as a state of complete physical, social and mental well-being, in this study, in order to keep a clear definition between health and non-health outcome, health is referred to as a disease-free condition.

Outcomes can be as varied as changes in the health states as well as changes in behaviour and characteristics of individuals and communities, and changes in the political and social environment (Borghi and Jan 2008). In a community-based project targeting women in Nepal, findings suggest that non-health outcomes (identified as increased knowledge and confidence, and social participation) were valued by 84 per cent of the people that were willing to pay for the Women's Group intervention (Borghi and Jan 2008).

It has been shown that community mobilisation programmes addressing maternal health in Bolivia (O'Rourke, Howard-Grabman et al. 1998), Ethiopia (Kidane and Morrow 2000), India (Bang, Bang et al. 1999) and Nepal (Manandhar, Osrin et al. 2004) have significantly reduced neonatal and under-5 mortality rates. It could be argued that the participatory empowerment process by which individuals and communities identify, prioritise and address their problems is intrinsically valuable in itself as it can improve the sustainability and effectiveness of the programmes and hence should be taken into account when assessing the effect of the intervention. Sen also points to the significance of participation as a valuable and essential aspect of society (Sen 1999).

In addition, public health interventions tend to be context-specific and essential contextual characteristics are the political economy and the socioeconomic and demographic characteristics of the community (Rychetnik, Frommer et al. 2002). For this reason, it has been argued that the outcome measure of public health interventions should include the interests of all the key stakeholders, and not just those who conduct or appraise the evaluative exercise (Lomas 1997). Important stakeholders may include policy makers, as well as those affected by the intervention and the community as a whole. In fact, it has been argued that community members feel that appraisals are imposed upon them, that they are not actively involved in the process, and that the evaluation process is not considering the uniqueness of their community, its resources and capacities (Judd, Frankish et al. 2001).

Finally, behaviour change is a lengthy process, and the effect is likely to be sustained beyond the intervention and might not be observable in a conventional evaluation time-frame (Shiell and Hawe 1996).

Health economists usually assume that the aim of an intervention is to maximise health, and non-health outcomes are generally ignored within economic evaluation (Borghi and Jan 2008). However, neglecting to consider the multiple effects might overlook some benefits and the *holistic* impact of the programme could be underestimated. The evaluation of the effectiveness of public health interventions must be sufficiently comprehensive to cover their complexity, and the evaluative space should be stretched in order to include health and non-health outcomes in an adequate time-frame (Rychetnik, Frommer et al. 2002).

In addition, many public health interventions are concerned with health inequalities while standard economic evaluation methods focus on efficiency (i.e. the maximisation of health gain) rather than on equity (i.e. the distribution of health gain). Hence, the evaluation of public health interventions needs to pay more attention to equity considerations (Weatherly, Drummond et al. 2009).

While conventional techniques such as cost-effectiveness analysis and cost-benefit analysis have been shown to be well adapted for the evaluation of many interventions in the health care sector, their

application in public health and community mobilisation interventions is a matter of on-going debate (Borghi and Jan 2008; Lorgelly, Lawson et al. 2010; Hale 2000; Rosen and Lindholm 1992).

Health economists have side-lined the economic evaluation of health promotion activities for a variety of reasons. These include a lack of demand for economic evaluation of health promotion interventions, misunderstanding by health promotion activists of what contributions health economics can make to this area, misunderstanding by health economists of what health promotion is and aims to do, and most importantly, technical difficulties in applying standard methods of economic evaluation to health promotion interventions (Hale 2000).

Indeed, many authors have acknowledged the technical difficulties that economists face in capturing and evaluating both the costs and the benefits of these complex interventions (Lorgelly, Lawson et al. 2010; Shiell and Hawe 1996; Rosen and Lindholm 1992; Dixon and Sindall 1994; Hale 2000). In a comprehensive review of the methodological approaches that have been used in the assessment of public health interventions, Weatherly, Drummond and colleagues have identified four methodological challenges (Weatherly, Drummond et al. 2009): attributing outcomes to interventions to obtain unbiased estimates of effect; measuring and valuing outcomes to assess how much better the quality of life is in one health state compared to another; incorporating equity considerations; and identifying intersectoral costs and consequences to assess their impact on the health care sector and impacts on other sectors of the economy.

While recognising the importance of all these issues, the scope of this study is limited to tackling the measurement and valuation of outcomes, understood as health and non-health outcomes. However, it will be important to investigate and address equity considerations in a subsequent study.

2.1.2 The assessment of outcomes in economic evaluation of public health programmes

The conventional methods used to evaluate public health programmes are summarised in Table 2.1, and the advantage, disadvantages and value positions of adopting one type of evaluation or another are detailed in Table 2.2.

Table 2.1 Measurement of outcomes by type of economic evaluation (Adapted from Drummond 1997)

Measurement & valuation of outcomes	Type of evaluation
Natural units (e.g. life-years gained, disability days saved, points of blood pressure reduction)	Cost-effectiveness analysis (CEA)
Healthy years typically measured as quality-adjusted life-years (QALYs) or disability-adjusted-life-years (DALYs)	Cost-utility analysis (CUA) within the CEA umbrella
Monetary units based on individual compensation	Cost-benefit analysis (CBA)
Natural units (e.g. life-years gained, disability days saved, points of blood pressure reduction)	Cost Consequences Analysis (CCA)

Disease specific outcomes are measured in natural units (such as deaths averted, years of life gained, cases of diarrhoea averted) and are by definition uni-dimensional and do not include broader measures of wellbeing, and for this reason they will not be considered further for the purpose of this study.

As the literature reveals (McDaid and Needle 2009), the most widely used outcome indicator for the evaluation of public health programmes is the quality-adjusted life-years measure (QALYs) used in cost-effectiveness analysis (CEA) and cost-utility analysis (CUA). QALYs incorporate valued health outcomes and can measure health-related quality of life (HRQOL). People's HRQOL is expressed in terms of utilities and the utility values are then multiplied by the time spent in the particular health state to generate QALYs (Weatherly, Drummond et al. 2009).

From the literature it emerged that several measures have been developed and used to assess HRQOL and related concepts of functional status. Among them are the Medical Outcomes Study Short Forms (SF-12 and SF-36), the Sickness Impact Profile, and the Quality of Well-Being Scale (Weatherly, Drummond et al. 2009). A small number of studies included disease-specific outcome measures, such as a diabetic quality of life scale, and the number of HIV infections averted (Drummond 2007). Few studies were found to use the WHOQOL-Bref in a low income setting (Colbourn, Masache et al. 2012). No studies were found to include generic outcome measures which could be used across different interventions and sectors in the economy.

In estimating the 'quality adjustment' component of the QALY, economists usually rely on methods for eliciting preferences where respondents (the patients, or a section of the general public) are required to trade years in full health with equally preferable longer periods of time in a worse state of health (trade-off method) (Dolan 2008) or are required to value the probability mix of health and

death that makes them indifferent between the gamble and the certainty of poor health (standard gamble) (Shackley and Cairns 1996).

However, the valuation exercise might not make much sense if the risks involved are very small (Donaldson, Shackley et al. 1997). Moreover, it has been argued that what is assessed is not the quality of life *per se* but influences on the quality of life (health) (Grewal, Lewis et al. 2006). In fact, there is no evidence that non-health outcomes which may be relevant to community-based interventions can, as yet, be incorporated in the QALY framework (Jacobsson, Carstensen et al. 2005), and this failure has been the major criticism advanced by health economists (Birch and Donaldson 2003) .

The health states of HRQOL measures are described in terms of levels of physical, psychological, and social functioning. Thus, when respondents outline their preferences for health states, they assess health in terms of its consequences for well-being (Bognar 2008) and it has been shown that respondents while formulating their preferences, do take into account aspects of wellbeing outside health (e.g. age, religion, family) (Baker, Robertson et al. 1995). However, as before, the inferred utility outcome is not a direct measure of wellbeing *per se*. Moreover, the QALY framework may not be able to detect small changes in health states, as might happen for community-based health promotion interventions that generally target healthy individuals (Rosen and Lindholm 1992).

An alternative to the QALY framework, although with significant methodological differences, is the measure of the burden of disease incorporated into Disability Adjusted Life Years (DALYs). In DALY measurement, health states are described in clinical terms. The value of health states is determined by their 'disability weights' estimated by a panel of experts (Murray 1994). The notion of disability describes the impact of impairment on wellbeing and the weights reflect how well a person's life can be led with respect to the given disability, and there is no inclusion of a measure of quality-of life beyond health/disability (Bognar 2008). Moreover, the accuracy of DALY calculations depends on the availability of epidemiological data and in some contexts, such as maternal health, it is not straightforward to access this information, as morbidity conditions have tended to be under-reported (Sadana 2000; Allotey and Reidpath 2002; Hanson 2002; Dejong 2006) .

QALYs and DALYs have been shown to be of critical importance for the evaluation of health care interventions in both developed and developing countries. However, it is argued that analyses based on these approaches are not entirely suited to the assessment of public health and community-based initiatives (Weatherly, Drummond et al. 2009). They fail to capture adequately the full range and breadth of outcomes generated by these complex interventions and their common underlying assumption is that health is valued in terms of its impact on well-being by measuring only the health-related part of well-being (Bognar 2008). Many authors (Borghi and Jan 2008; Rosen and Lindholm

1992; Hale 2000) have stressed the shortcomings of the QALY in this context and have suggested other techniques, which will now be reviewed.

Non-health outcomes generated can be monetised with contingent valuation methods (CV) and discrete choice experiments (DCE) (Ryan 1999) and used as willingness-to-pay (WTP) data (Borghi and Jan 2008) in a cost-benefit analysis (CBA) as has been done for similar interventions in Makwampur district, Nepal (Borghi, Thapa et al. 2005) and in Lilongwe, Kasungu and Salima districts in Malawi (Colbourn 2012). Colbourn used the WHOQOL-Bref to assess women's quality of life and conducted a discrete choice best-worst scaling exercise to provide relative preference-weights to each WHOQOL-Bref attribute; respondents indicated how important each attribute was on a scale without trading-off the attributes against each other (Colbourn 2012).

There are a number of criticisms related to the adoption of CV methods. It has been shown that there is a strong relationship between income and WTP: people with a low income are likely to provide low valuations. When evaluating public health interventions this could be an issue since many interventions are targeted at low income individuals, and the use of WTP could undervalue the real benefit of these interventions (Lorgelly, Lawson et al. 2010).

Moreover, the adoption of this compensation mechanism is not always appropriate as people might feel uncomfortable to put a monetary value on a healthy life (Coast 2004), and the "price" could be biased by the ability to pay of the participant and distorted towards the wealthy (Coast, Smith et al. 2008) – although equity weights can be applied and the distribution can be adjusted afterwards (Borghi 2008). Moreover, stated preferences can be insensitive to the magnitude of the benefits (Drummond 2005).

Another alternative is to identify and describe health and non-health outcomes in a cost-consequences analysis (CCA) which presents them in a disaggregated way. This approach is suggested when mapping the intersectoral costs and multiple outcomes of public health interventions. However, there are no rules on how to combine the information and how to use it for an allocation decision – the value position is left open to the decision makers (Weatherly, Drummond et al. 2009).

Table 2.2 summarises the main advantages and disadvantages associated with the three alternative approaches to the economic evaluation of health interventions as presented above.

Table 2.2 Advantages and disadvantages of different types of economic evaluation (adapted from Drummond 2007 p. 100)

CBA	**Advantages**
Value position	Consistent with traditional welfare economics incorporating objective of maximising individual subjective utility. Decision rule: if benefits > costs, the social welfare is greater
Practical feasibility	Broad scope of outcomes can be measured in monetary values including non-health as well as health outcomes. Non health outcomes include process utility e.g. the reassurance value associated with conducting diagnostic tests (Donaldson & Shackley, 1997)
	Disadvantages
Value position	WTP values may be influenced by individuals' ability to pay. Although it can be adjusted for.
Practical feasibility	WTP elicitation has been associated with issues of bias and precision; Insensitive to the magnitude of effect including scope effects and nesting effects; Inflate valuations of the specific intervention that respondents are asked about, relative to interventions that respondents are not asked about (Cookson, 2003); Difficult to validate WTP if public health care is free at the point of delivery; Lack of standardised elicitation process: different question formats used can yield different results. E.g. payment card bidding approach compared to dichotomous choice take-it-or-leave-it approach. Ryan found that the latter gave consistently higher estimates of WTP (Ryan et al, 2004)
CEA/CUA	**Advantages**
Value position	Underpinned by extra-welfarism, incorporating the objective of maximising health; Health state preferences can be elicited using choice based preferences i.e. either standard gamble utilities or time-trade off values; Can incorporate preferences of the general public "behind a veil of ignorance", consistent with Rawlsian theory (Rawls 1971) Life years are adjusted for the quality of those life years
Practical feasibility	Approach to valuation standardised, enhancing validity
	Disadvantages
Value position	Not consistent with traditional welfare economics as the objective is to maximise health rather than subjective utility
Practical feasibility	By focusing on health outcomes, the approach omits non-health outcomes Different health state valuation tools can generate different valuations for the same health state
CCA	**Advantages**
Value position	Not defined. Flexibility since decision maker can apply own decision rules
Practical feasibility	A broad scope of outcomes can be measured including non-health as well as health outcomes Outcomes are presented in a disaggregated manner so that the benefits and disbenefits associated with each intervention are reported upfront. This can aid transparency
	Disadvantages
Value position	No theoretical basis
Practical feasibility	Lack of transparency in terms of decision rules. Decision maker applies own subjective decision rules about the trade-offs between different outcomes and the trade-off between outcomes and costs

Attempts to use these conventional techniques in the economic appraisal of health promotion and community participatory interventions are generally met with criticism. The main reason is because the full range of outcomes is not incorporated in the appraisal and hence the results are routinely devaluing these types of interventions as being more ineffective and inefficient compared to other types (Hale 2000). Some authors even argue that health economics has little to add in the field of health promotion and community programmes (Burrows, Bunton et al. 1995). There is certainly a need to find a balance between the two fields.

The need to develop outcome measures which include multidimensional measures of quality of life, and valuation methods which include social values and a broader participatory process, has given impetus to the development and adoption of a variety of new approaches.

Jan advances the theory of institutionalism for a more "holistic" approach to the evaluation of indigenous health programmes where cultural issues may have a strong influence over the effectiveness and acceptability of interventions (Jan 1998). Mooney (Mooney 1998; Mooney and Blackwell 2004; Mooney 2005) proposes a communitarian approach for priority setting that challenges the tenets of Welfarism to include the values of the community as opposed to the values of the individual. His approach draws largely on Sen's arguments but extended to a community level.

Alternative approaches are drawn from the literature on quality of life. Colbourn provides an extensive review of the literature of the definitions and measurements of quality of life (Colbourn 2012). Phillips has identified seven streams of research in quality of life and wellbeing, presented in the Appendix. These include, amongst others, subjective wellbeing, utility, capabilities and poverty studies (Phillips 2006).

In health economics, Dolan started a debate on whether to value health states according to hypothetical preferences of the general public, or based on subjective and experienced wellbeing (Dolan 1998). Dolan reviewed a number of indices of wellbeing in order to understand the influences on personal well-being and application to policy making, including income and life satisfaction questions and found that some, such as income, offered an incomplete picture of wellbeing (Dolan, Shaw et al. 2005). In a response to his essay, Hausman argues that neither hypothetical preferences nor subjective experiences are reliable measures of wellbeing, and health states should be valued in terms of the activities that they permit. Moreover, policy makers should allocate health care resources "in ways that are both fair and that expand and protect the range and value of the projects that individuals can pursue" (Hausman 2008 p. 83). Although Hausman does not refer to Sen's work, his essay is very much in line with the Capability framework.

Theoretical advances in economics such as Sen's concept of functionings and capabilities entail a broader notion of wellbeing, and have been suggested to be well-suited for assessing public health interventions and community development programmes (Shiell and Hawe 1996; Mooney 2005; Lorgelly, Lawson et al. 2010; Smith, Lorgelly et al. 2012). As Sen (Sen 1987; Sen 1992; Sen 1993) states, when assessing quality of life, the object of the assessment should be people's capabilities, intended as the real freedom that people have to live the life they value.

Sen's approach is not new to health economics, as it formed the basis of Culyer's contribution to the progress of extra-Welfarism and the subsequent development of the QALY framework (Culyer 1990; Brouwer and Koopmanschap 2000). However, it is only recently that the Capability approach has started to be considered more directly as an alternative to conventional approaches in several disciplines, including health economics (Cookson 2005; Coast, Smith et al. 2008; Coast, Smith et al. 2008; Smith, Lorgelly et al. 2012)

In this section, the complexity of public health interventions has been outlined, and the methodological challenges that this complexity raises for the economic evaluation of such interventions have been identified in the literature. One methodological challenge has been investigated further: the identification and measurement of the outcomes of public health interventions in economic evaluation. Different approaches to the development of adequate outcome measures have been explored.

The aim of the next section is to discuss the theoretical grounding of welfare economics the criticism that led to the development of extra-Welfarism and the capability approach for the assessment of quality of life.

2.2 Welfarist, extra-Welfarist and Quality of Life

The concept of quality of life refers to an evaluative judgement about major aspects, or the totality, of a life or a society (Gasper 2010). The search for what constitutes a good life has been on the agenda of many philosophers, economists and thinkers, since the time of Aristotle. Several definitions of good life have been produced, but none received a universal agreement and each is grounded in a different philosophical perspective (Stiglitz, Sen et al. 2009).

Before *A Theory of Justice* (Rawls 1971) was published, the dominant neoclassical model for determining a good life and the desirability of a particular policy – according to explicit and socially acceptable norms and criteria, was based on a number of theoretical assumptions, defined as Welfarist principles and summarised below (Sen 1977; Boadway and Bruce 1984; Brouwer, Culyer et al. 2008).

Welfarism is based on the concept of utility. Utility in classic Utilitarianism is understood as happiness or satisfaction, in modern Utilitarianism it is understood as preferences. According to the utility principle, individuals are rational actors who, in order to maximise their utility (intended as pleasure or desire-fulfilment) rank different options and choose one according to their preferences.

The object of value for an individual or societal wellbeing is utility and the evaluative space is limited to the utility function: 'judging the goodness of states of affairs only by utility information' (Sen 1986 p.11). Individuals are considered the best (if not the only) judges of their own wellbeing, in terms of what and how much is needed to reach a desired level of satisfaction and self-fulfilment. Utility is considered only as an outcome, not as a process itself: if an individual chooses to be or do *x* rather than *y* it implies that *x* will bring to this person more pleasure than *y*.

In Welfarism, the aggregation and distribution is done according to "the greatest happiness of the greatest numbers": aggregation is simply additive, assigning the same value to each individual welfare. The Pareto optimality principle states that the maximum level of welfare in society is reached when none can be made better off without making someone else worse off (Boadway and Bruce 1984). As Coast points out, this principle is not useful for aiding decision making in health care (or other social policy) because giving resources to one group of the population will be at the expense of another hence there is no indication of which group to favour (Coast, Smith et al. 2008). However, a further improvement in societal welfare could occur if the winners can compensate the losers with a costless lump sum transfer (Hicks 1939; Kaldor 1939).

Many scholars have challenged Welfarist theoretical assumptions and contributed to the development of the Extra-Welfarist approach. Sen has been one of the most prominent critics and his capability

approach is not new to the discipline of health economics, as (previously discussed) it formed the basis of Culyer's criticism (Culyer 1971; Culyer and Wagstaff 1993).

There is no general consensus in the literature on the definition of Extra Welfarism; two articles have recently been published, seeking to clarify its meaning (Brouwer, Culyer et al. 2008; Coast, Smith et al. 2008). In this thesis, the term is used in a non-Welfarism sense, embracing the critiques of the standard Welfarist school. Extra-Welfarism has four main points of departure, summarised below (Culyer 1990; Brouwer, Culyer et al. 2008).

The object of value and the evaluative space in the assessment of a good life are not exclusively and primarily utility. Culyer replaces utility with health (Culyer 1971) and the evaluative space is translated into the QALY measure; Rawls replaces it with primary goods (Rawls 1971). Sen similarly argues that utility is the wrong object of value, because the evaluative space is too narrowed on the emotional reaction that people have in possessing goods rather than on what commodities enable them to do and be (Sen 1985). Although Sen posed the roots of his theory in Rawls, he also rejects the primary goods approach because the possession of commodities does not always convert into well-being, and individuals have different conversion functions (Sen 1985). His primary claim is that in evaluating well-being, the value-objects are the functionings and capabilities (Sen 1992; Sen 1993) and an improvement in well-being is measured as capability expansion (Sen 2003).

The source of valuation can be extended beyond the preferences of the "rational" individual, and could include a group of women, the community or the public which has to imagine being in that state or the decision maker, who decides a threshold of societal willingness to pay for gaining a healthy year of life or QALY (Cookson 2005).

Extra-Welfarists do not directly reject the concept of preferences. However, some have advocated against preference-based utility techniques and in favour of more subjective well-being measures (Smith, Brown et al. 2008). However, Sen considers neither a viable alternative. First, because of memory biases and adaptation - individuals may not recognise their own level of deprivation because they have adapted to their situation (Sen 1982). Second, because individuals should not be considered as rational actors: "a person is given *one* preference ordering, and as and when the need arises this is supposed to reflect his interests, represents his welfare, summarise his idea of what should be done, and describe his actual choices and behaviour. Can one preference ordering do all these things? A person thus described may be "rational" in the limited sense of revealing no inconsistencies in his choice behaviour, but if he has no use for these distinctions between quite different concepts, he must be a bit of a fool" (Sen 1977 p. 335).

Choices cannot be assumed to reflect the person's preferences for his/her own wellbeing because the motivations that underline these choices are completely neglected and they could be motivated by

other considerations (e.g. a sense of obligation, altruism, or traditional values). Sen advocates for a participatory process of "value judgment" (Sen 2005).

As Nussbaum (Nussbaum 2001) argues, the adaptation of preferences is greatly influenced by religion, social norms and local tradition. For example, women in many societies live in a subordinate condition compared to men, lacking the same opportunities; they might be indifferent to the gender discrimination they are suffering since they are used to living with this cultural bias (Dejong 2006).

In matters of aggregation and distribution, Culyer's interpretation of extra-Welfarism remains somehow closer to standard Welfarism because it maintains the notion of maximisation, shifting the maximand for economic evaluation from utility/income to health gain (Coast, Smith et al. 2008). For others, there is more concern with equity e.g. equal distribution of primary goods, basic needs enjoyed by everyone, health equity (Olsen 1997; Sen 2002).

Sen is strongly opposed to the Pareto principle and argues that "A state can be Pareto optimal with some people in extreme misery and others rolling in luxury, so long as the miserable cannot be made off without cutting into the luxury of the rich". (Sen 1987 p. 32).

In this section the tenets of neoclassical Welfarist economics have been outlined along with the main critiques that lead to the spread of new ideas and approaches, particularly extra-Welfarism. One of these frameworks is the one favoured by Sen, the Capability approach, which emphasises the real opportunities that people enjoy and have reason to value as opposed to the commodities they possess or the utility and satisfaction they derive from those commodities. The next section will describe the framework in detail and explain why Sen's perspective is favoured in this thesis.

2.3 The Capability approach

The Capability approach is a "broad normative framework for the evaluation and assessment of individual well-being and social arrangements, the design of policies, and proposals about societal change" (Robeyns 2006 p. 352). It was first introduced by Amartya Sen at the Tanner Lecture on Human Values in 1979 with an essay entitled *Equality of What* (Sen 1979). At that time, the two main streams of thought were Utilitarianism and the *Theory of Justice* by Rawls (Rawls 1971). Sen advocates that people's well-being and indeed societal welfare should be assessed in the space of real opportunity, or capabilities, intended as the freedom that people have to live the kind of life they have reason to value (Sen 1999).

Since that lecture the framework has been developed further and has attracted much interest and enthusiasm amongst academics, policy makers as well as the general public, who have considered it as a new lens through which to study poverty, human development, societal wellbeing and justice. Economics (Fukuda–Parr 2003; Kuklys and Robeyns 2004; Robeyns and Kuklys 2004), social policy and gender studies (Burchardt 2002; Robeyns 2003; Walker 2003; Terzi 2005; Zaidi and Burchardt 2005; Dejong 2006; Jayasundara and Panchanadeswaran 2011), law and human rights (Nussbaum 1997; Sen 2005), political philosophy (Nussbaum 2003), development studies (Qizilbash 1996; Alkire 2002; Alkire and Foster 2011), and health economics (Anand and Dolan 2005; Cookson 2005; Coast, Flynn et al. 2008; Lorgelly, K et al. 2008; Al-Janabi, N Flynn et al. 2012) are some of the many disciplines that have welcomed its theoretical underpinning and have challenged its application. A characteristic of this literature is its broad interdisciplinary nature and the prevalence of theoretical and conceptual analysis as opposed to empirical modelling.

2.3.1 The theory

The Capability framework relies on specific concepts that, if not accurately understood, can generate confusion. At the risk of oversimplification, they are outlined in Table 2.3, and then explained further drawing mainly on two of Sen's works *Commodities and capabilities* (Sen 1985) and *Inequality Re-examined* (Sen 1992).

Table 2.3 Key concepts of the capability framework

Commodity vector	bundle of commodities possessed by the individual
Commodity characteristic vector	characteristics of the commodities possessed by the individual
Functionings	valuable state of 'beings' and 'doings'
Functioning vectors	the list of functionings
Capability	the opportunity freedom1 a person enjoys to do and be what he or she values
Capability set	is the actual alternative combinations of functionings

The building blocks of Sen's framework are a set of dimensions of wellbeing, *beings and doings* that are valuable to the population. A *functioning* represents the state of *being* and *doing* that an individual achieves with the commodities possessed (and the characteristics of the commodities) in the bundle, given the individual's characteristics (e.g. health, strength, personality), and the external circumstances (e.g. social position, location, political environment). In order to be significant, functionings must be of social importance at a specific time to a significant proportion of the population in which the individual belongs (established by quantitative empirical studies, by participatory methods, or challenged openly in public debate), and need to be socially determined (social and economic policies can influence them such as health, education, employment as opposed to a person's sense of peacefulness). Functionings can be basic such as being well nourished, being educated, being free from avoidable diseases, or more complex such as being politically active in the community, having long-lasting relationships, playing a musical instrument. A functioning relates to commodities and utilities, although it comes after *having a commodity* as it expresses what an individual manages to achieve with the commodity, and it is prior to *having utility* (in the form of happiness generated by the functioning) (Alkire 2005).

A central and innovative aspect of Sen's theory is the *capability* concept: the focus of value is not on the commodities that a person possesses, or the pleasure (utility) that the person can get from those commodities, but it is the extent to which the person is *able* to achieve valuable functionings with these commodities, according to the personal characteristics, and external circumstances, and no matter whether the person chooses to function or not. The capability set comprises all possible functionings that a person can achieve; it can be considered as an extended budget set that includes non-market commodities and services, and non-monetary constraints. Two individuals with the same

[1] Freedom is considered in a positive sense (the freedom to do and be), as opposed to negative freedom (the absence of constraints) Balestrino (1991)

capability set can choose different functioning vectors and on the other hand two individuals with different capability sets can end up choosing the same functioning vectors (Saith 2001).

For the assessment of quality of life, Sen makes a six-fold classification of evaluative space, as expressed in Table 2.4.

Table 2.4 Source of valuation for the 'good' life

	Living standard	Well-being	Agency
Achievement			
Freedom to Achieve/Advantage			

The first consideration is in the space of achievement or in the space of the freedom to achieve (table rows):

- *Achievement* is actual realisation of a state of being or doing (achieved functionings).
- *Freedom to achieve or advantage* is the freedom that a person has to achieve a certain level of quality of life, in pursuit of whatever goals or values he/she regards as important (ability to function, or capability) (Sen 1985).

The quality of life of the individual can then be assessed according to three evaluative spaces, from the narrower to the broader (table columns):

- *Living standard* is a narrow definition restricted to individual status, and was introduced by Sen in a later period, for sake of completeness.
- *Wellbeing* is wider than living standard because includes feelings for other people (e.g. being worried about risks for others).
- *Agency* is the broadest concept that refers to the goals that a person has reason to value (Sen 1993) and includes social commitments (e.g. a person that goes voluntarily to war to fight for the freedom of his country has lowered his living standard and well-being, although he is pursuing his agency goals) (Sen 1987) .

These six categories can potentially all be relevant for evaluative purposes, and entail different evaluative exercises. In assessing the good life, the researcher can decide to stand in one position or another. For example, in assessing whether a person is food-deprived and is in need of assistance from the State, it is more useful to assess the wellbeing achievement rather than the agency success, or in a scenario where the State wants to improve the educational level of its adult population and assign scholarships, it might be more appropriate to investigate the space of agency freedom. The added value of standing in the space of freedom to achieve, or capabilities, is the richness of information behind the actual achievement, which includes the fundamental and intrinsic value of freedom and choice (Cohen 1993).

Nussbaum (2001) argues that given Sen's conception of well-being as more than just the utilitarian conception of preference satisfaction and desire fulfilment, a distinction between well-being and agency in the capabilities approach is meaningless, since concerns of agency are included within well-being.

Cookson provides a very clear example for describing the difference between achievement and freedom to achieve (Cookson 2005). A basic capability set is shown in Figure 2.1 representing two functionings f1 and f2. f2 is the index of the individual's political participation and f1 the sum of other functionings. CS is the current capability set and A is the current level of functioning chosen by the individual. It means that this person has a low level of political participation because he is not interested in engaging in political manifestation or does not go to vote. If something happens in the country, such as a non-democratic government that reduces political rights, the capability set is reduced to CS'. Although the individual's wellbeing achievement (the value of A) is unchanged, the individual freedom to participate in political activity has been reduced and his 'wellbeing freedom' (and his capability set) has fallen.

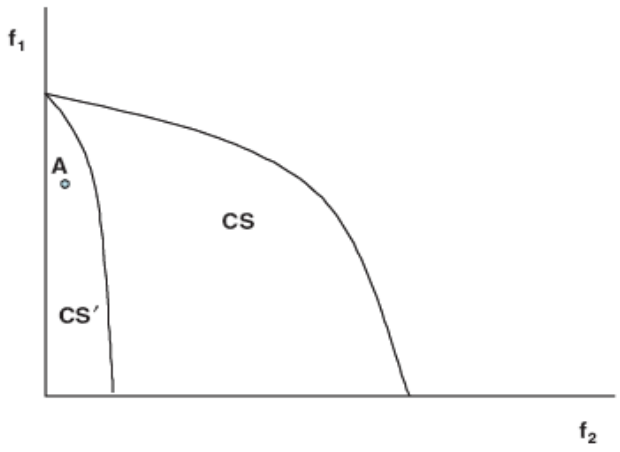

Figure 2.1 Wellbeing achievement and wellbeing freedom to achieve (Cookson 2005)

The opponents of Sen's framework are mainly concerned with its incompleteness, vagueness, and complexity in putting into practice. Sugden (Sugden 1993) and Qizilbash (Qizilbash 1996) argue that leaving the nature of the *good* life undetermined (for example refraining from giving a set of valuable dimensions), leads to imprecision and ambiguity; given the unresolved problem of how to values sets, they wonder how far Sen's framework is operational. Even Rawls defined it as "an unworkable idea" (Rawls 1999 p. 13). However, Sen considers this vagueness a virtue and replies that "if an underlying idea has an essential ambiguity, a precise formulation of that idea must try to capture that ambiguity rather than lose it' (Sen 1992 p. 49) and then "the need for selection and discrimination is neither an embarrassment, nor a unique difficulty, for the capability approach" (Sen 1993 p.44). Another limitation of Sen's approach is the difficulty with interpersonal comparison (how to compare and compensate for expansion or contraction in people's capability sets is unclear) (Sugden 1993).

In conclusion, the main advantages in choosing to adopt the capability approach for assessing quality of life compared to other approaches are:

- it includes broader measure of wellbeing,
- it focuses on the *freedom* to achieve rather than on the commodities possessed or the utility derived from these commodities,
- it is not based on preferences,
- it encourages researchers and decision makers to make the value judgments explicit, open to debate and more in line with people's values.

2.3.2 Putting the Capability approach into practice

The capability approach has the advantage of providing a great amount of flexibility about the evaluation of individual welfare, especially if both capabilities and functionings are taken into account in the evaluative space. However, as argued in the background paper for the Commission on the Measurement of Economic Performance and Social Progress, this flexibility comes at a cost, which is the difficulty for many researchers to specify an accurate measurement method (Fleurbaey 2009).

Despite concerns on the operationalisation of Sen's framework, the capability approach has affirmed its relevance in several disciplines, with different methodologies and for different types of analysis. Table 2.5, adapted from Robeyns' essay (Robeyns 2005), provides an attempt to give some clarity on the different forms of capability analysis, by listing their different usages.

Table 2.5 Different forms of capability analysis (adapted from Robeyns 2005)

Scope	Methodology	Role of functionings and capabilities
Assessment of Quality of life	Quantitative empirical	Social indicators
Normative theories	Philosophical	Part of the philosophical foundations
Descriptive analysis	Qualitative empirical	Elements of a narrative

Distinguishing between different uses of the capability approach is important, because functionings and capabilities play different roles in each type of analysis. As Table 2.5 illustrates, economists are usually more interested in quantitative empirical measurement of wellbeing, and capabilities and functionings are used as indicators for assessing the quality of life, as for example in Chiappero Martinett (2003) and Kuklys and Robeyns (2004). Other disciplines, such as philosophy, have employed the capability approach as normative tools and the functionings and capabilities play yet another role, as they are often part of the foundations of a theory of justice (Nussbaum 2003).

How best to capture capabilities when assessing wellbeing is an issue that has yet to be resolved at the conceptual level and hence, there is no consensus on how to proceed at the empirical level. The major practical challenge (that for some scholars has been seen as an over-simplification of a sophisticated philosophical paradigm) is to systematically narrow the framework down to a technical instrument or an algorithm that 'measures non-quantifiable dimensions' (Robeyns 2003).

While it is quite straightforward to measure a subset of achieved wellbeing directly as they represent achieved and measurable functionings, it is more challenging to measure the capability set, as it represents the potential and feasible level of welfare that an individual can achieve. In theory it would be possible to estimate capability sets through a 'reference group' method, where the main assumption is that information about the opportunities open to an individual is necessarily based on the range of things that similar people do. Burchardt and Le Grand (2002) assess to what extent non-employment in Britain is a voluntary choice. They compare the real choices of a reference group of individuals who shares those observable characteristics that might act as a limitation to their opportunity freedom to have a job, such as education, race, gender, religion, caring responsibilities (Burchardt, Le Grand et al. 2002). However, in practice the 'reference group' method has two limitations: first, whether two individuals whose characteristics are similar would choose the same functionings is questionable; second, even if one accepts the first limitation, the amount of information required to link achieved functionings to personal characteristics and external circumstances is significantly large (Cookson 2005).

The following text gives a brief description of some of the empirical work that has been done so far in the capability literature. A more detailed list of the main empirical studies is presented in the Appendix, describing the variables and dimensions used, the selection criteria, the type of data used, whether the data have been aggregated, the methodology, and the main findings.

The first studies were carried out by Sen himself (Sen 1985). One study is related to the assessment of gender bias in India. It showed that females are worse performers of selected functionings compared to men (e.g. mortality and morbidity rates, nutrition). Another study, which led to the development of the Human Development Index, showed that ranking of countries based on income leads to very different results than ranking according to specific functionings. The majority of empirical studies are related to poverty analysis across country (UNDP 1990-2013), within a country (Brandolini and D'Alessio 1998; Ruggeri Laderchi, Saith et al. 2003), usually at provincial level (Balestrino and Sciclone 2000; Qizilbash 2002; Qizilbash and Clark 2005). Others employ the approach to study social exclusion, for example unemployment (Schokkaert and Van Ootegem 1990; Burchardt 2002; Chiappero-Martinetti 2003), and disability (Kuklys 2005; Zaidi and Burchardt 2005).

As an evaluative tool, the capability approach can be applied for assessing public and social policy. However, the evidence of empirical studies in this field is very limited. At the micro level, it has been used to assess the impact of three Oxfam poverty reduction projects in Pakistan (Alkire 2002).

In health economics, after Culyer's contribution to the extension of Welfarism beyond utility and the formulation of the QALY maximand, Anand outlined the limitation of such a measure in addressing ethical issues that are relevant in many medical decision-points (Anand 2005) including ageism and the right to die. He then proposed the application of the Capability framework for exploiting data from the British Household Panel Survey (Anand, Hunter et al. 2005). Anand and colleagues selected those questions that could be associated with the ten Central Human Capabilities proposed by Nussbaum (2001) and then designed a survey with integrated questions from other social surveys. They found strong evidence of a link between (subjective) wellbeing and capabilities, although they noted that a lot of explorative work remains to be done.

Cookson (Cookson 2005) has suggested three methods for applying the Capability approach: direct estimation of the capability set, combining WTP with capability information, and reinterpreting the QALY. He supports the reinterpretation of the QALY to include non-health measures as the most appropriate method, because direct estimation of the capability set is not feasible. In a reply to Cookson, Anand (Anand 2005) argues that measuring capabilities is indeed possible and thus desirable.

Anand's work has been taken forward by a group of researchers from the University of Glasgow, whose aim is to develop a general index to be used in public health. They have now developed and

refined the capability questionnaire using mixed-methods, and have attempted to construct an index, although without a valuation exercise but assigning the same weight to each question (Lorgelly et al. 2008).

The only work on capabilities that includes developing, testing and validating an index that could be used in economic evaluation is the study conducted by Grewal and colleagues (Grewal, Lewis et al. 2006) and the subsequent work led by Coast (Coast, Flynn et al. 2008; Coast, Peters et al. 2008; Flynn, Chan et al. 2011) with the elderly in England. These studies have been extended to include the wider population (Al-Janabi, N Flynn et al. 2012). Another study in the field of health economics is the one developed by Kinghorn (Kinghorn 2010) that proposes an index for assessing the capabilities of chronic pain patients in England.

Finally, there is no evidence so far of studies that directly collect capabilities and combine the data in a multidimensional index in a low income context.

The main methodological challenges for developing and validating a capability index are:

- How to select relevant capabilities/functionings
- How to aggregate capabilities/functionings into a composite measure of wellbeing
- How to validate the instrument
- How to move from individual wellbeing to societal welfare

These are reviewed in the next section.

2.3.2.1 How to select relevant capabilities/functionings

Sen has advocated the assessment of expansion (up to equality) in the space of capabilities rather than in the space of functionings. As Alkire (Alkire 2005) noted, it is extremely complex to observe capabilities in practice. It is feasible to estimate an approximation of the concept by constructing vectors of achievable functionings, however this will not take into consideration the issues of agency and practical reason (i.e. why a person chooses to perform an achievable functioning rather than another one), which are important aspects of Sen's critique of the neoclassical model.

There are several reasons for moving beyond this and assessing wellbeing freedom instead of achieved wellbeing. First, the space of wellbeing freedom, in which what is evaluated is the real opportunity to function, is much richer compared to measuring the actual achievement; second, freedom has an intrinsic importance in itself, and it should be valued; third is the degree of responsibility that can fall on the individual; for example the NHS can provide support and

encouragement for a person to stop smoking, but if the person decides not to stop there is little the NHS can do. It is the individual's responsibility (Smith, Lorgelly et al. 2012). Finally, there is empirical evidence that people are indeed concerned about their capabilities. In fact, the study conducted by Grewal and colleagues (Grewal, Lewis et al. 2006) found that older people in the UK are concerned about their (lack of) capability to achieve particular functionings. In addition, Lorgelly and colleagues (Lorgelly et al. 2008) asked in their questionnaire whether the respondents are more concerned about their functionings or their capabilities and the results show that there is significant support for having some capabilities rather than the actual expression of them.

Given that Sen deliberately refrained from providing a list of relevant capabilities, claiming that different capabilities are relevant to different contexts, academics and political scientists have striven to develop sets of valuable dimensions of wellbeing[2] - or "ingredients of quality of life" (Alkire 2002 p. 181). Alkire presents and compares about forty lists derived from the theoretical contributions of philosophers, political scientists, and economists; and the similarities across them are remarkable (Alkire 2002).

Robeyns (Robeyns 2003) proposes five methodological criteria to follow for an appropriate selection of relevant capabilities. These are: to make the selection as explicit as possible because it has to be discussed and defended; to justify the method used; to make the selection sensitive to the context; to distinguish between different levels of generality, drawing the list in two phases: an ideal list and subsequently a second-best list where practical constraints are taken into account; and to aim for the most exhaustive and complete selection as possible. The selection should be then scrutinised and endorsed by the general public or by interest groups.

In the literature, very few studies have been identified that attempt to measure capabilities (or perceived capabilities) (Burchardt, Le Grand et al. 2002; Anand and van Hees 2006; Grewal, Lewis et al. 2006; Al-Janabi, N Flynn et al. 2012). The vast majority of available studies are built upon existing datasets (no new data are collected for the specific purpose of the research) – this might be a reason why they deal mainly with achieved functionings. However some questions in the British Panel Household Survey do include some dimensions related to capability (Anand, Hunter et al. 2005).

2.3.2.2 How to aggregate capabilities/functionings into a composite measure of wellbeing

Sen argues that "[w]hile the possibility of arriving at a unique set of weights is rather unlikely, that uniqueness is not really necessary to make agreed judgments in many situations, and may not indeed be required even for arriving at a fully complete ordering". (Sen 2000 p. 77)

[2] Dimension of wellbeing (Alkire 2002 p. 21): the 'primary colours of values', elements of valuations that structure the space in which people function.

While rejecting the use of preference, choices or desires to value capabilities, Sen argues that "open discussion, debate, criticism and dissent" are the means for "the formation of values and priorities, and we cannot, in general, take preferences as given independently of public discussion." (Sen 1999). However, as Robeyns noted, how to undertake this democratic process for attaching moral values is not clear, and it is also not clear how to ensure a fair and balanced participation in the process (Robeyns 2005).

Decancq and Lugo (2012) distinguish three classes of approaches to set the weights: data-driven, normative and hybrid:

Table 2.6 Approaches for setting the weights. Source: Decancq and Lugo 2012

Data-driven	**Normative**	**Hybrid**
Frequency	Equal or arbitrary	self-stated
Statistical	Expert opinion	hedonic
Most-favourable	Price based	

Data-driven approaches are the function of the distribution of specific achievements in society; they describe what society *is* and are not based on any value judgment while normative approaches are based only on value judgments of a group of people. They might suffer from paternalism as they are the expression of what society *ought to be* (Decancq and Lugo 2012). Hybrid approaches are data-driven but include some aspect of valuation.

2.3.2.3 How to validate the instrument

An indicator should be tested and found to be adequate for the research purposes. It is generally understood that this means an indicator should be tested for validity and reliability (Atkinson, Cantillon et al. 2002; World Bank 2004; Ibrahim and Alkire 2007; Clark 2008). Validity in terms of whether the indicator is actually measuring what (and only what) it is supposed to measure; and reliability in terms of yielding the same results on repeated trials.

There are different types of validation techniques (Streiner and Norman 2008). Criterion validity assesses the indicator against certain gold-standard measures. In this case, given the very limited number of cases applying Sen's framework, it is not possible to find a gold-standard for capability. Another method is construct validity, as used for the validation of the ICECAP indices (Coast, Peters et al. 2008; Al-Janabi, Peters et al. 2012). It shows whether the indicator, compared to other measures, is performing as expected *a priori*.

2.3.2.4 How to move from individual wellbeing to societal welfare

As mentioned previously, Sen's framework is mainly concerned with equality in the space of capabilities, rather than a maximisation of, for example, health. As Coast and colleagues (2008) have pointed out, the application of the maximisation principle in a context of capabilities is problematic because issues of redistribution cannot be addressed: it is not possible to transfer capabilities from one person to another; and maximising capabilities without addressing issues of equity and redistribution is not an acceptable option. Perhaps focussing on a minimal acceptable level of capabilities met by the majority of the population could be a feasible policy approach (Coast, Smith et al. 2008).

2.4 Summary and proposed research

This review of the literature has outlined the complexity of public health programmes, has raised the challenges related to the evaluation of such interventions and has noted the shortcomings of conventional techniques. The literature was searched for alternative methods for assessing the outcome of public health and community programmes that could encompass a wider range of benefits: health and non-health outcomes. The capability approach, given its flexibility and broad evaluative space based on people's values, emerged as an alternative evaluation paradigm in health economics and beyond. The main aspects of the capability approach were described and its application in the fields of health economics and social policy reviewed. The methodological challenges for putting the capability approach into practice were identified. So far, no study has been found that applies the capability approach for developing an outcome measure in a low income context.

This literature review has identified a significant gap in existing empirical work in terms of developing outcome measures with a wider evaluative space and with valuation methods which include social values. This study will contribute to the limited work in this area and go some way to closing the gap.

In this thesis, the evaluative space will focus on "freedom to achieve" and will go beyond "standard of living", to include "wellbeing" and "agency". Chapter 4 will describe the process of generating a capability index which is built on the previous contributions in that it will adopt similar participatory methods for drawing the list of capabilities that have been used by Alkire (Alkire 2002) and Kinghorn (Kinghorn 2010). Chapter 5 will explore the implications of adopting four different approaches to aggregation. Chapter 6 will assess the validity and reliability of the measure and part of the methodology for the validation process are drawn from the ICECAP experience (Coast, Peters et al. 2008) (Al-Janabi, Peters et al. 2012).

It is beyond the scope of this work to construct a societal welfare function. However, if the capability index is found to be a robust measure of wellbeing in this specific context (women of child bearing age in Mchinji, Malawi), it would be meaningful to explore the applicability in a broader context or perhaps to expand the sample in order to include the voices of other members of the community in drawing up the capability list, building the scale, and valuing the dimensions. A community capability set could then be built, assessed and validated, and a societal welfare function could be constructed.

Substantial further research is required to address the concerns of maximisation, equity and distribution. However, this study will be limited to develop a measure for assessing the wellbeing of a

specific group of the population, to test and validate the index. Its use to aid comparison across intervention and control clusters in order to detect any change in wellbeing that can be attributed to a specific development intervention such as MaiMwana Women's Group will be explored in a subsequent study.

This thesis is grounded in Sen's capability approach for the assessment of quality of life; the terms capabilities and dimensions of wellbeing or quality of life are used interchangeably

Chapter 3 Study setting

3.1 Country context

Malawi is a small, landlocked country bordering Tanzania, Mozambique and Zambia in Southern Africa. Malawi ranks 170 out of 187 countries in the Human Development Index with a life expectancy at birth of 54 years (UNDP 2013). It has a relatively high population density compared to the region, and the estimated fourteen million people overwhelmingly live rural lives, although the rate of urbanisation in the political capital, Lilongwe, and the commercial capital, Blantyre, is rising. The economy is based upon subsistence agriculture (of maize and tobacco crops, primarily), and fisheries on the shores of Lake Malawi. A large net food and oil importer has historically left Malawi open to exogenous shocks, particularly from food and fuel crises (Booth et al. 2006). Seventy-four per cent of the population live on less than $1.25 a day and ninety per cent on less than $2 (World Bank 2012).

Malawi's current challenges for socio-economic progress reflect, to a significant extent, its resource-poor, landlocked and vulnerable structural features. A recent report published by the Overseas Development Institute adds an instructive level of analysis. Drawing from a range of historical literature, the authors categorise four significant phases of political system and process since independence that have also shaped Malawi's development path (Wild and Harris, 2011):

> Phase I (1964-79): Period of rapid but unsustainable economic growth and authoritarian rule, including 1970s oil crises
>
> Phase II (1980-98): Uneven economic liberalisation and the introduction of multi-party democracy
>
> Phase III (1998-2004): Frequent crisis and decline in development outcomes
>
> Phase IV (2004-present): From economic stability to political crisis to transition period under President Joyce Banda

The health indicators in Malawi are stark. One woman out of thirty-six is likely to die of pregnancy related complications and in 2010, an estimated 3,000 maternal deaths occurred. Malawi's current under-five mortality rate (U5MR) is estimated to be 92 per 1,000 live births. (Countdown to 2015 2012). Malawi has the second highest stunting rate in sub-Saharan Africa with 47 percent of children

under-five stunted. It is twenty-four times the level expected in a healthy, well-nourished population. (National Statistical Office and ICF Macro 2011).

Malawi is also known as the Southern African country where, in the 1970s and 1980s, there was a strict dress code in place: men were not allowed to grow beards and long hair and women were forbidden from wearing trousers. These were the most well-known laws passed by Hastings Banda, a trained medical doctor who had led Nyasaland from being a British colony to independence, and became the first president of the Republic of Malawi. Dr Banda headed for over thirty years (from 1963 to 1994) an austere, autocratic one-party regime, maintained firm control over all aspects of the government, and jailed or executed his political opponents. He was declared president for life in 1971. He combined totalitarian political controls with conservative economic policies and established friendly trading relations with apartheid-ruled South Africa (to the disappointment of other African and non-African leaders) as well as with other countries in the region through which landlocked Malawi's overseas trade had to pass. His foreign-policy attitude was definitely pro-Western (Forster 1994).

Three main factors supported Dr Banda's authoritarian grip on political, economic and social life. First, he promoted the tenets of discipline, obedience and loyalty. Second, he maintained a covert security system that was critical in maintaining his authority and quashing any hint of dissent or rebellion and not surprisingly resulted in a culture of fear. Finally, Dr Banda ensured the control of information thus impeding freedom of expression and social, political and academic debate. The press, books, films and popular performances were controlled by the Censorship Board (Chirwa 2001). Even the popular travel guide book, Lonely Planet, was banned, along with other "subversive" titles such as DH Lawrence's Lady Chatterley's lover (Wheeler and Wheeler 2005).

A contested topic is the extent to which Dr Banda infringed or protected the rights of women. While emphasising their contribution to the fight for independence, and their role in strengthening the Malawi Congress Party, his attitude towards female political representation is considered paternalistic. He used women to advance his political control, addressed them as *my women* when he publicly and proudly acknowledged their beauty as they were obliged to dance and sing for him at every public appearance (Chirwa 2001).

Malawi is now on its third President since the first multiparty elections in 1994. Corruption and macroeconomic crises characterised the initial period of multiparty democracy (phase III above). More recently rapid economic growth in the mid to late 2000s has been replaced with major economic challenges and a growing political crisis, including a dramatic shortage of foreign exchange and petrol and the pressure to devalue the currency. Joyce Banda was sworn in as Malawi's first (and Africa's second) female President last year following the sudden death of her predecessor, Bingu wa

Mutharika. She comes from a women's rights activist background (Malawi Government 2013) and there is hope for a strong push for improvements in women's health and empowerment. New elections are due in May 2014.

Malawians are known as a quiet but welcoming people, their country dubbed *the warm heart of Africa*. The Malawian propensity to agree with everything, to please everyone and to refrain from taking a different opinion, is often explained with reference to the strength of repression under Dr Banda's regime (Savage 2012). However this is may be more a cultural trait rather than a historical legacy.

Three ethnic groups are dominant: the Chewa, from the Central and Southern Regions, the Yao, around the lake, and the Tumbuka in the North. The national language is Chichewa and the majority of the population are Christian, though the Yao, who dominate the lake-side communities, are Muslim (National Statistical Office 2008).

One of twenty-eight administrative districts, Mchinji district is located in the Central Region of Malawi, approximately fifty miles west of Lilongwe, bordering both Zambia and Mozambique. It has a population of roughly 455,000, of whom over 90% live in rural areas. Socio-economic conditions are similar to, or poorer than the average for Malawi (in parenthesis): literacy rates are just over 60% (64%), only 2% (7%) of households have access to electricity and 10% (20%) of households have access to piped water; low quality flooring materials are used by 85% (78%) of households (National Statistical Office 2008).

The dominant ethnic group is Chewa (90%), and 97% of families are Christian. Under-5 mortality is 119 per 1,000 children, almost thirty per cent higher than the national average of 92 per 1,000 children (National Statistical Office and ICF Macro 2011). Less than eighteen per cent of women completed secondary school and over seventy-two per cent earn their living through subsistence farming. The fertility rate is 6.3 although wanted fertility rate is 4.6. The median age at first birth is 19 years old and over thirty-five per cent of women do not use modern contraception. Forty per cent of women reported to have experienced emotional, physical, or sexual violence committed by their husband or partner (National Statistical Office and ICF Macro 2011).

3.2 The MaiMwana Project

The need for cost effective interventions to address the challenges Malawi faces in terms of effective health provision for mothers and children are clearly set out in the context described above. The MaiMwana project, in part, seeks to tackle this challenge.

The MaiMwana project is a research and development initiative led by a collaboration of the Malawi Ministry of Health with the Institute of Child Health (University College London). It aims to evaluate two separate community-based interventions: community mobilisation through women's groups and health education through volunteer female peer counsellors, on infant care and feeding, morbidity and mortality (Lewycka, Mwansambo et al. 2010). In addition, the cost-effectiveness of MaiMwana interventions has been assessed (Lewycka, Mwansambo et al. 2013).

3.2.1 Interventions

The MaiMwana project comprises two interventions: a Women's Group programme and peer counselling programme. The project encompasses the whole district. A cohort of 43 719 women was defined in 2004 during the baseline phase of the study. All women of child-bearing age (10-49) who consented to participate were enrolled (Lewycka, Mwansambo et al. 2010).

The Women's Group (WG) programme organises women into groups to follow a participatory action cycle assisted by local facilitators. The women volunteer to participate and are organised by community facilitator. Women gather together and engage in debates moving through four consecutive steps where they identify and prioritise maternal and neonatal health problems; develop strategies to address them; implement the strategies; and evaluate them (appendix) (Rosato, Mwansambo et al. 2011). The outcome measures are detailed in Table 3.1. The design and development of the WG programme in Mchinji was based to a large extent on a similar intervention in Nepal, which was found to reduce maternal and neonatal mortality in Makwanpur district (Manandhar, Osrin et al. 2004).

Table 3.1 Outcomes for Women's Group intervention

Primary	Neonatal and peri natal mortality
	Changes in caretaker practices: - early and exclusive breastfeeding - decreased use of pre lacteal feeds - hygiene behaviours
	Uptake of voluntary counselling and testing
Secondary	Recognition of high-risk symptoms and signs: - failure to feed - breathlessness, floppiness
	Changes in care seeking behaviour: - referral patterns, - safe delivery kit utilisation
	Changes in levels of health service providers' awareness and cooperation

The Volunteer Peer Counselling (VPC) programme focuses on infant feeding. It comprises home visits to pregnant women - once before birth and four times after birth – during which counsellors talk though the importance of exclusive breastfeeding, and provide support and advice to new mothers on newborn and child health. The counsellor also helps to identify any breastfeeding problems and, if necessary, refers women to a health facility. The outcome measures are detailed in Table 3.2.

Table 3.2 Outcomes for Infant Feeding Counselling intervention

Primary	Exclusive breastfeeding rates in first 6 months
	Changes in caretaker practices: - safe sex practices (condoms)
Secondary	Changes in caretaker practices: - early cessation of breastfeeding at 6 months (where appropriate) - management and treatment of breast problems.
	Mortality rates

3.2.2 Trial design and evaluation

A cluster randomised controlled trial with a two-by-two factorial design was used to evaluate the effects of the interventions on the specific outcome indicators. The trial design is described in detail in (Lewycka, Mwansambo et al. 2010). Forty-eight clusters were defined on the basis of the 1998 national census enumeration areas. Each had a population of approximately 8000, from the centre of

which a subpopulation of around 3000 was selected, leaving a 'buffer zone' around it to reduce contamination between neighbouring intervention and control areas. The unit of randomisation was a cluster of villages rather than individual villages to further reduce movements across cluster boundaries and the possibility of contamination (Lewycka, Mwansambo et al. 2010).

Randomisation was done after baseline data collection but before entry and analysis of the data. The 48 clusters were allocated randomly to one of four groups. Twelve clusters received the volunteer peer counselling (VPC) and women's group (WG) interventions, 12 received WG only, 12 received VPC only, and 12 received neither intervention. The allocation of clusters to intervention groups was done with a random number sequence generated in STATA 7.0. Data were collected independently of programme implementation, and no results were fed back to inform the interventions (Lewycka, Mwansambo et al. 2010).

The trial was planned for three years, and was powered for an analysis of birth outcomes over two years, allowing one year for the women's group intervention to be established (Lewycka, Mwansambo et al. 2010).

3.2.3 Results

Over two hundred Women's Groups have been established in the intervention area. They have identified nearly 80 maternal health problems, with different degrees of severity. The top ten identified problems are: anaemia, malaria, retained placenta, obstructed labour, malpresentation, ante and post-partum haemorrhage, pre-eclampsia, miscarriage and eclampsia (Rosato, Mwansambo et al. 2006). During the prioritisation meetings, group members selected five problems that they felt are most severe and common, in order to develop feasible strategies to address them. Limited data are currently available on the strategies implemented although preliminary analysis from project reports and from Rosato et al. (Rosato, Mwansambo et al. 2006) show that the groups have discussed and implemented a variety of strategies (also discussed in the introduction). The strategies include collective vegetable gardens and livestock rearing for improving nutrition, and for income generation; acquiring and using bed nets; lobbying for mobile clinics, antenatal and under-5 clinics; acquiring bicycle-ambulances; training traditional birth attendants and receiving health education on reproductive issues.

For years 2 and 3, in areas where women's groups were established there was a significant reduction in maternal (74%), perinatal (34%), neonatal (41%) and infant mortality (28%) compared with control areas in adjusted models. In areas where peer counsellors visited mothers in the home and advised them about feeding and infant care, infant mortality fell by 35%, and infant morbidity by 42% in adjusted models. Exclusive breastfeeding rates improved, but the effect was not significant after

adjusting for the interaction between the two interventions. The cost to provider of WGs was USD 114 and of peer counsellors USD 3, both per year of life lost averted (Lewycka, Mwansambo et al. 2013).

It is important to note that the expected results focus on health outcomes only and yet we may expect effects of the programmes to reach beyond health only measures.

London School of Hygiene & Tropical Medicine
Keppel Street, London WC1E 7HT
www.lshtm.ac.uk

Registry
T: +44(0)20 7299 4646
F: +44(0)20 7299 4656
E: registry@lshtm.ac.uk

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

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Chapter 4 Selecting capabilities for assessing women's quality of life in rural Malawi

4.1 Introduction

There is growing interest in using Sen's Capability Approach for assessing quality of life (Sen and Nussbaum 1993; Verkerk, Busschbach et al. 2001; Stiglitz, Sen et al. 2009; Gasper 2010). A crucial normative argument of Sen's work is that individual advantage should not be seen as opulence or utility, and should not be assessed using people's preferences or desires, but primarily in terms of the freedoms that people have to pursue the kind of life they have reason to value (Sen 1985). With this in mind, social and public policy should aim to protect, restore and expand people's capabilities (Sen 1999; Sen 2003).

The MaiMwana Women's group is a community-based participatory intervention that organises women of reproductive age in rural villages in Malawi (Rosato, Mwansambo et al. 2011). During the meetings, women discuss, prioritise, develop and implement local strategies to overcome maternal and neonatal health problems. This intervention combines educational and social policies with the promotion of agency, capacity building and knowledge across different sectors. It emphasises health promotion activities that rely on community engagement and participation aimed at changing behaviour. The effectiveness of MaiMwana Women's Group on maternal and neonatal mortality has been tested with a cluster randomised controlled trial design (Lewycka, Mwansambo et al. 2010). However, given the nature of the intervention, the effects are likely to be felt on different aspects of quality of life, and not only on mortality rates. Thus there is a need to develop a more appropriate outcome measure that encompasses a broad definition of quality of life.

The multidimensional nature of quality of life increases the complexity of the evaluation and raises a number of methodological challenges that need to be considered when constructing a composite measure (McGillivray 2012): (1) development of a theoretical and empirical model: selection of dimensions and indicators; (2) aggregation of dimensions into one single measure: selection of relative weights; (3) validation of the instrument.

In the context of the MaiMwana Women's Group intervention in Malawi, the main aim of this chapter is to describe the first step in the development of an outcome measure based on Sen's Capability

Approach: the selection of the relevant dimensions of quality of life, or capabilities. This instrument could eventually be used as an evaluation tool to provide a more comprehensive outcome measure in an intervention such as the MaiMwana Project.

The next section reviews from the literature different approaches for the selection of capabilities. Five lists of dimensions of quality of life drawn from different disciplines and used for different types of analysis are then presented and discussed. The methodology used in this thesis for the selection of capabilities is detailed in section 1.1, with information on the participants, procedures and structure of the focus group discussions and on the steps of the thematic framework analysis. Results are presented in section 1.1, then discussed in section 4.5.1 and compared with the five lists in section 4.5.2. Section 5 concludes.

4.2 Approaches to the selection of capabilities

There are a range of different approaches for the selection of capabilities. In order to reach agreement on a capability list, efforts should be made to include differences of opinion and to adapt the list to the social and cultural context: any reasonable list of dimensions should be endorsed from the bottom up (Clark 2008).

Robeyns (Robeyns 2003) proposed a methodological process for selecting capabilities. This was composed of five criteria: to make the selection as explicit and transparent as possible because it has to be discussed and defended; to justify the method used; to make the selection sensitive to the context; to distinguish between different levels of generality, drawing the list in two phases: an ideal list and subsequently a second-best list where practical constraints are taken into account; and to aim for the most exhaustive and complete selection possible. The selection should then be scrutinised and endorsed by the general public or by interest groups.

Vizard and Burchardt (Vizard and Burchardt 2007) focussed their work on the development of a capability list that would enable a conceptualisation and assessment of inequality in Britain. The research sets out a methodological framework for developing a capability list involving (1) the derivation of a core capability list from the international human rights framework; (2) the supplementation and refinement of the core list through democratic deliberation and debate.

Few studies have attempted to measure directly capabilities (or perceived capabilities), (Burchardt, Le Grand et al. 2002; Anand and van Hees 2006; Grewal, Lewis et al. 2006). The vast majority of available studies are built upon existing datasets – this might be why they deal mainly with achieved functionings. However some questions in the British Household Panel Survey do include some dimensions related to capabilities (Anand, Hunter et al. 2005).

In many studies the selection of functionings/capabilities is done with reference to the researchers' own values (Chiappero-Martinetti 2000; Klasen 2000). Empirical use of participatory planning processes and public debate for developing a capability list is limited (Alkire 2002; White and Pettit 2004; Grewal, Lewis et al. 2006; Vizard and Burchardt 2007; Kinghorn 2010; Al-Janabi, N Flynn et al. 2012).

Grewal and colleagues (Grewal, Lewis et al. 2006) used informant-led in-depth interviews with older people in England to identify attributes of quality of life, and the findings showed that what is valuable to them is the ability to function. It is interesting to note that none of the five attributes that are found to be valuable for older people (attachment, security, role, enjoyment and control) are directly related to health. This led to the development of the ICECAP index for older people. Recently

the ICECAP index has been expanded to include the wider adult population (Al-Janabi, N Flynn et al. 2012).

Kinghorn (Kinghorn 2010) used focus groups for gathering information on how chronic pain impacts quality of life and a preliminary list of 'key capabilities' and functionings was produced. At a second stage, a series of interviews were conducted to review and amend the list.

All of the approaches described above have been developed and implemented in a developed country context. To date there have been no empirical studies that aim to identify and measure capabilities in a developing country context.

4.2.1 Lists of dimensions

Sen has deliberately refrained from providing a list of relevant capabilities necessary for policy evaluation, claiming that different capabilities are relevant to different contexts. Sen argues that insisting on a fixed list of capabilities "would deny the possibility of progress in social understanding and also go against the productive role of public discussion, social agitation, and open debates" (Sen 2005 p.160).

Academics and political scientists have attempted to develop sets of dimensions of wellbeing. Alkire presents and compares about forty lists derived from the theoretical contribution of philosophers, political scientists, and economists; and the similarities across them are remarkable (Alkire 2002).

Nussbaum was the first attempt to develop a list of capabilities (Nussbaum 2003). While her contribution has its foundation in Sen's capability theory, and they did collaborate on some work, she adopted a more political and normative approach. Her proposed list of ten Central Human Capabilities raised questions over the extent of its prescriptiveness (Alkire 2002), academic legitimacy (Robeyns 2005) and lack of consistency with Sen's central idea of pluralism (Sugden 1993).

Five lists of dimensions are presented and discussed in the next sub-sections as an illustration of the variety of methodologies adopted for generating them, the type of analysis they are used for and the different disciplines they are rooted in: political science, development studies, social policy, health economics and economics. The list of capabilities generated in this thesis is compared against these five lists in section 4.5.2.

4.2.1.1 Nussbaum's Central Human Capabilities

Martha Nussbaum produced a list of ten Central Human Capabilities with the aim of establishing a foundation for basic political principles and constitutional guarantees. These capabilities have value in themselves (rather than being only instrumental), and are specific yet open to plural specification. Although these dimensions have been identified and put together by the researcher herself, she argues that her list is open and flexible, and has since been revised several times. In addition, she notes that the proposed capabilities have a broad cross-cultural consensus (Nussbaum 2003). Nussbaum's central human capabilities are described under the following headings (Table 4.1):

Table 4.1 Nussbaum Ten Central Human Capabilities

i. *Life*. Being able to live to the end of a human life of normal length
ii. *Bodily Health*. Being able to have good health, including reproductive health; to be adequately nourished; to have adequate shelter.
iii. *Bodily Integrity*. Being able to move freely from place to place; to be secure against violent including sexual assault and domestic violence; having choice in matters of reproduction.
iv. *Senses, Imagination, and Thought*.
v. *Emotions*. Being able to have attachments to things and people outside ourselves; to love those who love and care for us. Not having one's emotional development blighted by fear and anxiety.
vi. *Practical Reason*. Being able to form a conception of the good
vii. *Affiliation*. Being able to live with and toward others, to recognise and show concern for other human beings, to engage in various forms of social interaction; having the social bases of self-respect and non-humiliation; being able to be treated as a dignified being whose worth is equal to that of others.
viii. *Other Species.*
ix. *Play*. Being able to laugh, to play, to enjoy recreational activities.
x. *Control over one's Environment*. Having the right of political participation, protections of free speech and association; Being able to hold property (both land and movable goods), and having property rights on an equal basis with others

Source: Nussbaum (2003)

4.2.1.2 Narayan's Voices of the Poor

Research led by Deepa Narayan in 2000 for the World Bank's Poverty Reduction Group aimed at eliciting people's values on poverty and ill-being, using a participatory methodology. The study is entitled *Voices of the Poor*, and is made up of three pieces of work. The first book, *Can Anyone Hear Us?*, collected qualitative data from over 40,000 poor women and men in 50 countries from the World Bank's participatory poverty assessments (Narayan 2000); the second book, *Crying Out for Change*, written with Robert Chambers, drew information from a comparative study in 23 countries (Narayan, Chambers et al. 2000). The final book, *From Many Lands*, gave regional trends and country case studies (Narayan and Petesch 2002). This is considered pioneering work because it is the only cross-country and cross-cultural study of this scale which involves participants from poor, marginalised and

low literacy backgrounds, and in some cases from remote areas (Alkire 2002). The findings of their research were grouped and listed as follows:

Table 4.2 Narayan et al Wellbeing according to *Voices of the Poor*

i. *Material Well-being*: having enough food, assets, work
ii. *Bodily well-being*: being and appearing well; health, appearances, physical environment
iii. *Social well-being*: being able to care for, bring up, marry and settle children; self-respect and dignity; peace, harmony, good relations in the family/community.
iv. *Security*: civil peace; a physically safe and secure environment; personal physical security; lawfulness and access to justice; security in old age; confidence in the future
v. *Freedom of choice and action*
vi. *Psychological well-being*: peace of mind; happiness; harmony (including a spiritual life and religious observance)

Source: Narayan et al. (2000, pp. 25–30, 37–38)

4.2.1.3 Doyal and Gough's Universal Needs

Doyal and Gough developed a concept of need that would inform theoretically and practically the debates in social policies. They conceptualised universal needs as "preconditions for social participation which apply to everyone in the same way" (Doyal and Gough 1991, p.5) and concluded "that universal needs exist, that sets of basic and intermediate needs can be identified and that degrees of need satisfaction can be charted" (Doyal and Gough 1991, p.9).

They identified two universal basic needs: *Physical health* and *Autonomy*. Physical health is defined as the absence of specific illnesses and illness is considered in a biomedical term. Autonomy is defined as the capability to initiate an action through the formulation of aims and beliefs and requires mental health, cognitive skills and opportunities to engage in social participation (Doyal and Gough 1991). Each subcategory of the needs is further specified with eleven intermediate needs (Table 4.3), which includes characteristics of commodities that are common across cultures and can generate valued capabilities.

As Alkire (Alkire 2002) noted, these needs are different from the definitions of dimensions in two ways. First, Doyal and Gough are limiting their scope to preconditions of well-being, and not well-being itself. Their work is fundamentally different from those previously described and from this study, as it did not intend to identify a full set of relevant areas of quality of life. Secondly, the fulfilment of the basic needs is normative. This implies that even if the "satisfiers" of these needs may differ extensively, Doyal and Gough argue that needs themselves can be specified without public consent. In addition, because these needs are understood to be the "preconditions" of a fulfilled life, they argue that there is a normative duty to satisfy them (Alkire 2002).

Table 4.3 Doyal and Gough intermediate needs

i. Nutritional food/water
ii. Protective housing
iii. Work
iv. Physical environment
v. Health care
vi. Security in childhood
vii. Significant primary relationships
viii. Physical security
ix. Economic security
x. Safe birth control/childbearing
xi. Basic education

Source: Doyal and Gough (1991)

4.2.1.4 Al-Janabi and Coast's ICECAP-A measure

The ICECAP-A (ICEpop CAPability measure for Adults) is an on-going project based at the Health Economics Unit in the University of Birmingham (www.icecap.bham.ac.uk). The aim is to develop a broader outcome measure relevant for the adult population, for use in economic evaluation. It follows on from previous work conducted to develop a measure of quality of life grounded in the experience of older people (ICECAP-O) (Flynn, Chan et al. 2011). As done for the ICECAP-O, qualitative methods have been used to develop the ICECAP-A descriptive system: in-depth interviews with 36 adult informants to define conceptual attributes of wellbeing and semi-structured interviews with 25 of them to develop meaningful terminology for the adult population (Al-Janabi, N Flynn et al. 2012). The index values and validation processes have recently been finalised (Al-Janabi, H., T. Peters, et al. 2012). The attributes of quality of life are structured into a questionnaire that is now available to be downloaded and used from the ICECAP-A website (www.icecap.bham.ac.uk). These attributes are described in Table 4.4.

Table 4.4 Al-Janabi and Coast 2010 ICECAP-A Attributes of Quality of Life

i. Feeling settled and secure
ii. Love, friendship and support
iii. Being independent
iv. Achievement and progress
v. Enjoyment and pleasure

Source www.icecap.bham.ac.uk/ICECAP-A/questionnaire.shtml

4.2.1.5 Commission on the Measurement of Economic Performance and Social Progress

The aim of the Commission on the Measurement of Economic Performance and Social Progress chaired by Stiglitz and Sen was to identify those objective features that lead to an expansion of people's opportunities and thus should be considered in the assessment of quality of life (Stiglitz, Sen, et al. 2009). Based on academic research and various concrete initiatives developed around the world, the Commission identified eight key dimensions that are thought to shape people's well-being Table 4.5. According to the Commission, material wellbeing is not an appropriate indicator on its own since wellbeing is intrinsically multidimensional and goes beyond income. Health is thought to be the most fundamental component of capabilities as, without life, none of the other components has any value. Education, political voice and personal activities are considered "essential freedoms". In addition, social connections, environmental conditions and personal security are other dimensions that affect people's quality of life (Stiglitz, Sen et al. 2009)..

Table 4.5 Commission on the Measurement of Economic Performance and Social Progress

i. Material living standards (income, consumption and wealth);
ii. Health;
iii. Education;
iv. Personal activities including work
v. Political voice and governance;
vi. Social connections and relationships;
vii. Environment (present and future conditions);
viii. Insecurity, of an economic as well as a physical nature.

Source: Stiglitz, Sen, et al. (2009)

4.3 Methodology

With the aim of being as consistent to Sen's theory as possible, the selection of wellbeing dimensions was conducted in a participatory manner using focus group discussions. The same approach was also adopted by Alkire (2002) and Kinghorn (2010).

In a context such as rural Malawi, focus group discussions are preferable to one-to-one interviews. The less informal environment and the group interaction can make the participants feel more at ease. As Barbour and Kitzinger (1999) argue, focus groups have several advantages for researchers in the field of health and medicine, as they do not discriminate against people who cannot read or write (likely to be case for some in rural Malawi). They can also encourage participation from people reluctant to be interviewed on their own or who feel they do not have much to say. Moreover, focus group discussions can help participants to explore and clarify their views in ways that would be less accessible in a one-to-one interview. They are particularly suitable when the researcher has a set of open ended questions and wishes to encourage participants to explore the issues that are valuable to them, in simple language, generating their own questions and pursuing their own priorities (Kitzinger 1995). This method has been used previously for the development of a health-related quality of life questionnaire (Detmar, Bruil et al. 2006). The aim of the focus group discussions was two-fold:

- to explore locally relevant concepts of quality of life, dimensions of wellbeing, valuable beings and doings.
- to explore the perceived relative value of the different dimensions.

4.3.1 Participants

In total, 15 focus group discussions (including 3 pilots) were facilitated. Each group was formed of 10 to 12 discussants. Participants comprised women of child bearing age who had a baby less than one year old. The sample was stratified first by MaiMwana Project cluster (control and intervention), then by area (rural and peri-urban[3]), then by group age (below 25 and over 25 years old). Following these criteria, participants were randomly recruited. By the fifteenth focus group, it became clear – through the repetition of themes and the content and nature of the discussion – that data saturation had been achieved. On this basis, no further focus groups were conducted.

After the consent to participate was granted, a background form was filled in by the note-taker for each participant, including basic information on the socio-economic and demographic characteristics of the participants.

[3] Measured as proximity to a trading centre or tarmac road

A total of 129 women who delivered in the previous year participated in the focus group discussions (159 including the pilot); half of them were younger than 25 years old. The age range was between 16 and 60 years old; although accurate age in rural Malawi is seldom known, especially for older people. The large majority (91 per cent) of participants were married women, and 68 per cent had more than 2 children. 64 and 60 per cent of participants affirmed that they were able to read and write (Table 4.6)

Focus groups comprised mostly women from the Chewa ethnic group (81 per cent), with one or two discussants from the Ngoni tribe or other ethnic minorities. Only one meeting was entirely composed by non-Chewa women and in that case all participants were Senga people, and the discussion was conducted in the Senga language. More than half (60 per cent) of the participants had attended at least one women's group meeting before (MaiMwana Women's Group or others) and 47 per cent of them had attended at least one MaiMwana WG meeting.

Table 4.6 Characteristics of participants in the focus group discussions

Variable	Values	Frequency	%
Age	<= 25	64	
	>25	65	
Marital status	Married	118	91%
	Widowed	1	1%
	Unmarried	6	5%
	Divorced	4	3%
Parity	1 child	41	32%
	2+ children	88	68%
Ethnicity	Chewa	104	81%
	Ngoni	10	8%
	Senga	10	8%
	Others	5	4%
Literacy	Read	82	64%
	Write	78	60%
Housing	iron sheet roof	13	10%
	thatched roof	116	90%
Household assets	Bicycle	55	43%
	Mobile phone	28	22%
	Chickens	52	40%
	Pigs / goats	42	33%
	Radio	57	44%
Any Women's Group attended	Yes	78	60%
	No	51	40%
MaiMwana Women's Group attended	1-2 meetings	5	4%
	3-6 meetings	20	16%
	> 6	12	9%

4.3.2 Procedures

The procedures for preparing and conducting the focus groups followed Morgan's guidelines (Morgan 1997). The consent to participate was requested at the beginning of each session, following a brief introduction to the main purpose of the focus groups. The consent form was read out aloud by the moderator, and wherever possible the participants were asked to read aloud part of it. Participants were given the chance to ask for clarification or to raise any objections. The informed consent was granted by the participants signing (or thumb-printing) two copies of the form, one for the moderator and one for the participant.

A protocol for conducting the sessions was developed by the researcher and used as the main planning and organising tool for the focus groups. The protocol presented details of the study's objectives, and the logistical arrangements for the meetings. It also included information on the moderator and note-taker's duties and responsibilities, their required conduct towards the participants and in directing the discussion flow, and a topic guide (in appendix) with the general content of the discussions, and some more targeted questions. The protocol was included in the training material for the moderator and the note-taker.

Each discussion was facilitated by the same moderator and note-taker; both were experienced local researchers acquainted with qualitative research methods. They received further training from the researcher on focus group facilitation techniques, confidentiality and ethical guidelines and an introduction to the concepts of capabilities and functionings. A lot of care was taken to ensure that the moderator facilitated the discussion in the intended manner. This involved not being assertive, encouraging all participants to express themselves freely and fully, ensuring that everyone's voice was heard, and that the discussion was not driven by a single participant. A semi-structured topic guide (Appendix D) was used to ensure that all groups covered approximately the same topic areas. The note-taker took written notes on the main points of the discussion as well as observing and recording non-verbal communication. Simultaneous translation was also provided to the researcher when asked for; the researcher attended each FGD as an observer.

The discussions were carried out in the informants' local language (Chichewa or Senga). The meetings took place outdoors (weather permitting), usually near a school building, a church, or the chief's house. Participants sat in a circle, on benches when possible, if not on the ground. This provided the discussions with a relaxed and informal setting, conducive for open and frank discussion of the issues.

4.3.3 Structure

The first draft of the topic guide was partially drawn from the ICECAP study on adult population (Al-Janabi, N Flynn et al. 2012). Although the ICECAP study was from a very different context, the approach to questions was instructive and facilitated a good starting point from which to develop a contextually relevant draft. This was then reviewed by the researcher, translated and refined with detailed input from the research team, and lessons learned from three pilot groups conducted in the buffer zones of the MaiMwana Project trial (Lewycka 2010).

The final topic guide included an open exploration on the meaning of quality of life as a concept (*what does the term good life mean for you?*) and more specific questions about the different dimensions that might constitute a high quality of life (*what are those important and valuable dimensions of our lives that make the life good? and what are those dimensions of our lives that make the life bad?*) this was followed by an exploration of valued choices in life (*What opportunities, freedoms and choices do you value?*).

All the meetings started with the moderator welcoming participants, introducing the project and the general principles of the discussion. The facilitator then obtained written informed consent or a thumb print from all participants. The session was divided in two sections, to reflect the dual aim of the exercise. Between each section, a refreshment break was planned. Each group discussion lasted an average of 120 minutes, including the break. In general, the discussions were engaging with a broad and inclusive sense of participation. The moderators were skilled at stimulating lively group dynamics and rich debate. To the extent possible, the moderator made every effort to encourage the participants to lead the discussions. It was structured around exploring the dimensions raised by participants themselves, returning to the open questions to generate further dimensions.

The **first part** of the discussions was intended to:

- explore people's understanding of the concept of quality of life
- explore people's perceptions of the different dimensions/components of quality of life
- investigate people's thoughts about the factors that influence their quality of life
- generate a list of capabilities and agree on it

The concept of dimensions of a good life is abstract and *a priori* one might expect participants to have difficulty in discussing it. For this reason, the moderator opened the discussion with a warm-up exercise to set up the subsequent discussion on quality of life. Using the example of a tomato, discussants were encouraged to provide their thoughts on the key "dimensions" for a good quality tomato (shape, size, colour, firmness) and the factors that can influence these dimensions. After the example, the main content section began with broad questioning on what is a "good life", how we can

define "quality of life", and then it moved into the factors influencing life. The discussion proceeded with questions on valuable opportunities and choices to achieve a better quality life, and the capabilities to achieve what it is valued. An example follows:

Moderator: What do you mean when you say that a person is living a good life?
(Silence)
Participant: Someone who has good conduct … who is merciful
P: A household that is hygienic and the children are happy
P: Someone should have enough food
M: What else?
P: Your body looks good, it looks soft
P: Someone with a healthy body
M: What else?
P: A household that it is not too crowded with empty mouths … a family which practise child spacing
P: People should be learnt [knowledgeable]
P: Someone who associates with others, like in church organisations.

Responsive questioning was used to investigate the underlying concepts of quality of life and the factors influencing the quality of life. For example, if the respondent said that being able to live in a decent house is essential for a good life, the facilitator asked what is meant by living in a decent house (for example with a corrugated roof as opposed to a thatched roof), and why living in a decent house is considered valuable and indispensable to achieve a good life. For example:

M: You mentioned that a person who lives a good life associates with others. Why is it so?
P: Because you learn one or two ideas from friends
P: One gets encouragement from friends when associating with them. Sometimes they enlighten one on what to do
M: So what do you benefit from this?
P: You persevere in the hardships
M: What do you mean?
P: When you are in a group like we are here, you forget some of the problems at home
M: You mentioned child spacing. Why so?
P: With un-spaced births women do not become healthy
M: What make people bear children often?
P: Sometime it is a woman's negligence
P: Men claim that a woman become different in bed when using contraceptives
M: So how can family planning be promoted?
P: Men should be called to attend reproductive health services at hospitals

Finally, the moderator invited participants to wrap up their ideas, and list out the dimensions of quality of life that had been discussed during the session (the dimensions are discussed in the next section).

The **second part** of the group discussions explored the values of the dimensions that emerged in the first part assigning up to 10 beans for the most valued dimension. The methods and results of this section are described in the next chapter 5 as they form part of the aggregation exercise.

4.3.4 Data and validation

The sessions were recorded with one audio-digital recorder and one audio-tape recorder. The voice recording was transcribed by the note taker verbatim in Chichewa (or Senga in one case). The transcription was then translated word for word into English. Local sayings and metaphors, common in Chichewa expressions, were translated literally, and the meaning was explained in brackets. Fifteen minutes of each recording were validated against the Chichewa transcription by an external researcher, who also validated the English translations for the whole length of the records. The note-taker compiled detailed written notes regarding the dynamics, interactions and non-verbal communication of the discussants.

4.3.5 Analysis

Findings were elicited based on manual framework analysis. Framework analysis uses a thematic approach, but allows themes to develop both from the research questions and from the narratives of the discussions. Framework analysis, as described by Ritchie and Lewis (2003), is an analytical process which involves a number of distinct though highly interconnected steps.

In this study, as recommended by (Ritchie and Lewis 2003), five stages were used to construct the framework:

(1) familiarisation: immersion in the raw data, reading the transcripts several times from beginning to end to get an understanding of the whole session and the possible emerging themes, and reviewing the field notes;

(2) identification of a thematic framework: identifying all the key concepts, issues and themes that the data can be referenced to;

(3) indexing: applying the framework systematically to all the data, by writing notes or codes next to the text;

(4) charting: re-organising the data according to the relevant thematic headings and categories, this involved rephrasing and compacting the text in some cases, a matrix developed in Excel was populated with the text;

(5) mapping and interpretation: with the help of the matrix, concepts were re-defined, and associations were created between different levels and across themes.

4.4 Results

Only findings related to the perceptions of quality of life, its dimensions, and the factors influencing it are reported here. The results related to the second part of the group discussion (the perceived value and ranking exercise) are reported in the next Chapter 5, as they form part of the aggregation and weighting of the index.

Overall, there appeared to be no significant variation in the results between different stratified groups (rural/peri-urban, age group, control/intervention) and ethnicity.

4.4.1 Perceptions on the meaning of "good life"

The participants defined somebody with a "good life" as a person that enjoys different states of "beings, havings and doings". These states reflect both material and non-material aspects of a person's living. After mentioning the "basic needs" as valuable dimensions of a good life (e.g. being well-nourished, having money, a decent house, being free of diseases), participants explored and articulated in their own language more complex and abstract concepts, such as having a sense of security, being respected and admired, feeling in harmony with the surroundings, feeling part of the community, having control over personal decisions, being able to create a united and cooperative household, as these statements describe:

The goodness of one's life is to have money to buy fertilizer (FGD 4)

Being in a peaceful marriage and well-fed means that you are a free person (FGD 12)

One should be nicely [clean] dressed, and should not fall sick often (FGD 12)

Having nice [clean] beddings, good house, rearing some animals (FGD 22)

If people admire you, you are happy, and you feel encouraged (FGD 9)

When you are independent, there is nothing that can bother you (FGD 10)

When the household is united, everything goes smoothly; you decide together how to spend the money, if in buying beer or sugar (FGD 9)

Being respected is good life because one gets help (FGD 9)

As might be expected, aspects of "poor quality life" reflected the opposite of what was defined as a "good life". The following statement illustrates this:

Being beaten, going without food, lacking clothes, yet having ten children you cannot take care of. This is bad life (FGD 11)

4.4.2 Development of a conceptual model: the list of dimensions

The lists drawn by the participants included between 8 and 13 dimensions of quality of life. Following the methodological steps described in the framework analysis section (familiarisation, identification, indexing, charting, mapping and interpretation), the participants' contributions to the creation of a list of dimensions were re-elaborated and grouped into a set of six main dimensions, or capabilities, of which each had a set of sub-domains. The capability set conceptualises and defines quality of life for women of child-bearing age in rural Malawi; it refers to six different spheres of wellbeing: *physical strength*, *inner wellbeing*, *household wellbeing*, *community relations*, *economic security* and *happiness*.

4.4.2.1 Physical strength

As might have been expected, one of the first components of a good life which was brought up in each discussion was having a strong body and a balanced diet. Physical strength included: being able to do physical work, having enough food, being able to avoid diseases and being able to space births.

The participants recognised food as the source of energy essential for survival and needed for carrying out labour-intensive work – the vast majority of women in the study population were subsistence agricultural workers. Hence, having a strong body that does not fall ill often was seen as crucial allow the women to carry out their farming activities:

If you have plenty of food, you are a free person. If one has food, is not getting sick now and again; if you lack food, you cannot work [in the field] … you have no energy. If people are strong, they have no worries; they work properly, and get money to buy other needs (FGD 4)

A person should be able to go and cultivate, grow crops, dig well. How can a weak person cultivate, is it possible? (FGD 6)

The concept of *health* and *being healthy* was generally expressed in terms of *being able to avoid diseases* and being able to eat enough nutritious food, which is described above. Avoiding disease was

closely associated to being clean, having access to clean water and sanitary latrines, and being able to avoid HIV and other sexually transmitted infections. On a few occasions, sleeping under a mosquito net was also mentioned as a way of avoiding disease. The recurring concept of hygiene and cleanliness encompassed two distinct aspects: the hygienic side, for avoiding diseases, as the next quote suggests; and the social aspect of being nicely and properly dressed, in order to be accepted in the community, which relates to the community wellbeing dimension, discussed later in this section.

It is possible for someone to have nothing; she may struggle to get things. But if that person maintains hygiene in the house she doesn't get sick (FGD 8)

Another frequently mentioned component of physical wellbeing was the *opportunity to practise family planning*, being able to choose the number of children freely and being able to space births. This contributes to a "good life" in two ways: first, child spacing allows the body of the mother to recover from the previous pregnancy, and to regain strength, as the quote shows; second, too many children are considered a burden to families where food is already scarce. Whilst the former is related to bodily wellbeing, the latter will be included in the household wellbeing dimension, discussed later in this section.

With un-spaced births women do not become healthy… Even the children do not grow properly, they become malnourished… Maternal deaths become inevitable and so recurrent infections (FGD 9)

The factors which hindered a woman from using contraception were multiple. They can relate to misconceptions about possible side effects, religion, or the husband's authority. The following quotes illustrate this point:

Men claim that sex doesn't feel the same when a woman is using contraception (…) and men can desert them (FGD 9)

Some religions say we should follow the words in the Bible, which is to replenish and fill the earth. (FGD 9)

4.4.2.2 Inner wellbeing

The second dimension of wellbeing identified by the FGD participants refers to the mental and emotional sphere of wellbeing. It comprises peace of mind, control over personal matters, freedom from oppression, living without shame and knowledge.

Complex abstract concepts were brought up during the discussions, often aided by stories and examples of life experiences. The participants described a person with a good life as having no worries. She looks radiant; she walks "free" and "comfortable".

Having peace of mind or peace in the heart (*Mtendere*) is a widely used concept in Malawi. It is a state of being in which the person is feeling free from anxiety and preoccupations, at peace with herself. It embraces the self-assuring feeling that nothing is going wrong. In each focus group, discussants reported that having peace of mind is associated with a good life:

A person struggling with life is recognised by worries, and you can recognise them in a group because they feel out of place (FGD 4)

A person living a good life has no worries. When you have a peaceful mind everything goes well (FGD 7)

People who practice witchcraft have a defective life. People always talk bad about them, so they lack peace of mind (FGD 9)

As part of the *Mtendere*, women stressed the importance of being able to relax and enjoying good things in life:

[I would like the freedom] of having time to rest and take care of my children (FGD 7)

Maybe you spend a lot of time doing casual labour without having some time to have fun (FGD 8)

Another important dimension of a person's life that was discussed is the control over personal matters and being free from oppression. The word *Ufulu* in Chichewa means both freedom and right. Being independent, such as being able to travel without the partner's consent (for example for visiting relatives or attending a funeral) or being able to express feelings freely, was considered extremely valuable, as reported in these quotes:

One lives a free life when she is able to decide what to do (FGD 8)

Being free to do what you want, sometime one is forced to do things that you don't want to do, and you really do not have a choice (FGD 3)

A person should be independent because when sick she doesn't wait for someone to tell her what to do, men at times neglect that you are struggling [suffering] (FGD 4)

If one is confident and bold enough, doesn't live in fear (FGD 10)

If you are independent, then you become responsible, you are then reliable at home, and you become free, you don't wait for someone to help you, and you don't live anxiously (FGD 9)

Women reported that the feeling of *shame* destabilises their mental wellbeing. Shame and inadequacy was generally associated with being poor and marginalised. A person who is feeling shy, humiliated and inadequate was unanimously considered to be living a poor quality life. In contrast is a person who feels "comfortable" with her being and her appearance.

A person who changes clothes is seen as living a good life. She changes dirty clothes after a bath, and puts on clean ones, and looks good. When she is amongst people, she is not shy. As for me, I may have to wash the few I have to put on when I go in public. (FGD7)

Sometimes people laugh at you; if you are too poor, they avoid you assuming you are there to beg. (FGD 4)

Poor people feel that even sitting on a mat with friends who are nicely dressed is improper … If you are laughed at, you become bitter; you don't feel happy to be a laughing stock (FGD 4)

Participants mentioned *having knowledge* as a valuable component of their lives. The concept of knowledge comprised being literate (being able to read and write and having numeracy skills), having "wisdom" and having agricultural training. In no cases was knowledge synonymous with formal education, except with reference to the education of the children, and the problems associated with school fees and dropouts. This dimension of wellbeing was appreciated as important to achieve a good life because a literate person has access to better job opportunities, and, as a result, higher income. Moreover, in a low-literacy context, a person who is able to read and write has a high standing in the community, and is generally associated with being wise.

Education adds to one's natural wisdom, it enlightens one's life (FGD 8)

The educated is able to see what is right and what is wrong (FGD 4)

The one who is educated can help the relatives, she is developmental, she brings prosperity in the household (FGD 9)

[I value the] opportunities to have an agricultural course, to boost my harvest (FGD 9)

If you are educated you don't have problems with many things. An educated person does not have time to gossip, they discuss important things, the un-educated person is the one who envies his educated colleagues (friends), and talks all sort of things about them (FGD 9)

Closely associated to the concept of inner peace, is *having good conduct* (*Khalidwe*). *Khalidwe* can be translated as a righteous person, someone who is behaving virtuously, within the social norms, and who has gained a degree of respect in the community. Someone who is not an honourable person is regarded as unable to live a good life, for several reasons: she will lack inner peace; she will suffer as she will be marginalised, and she will lack the respect and support of the community.

Having good conduct is more important than being healthy, one may have food, and peace (Mtendere), but if he/she is a brute, he/she is good for nothing (FGD 10)

If you have good conduct, people cannot do you evil because you are a respected person (FGD 5)

This dimension is cross-cutting the inner wellbeing and the community wellbeing, and is also discussed at a later stage.

4.4.2.3 Household wellbeing

Emerging through the focus group discussions was the fact that women's quality of life is not realised in isolation but is to a large extent dependent on the behaviour and wellbeing of other members of the household, in particular on the children's welfare and the husband's conduct.

The dimension related to household wellbeing includes being able to take care of children and husband, being free from domestic violence, having control over household money, being able to educate the children and living in a decent house.

The importance of having a harmonious home life and a united family was stressed in the majority of the discussions:

When united, everything goes smoothly… you decide together how to spend the money, if in buying beer or sugar (FGD 9)

With cooperation, everything goes smoothly. If cooperation lacks in the household, one may sell the food you have. That is a sign of lack of cooperation (FGD 3)

When people cooperate [in the household] it becomes easy to develop [prosper]. And you have a good life. You live peacefully in the home (FGD 5)

[Bad life is] being with no husband, divorced, unmarried … especially if you have children. A woman in this situation should go into business [find a job] so that she can share the financial responsibility with a new husband (FGD 11)

Children's welfare is perceived to depend mainly on their nutritional status and their education. Parents' attitude towards schooling is regarded as being one of the main drivers for keeping children in the school system, together with children's health. Parents are supposed to show support and encourage their children not to drop out of school, while the major obstacles are the financial burden associated with schooling costs, including the purchase of uniforms. Additional barriers to schooling, based on the discussions, include the feeling of inadequacy of poor and marginalised children (regarding their clothes and hygienic conditions), the distance to the school, early pregnancy, peer pressure, and child labour (mainly herd-boy and house-girl). No mention was made of poor quality of teaching or school infrastructure as one of the causes of drop-out.

If his [child] body is healthy, he is never absent from school… when a child is healthy parents have no worries. (FGD 5)

Parents should be educated so that they know that they have to send their children to school (FGD 8)

[It is important] to advise children that education is their future, failing which they have a doomed future. (FGD 5)

[Good life is] Having the opportunities to invest in children's future (education) (FGD 3)

The children themselves sometime due to peer pressure start bad conducts such as drinking and smoking which makes them fail in school… Girls might get impregnated… They do not adhere to parents' advice. Some young girls sleep with sugar daddies to top up their pocket money which unfortunately gets them impregnated and they fail to go further with education. (…) We should advise them and inspire them. (FGD 4)

The data suggest that women feel a high degree of responsibility for the wellbeing of other members of the family. *Being able to take care of the children and the husband* was considered crucial for fulfilling their role as respectable mothers and wives. Failing to do so was expected to enhance their

level of anxiety and would ultimately trigger domestic violence. Moreover, their image in the community would deteriorate.

One should take good care of the kids and the entire family, so that everyone is healthy and they can work properly and prosper (FGD 8)

A couple which practises family planning is regarded as living a good life: such families [where family planning is practised] are enviable because they are able to take good care of their children, and manage them (FGD 9)

It is important to be hard-working in carrying our household chores. Being a hardworking person means you live a good life. When one is lazy, poverty keeps on worsening, but if you are a hard worker your house is filled with happiness. (FGD 5)

From the discussions it emerged that domestic violence was known to be a frequent and widely spread occurrence within the communities, and it was not considered to be socially acceptable. The participants did not tend to describe direct personal experiences of physical and verbal abuses, but they rather reported anecdotes about friends or family, or that they heard about. Violent acts were usually from a man to a woman, and the perpetrator was often the male intimate partner, but in few cases the in-laws, or the parents. Verbal and physical abuses were thought to be triggered mainly by alcohol abuse and other so-called "misunderstandings" such as discussions on extra marital affairs, jealousy, and use (and misuse) of household money. The husband who squanders money on dissolute activities such as drinking and prostitution was vividly described in the majority of the group discussions. Moreover, extramarital relations were seen as undermining the stability of the family because, together with breaking the bond of trust, they are also a vehicle for the spread of sexually transmitted diseases. In order to enjoy a good life, women stressed the importance of a loving and caring husband, who respects the wife and the children, and contributes to the flourishing of the household (for example supporting the construction of a proper house or doing a cash-earning job).

Men are cunning at times, they give a woman a lot of children, elsewhere off they go (…) We are not on good terms with men here because they always squander their money on beers. They even spend it on extra marital affairs. They bring AIDS home (…) It is hard, they are just used to, they cannot stop. We cannot stop them and you cannot follow them wherever they go. (…) There is no solution, only love, unity and respect (FGD 4)

Sometimes a man may be a drunkard while the wife is not, and even if you answer him tenderly he comes to insult you. In that way you cannot cooperate. (FGD 5)

Men sometimes are just violent. You have done nothing wrong and they will just come to you and beat you up. This is lack of respect. (…) Everybody deserves to be respected. (FGD 5)

"You! Go, and get water. Prepare water for bathing! Cook me nsima[4]!" some people will say "There goes her husband" (…). The woman should prepare water, cook him food, working from the morning till the sun sets. At midnight he says "Come here!"… But the woman wants a rest too. When the husband understands, he will give his wife time to rest. There should be understanding. (FGD 5)

We [women] may produce crops and the husband who drinks will sell all we have laboured together, for then leaving the woman and the children suffer. This is violence. (FGD 5)

[Prostitution] is not good life since he [the husband] can get an infection from somewhere and passes it to you causing children to suffer, and the entire family. (FGD 5)

Promiscuity is a bad habit because you contract diseases, like HIV and other STDs. Promiscuity retards development, because you spend money of the household with prostitutes, and because of HIV/AIDS. It is important to love one another and be faithful, to avoid promiscuity (FGD 9)

Sometimes men might hate something in their homes… loquacious wives… some shun having sex with them… Sometimes women consider themselves as being taken as sex object, in cases where the husband is doing nothing for the family but only demands sex! (FGD 9)

[Bad life is] being beaten up, locked up in a house, denied food also to the children (FGD 11)

As expected, another important factor that contributes to the wellbeing of the household is living in a decent, clean and disease-free environment and *good housing*. This is achieved mainly with good hygiene practices and a solid structured house (for example a house with a pit latrine and a waterproof corrugated roof):

A house should have a toilet, a bathing shelter, there should be a rubbish pit, and the house should be well taken care of. Even if you have all these things but they are not put to good use, diseases will be there (FGD 7)

Being hygienic. Drinking clean water. When the water is safe, diseases diminish. However, even if a household has safe drinking water, but no latrine, that means there is no hygiene. What lies there is nothing but troubles. (FGD 7)

[4] Maize porridge, main staple in Malawi

When the household is hygienic, it has food. Above all children are healthy. When you are living a bad life you do not have food. There are so many of you in the household. (FGD 7)

4.4.2.4 Community relations

The community wellbeing dimension can be interpreted as being largely based on the concept of social capital. It comprises the following sub-dimensions: feeling safe and comfortable in the village, being able to join community groups, avoiding discrimination, being respected and admired in the community, and not being isolated from basic services.

Social capital, conceptualised as "connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them" (Putnam 2000 p. 19) has been extensively argued in the literature as being a key factor in shaping economic and social development. During all but one of the group discussions, participants affirmed that what can be called "bonding" social capital (networks among homogenous groups) is an essential aspect in their life for achieving a higher standard of living.

If your friend is lacking something you can give him a hand. Some day he will do the same for you (FGD 10)

As the following quotes suggest, a person who holds strong ties with other people in the village is confident that she will be helped if in need and she will be more able to cope with risks and shocks, compared with more vulnerable and isolated people.

[Good life means] someone who when you meet on the way, can help you (FGD 6)

I cannot stay with people I am not on good terms with, they will banish me. If I am on good terms, they will help me (FGD 11)

The reciprocal relation was also brought up in the discussions (being able to support others, financially, or in kind, or emotionally). It was referred to as a "well-off" condition because if a person is in a position where she can assist other people it implies that she can financially afford it; and she feels psychologically able to do so because, for example, she is not burdened with anxiety and worries.

I wish I had wealth so that I could assist those who are in need (FGD 4)

When one is free [from worries], he is generous, he is helpful (FGD 7)

Also, social networks are precious because they foster trust and safety in the village, as women described it: being free from assaults in the village and being able to walk without fear;

[Good life is] being able to move in the darkness and in the daylight (FGD 10)

From the focus groups it emerged that the mechanism that holds together and reinforces social networks is the respect for social norms, or having good conduct, a concept that has already been mentioned in the inner wellbeing section. Having socially acceptable behaviour (e.g. avoiding laziness and theft, alcoholism, extra marital affairs, practising witchcraft), being admired and respected appear to be essential components of good community living, as these quotes demonstrate:

Sometimes there are people who are in need, but they do not steal. They work hard and we look at them as living a good life. We regard those who steal as living a bad life. (FGD 7)

Work hard so that you can get more support from the community (FGD 7)

There should be no witchcraft, because you torture others (FGD 7)

Witchcraft is bad because it is infringing on other people's rights (FGD 10)

A person is famous [popular] for her conduct, she is exemplary and people admire her (FGD 3).

It is better to have good conduct because when you are sick there is someone who will take you to the hospital (FGD 6)

When you are lazy you are always talking ill of other people. When others are busy working, you are busy backbiting in other people's houses (FGD 5)

People gossip because they are ignorant, gossiping is not good, you are jealous of what people have, you don't relate well with others, people do not share with you any good things like the ones we had here [in the FGD, sharing ideas] (FGD 9)

What can be termed "bridging" social capital (social networks among heterogeneous groups) is a recurrent theme which is mentioned with reference to living in a united and cooperative community. Being able to join associations (community groups, church groups) gives women the opportunity to learn something, in particular about farming (technology adoption and innovation dissemination), as the quotes describe:

If there is unity in the village, you share ideas (FGD 30)

[Good life is] being allowed to join associations (FGD 8)

You learn something from people; you may get lessons on farming (FGD 6)

Associating with others such as in an organisation makes people lead to good life because you learn one or two new important things for living a good life. Living in isolation doesn't help (FGD 8)

There was no mention of "linking" social capital (links between people outside of the community, e.g. political ties), although being able to access basic services was brought up in a number of group discussion, in relation to lack of transport, bad road connections and distance to clinics and safe water pumps.

4.4.2.5 Economic security

Another dimension which forms part of the framework developed relates to financial security and access to economic resources. It comprises owning assets, being able to access business opportunities, having strong safety nets and being able to cope with shocks.

Being able to cope with risks through established social networks has already been discussed in the section of *community wellbeing.*

Asset ownership and business opportunities were brought up in the discussions as strategies for reaching and maintaining a good living standard.

[Good life is] having land for farming (FGD 8)

Whenever she lacks money, she can sell excess [farm] produce, gets money out of it, and solves her problems (FGD3)

If one rears animals, she doesn't struggle; if she is broke, she can sell some (FGD 10)

Animals can be sold to cover urgent needs (FGD 4)

Most women in our sample affirmed that initiatives which promote their capacity to earn an income independent of their spouses are to be encouraged. The opportunities that were mentioned were access to microcredit schemes, cash-earning jobs (e.g. seasonal work in tobacco estates), agricultural skills development courses, and subsidised fertilizers and seeds.

One should farm animals so that she can be independent (FGD 8)

Bad life is lacking a starting point [for business] (FGD 4)

There are some men who forbid a wife to do business yet they don't even buy her a piece of cloth (FGD 8)

If I am doing some business, I will buy whatever for my children with my own means (FGD 11)

[I value the opportunity of] doing business: in case your husband doesn't provide for the family, you are self-reliant (FGD 9)

[I value the opportunity of] doing some piece of work [paid job] to find capital to invest in a business (FGD 10)

4.4.2.6 Happiness

Women described a sense of contentment and achievement as something to aim for in life, and they stressed the need for living a life that is worth living, a meaningful life that should not be wasted with actions or feelings that do not make people prosper. They referred to "prosper" in the sense of developing as a person, and being satisfied; the quotes below give an illustration. These concepts can be referred to as general life satisfaction, and happiness. They are a step ahead of being free from worries; they are more closely related to self-fulfilment. There is also a close link with health: you cannot be happy if you are not healthy and vice versa.

You can't be happy if you are always worried by poverty and thinking about the way out, you waste time doing small works, you don't prosper (FGD 9)

A happy person becomes healthy and if you want to be happy, you have to be healthy (FGD 9)

When you are hardworking, the house is full of happiness, you prosper. (FGD 5)

When you are a happy person you do forget problems, you are also loved by people and they usually like to come to your house (FGD 6)

With that pessimistic mind (where one is happy with few things) you cannot prosper. One should aim at having nice things in life. (FGD 10)

4.5 Discussion

4.5.1 Results

The framework developed in this study portrays a complex structure of the perceptions that women in rural Malawi have of their life and wellbeing. Quality of life was described using a variety of dimensions that are highly interconnected. It emerges that quality of life is not only shaped by the realisation of material basic needs such as being sufficiently nourished and adequately sheltered, but is also highly dependent on complex feelings, relations and social norms. Abstract concepts were elicited through detailed recounts of everyday living which were described in a thorough and vivid manner.

The framework is formed by six different spheres of wellbeing: physical strength, inner or mental wellbeing, household wellbeing, community wellbeing or social capital, economic security and happiness.

Physical and mental wellbeing generally occupy a prime position in the majority of health-related quality of life measures (Hawthorne, Richardson et al. 2001; Hurley 2001) and welfare indexes (McGillivray 2012). It was therefore not unexpected for the participants to refer to them in the focus groups. However, it is worth noting that physical wellbeing was reported not only as valuable in itself, but also, and more significantly, it enables a person to perform her daily chores and farming activities. Health was not only referred to as the absence of illness, but also, and mainly, as the capacity to work and produce resources to sustain the family.

Women's lack of control over reproductive choices has been widely recognised as an impediment to achieve a good life as it poses a significant burden on women's bodies, moreover, it limits women's participation in many aspects of society and development. Women in many developing countries are deprived of the freedom to do things in life because of the health threats that repeated pregnancies pose in the form of high maternal mortality and morbidity (Sen 1994; Dejong 2006). Reductions in fertility rates have been often associated with improvement of women's quality of life such as expanded opportunities for education, employment and community activity (Dreze and Sen 2002). In this study, women recognised the danger of frequent deliveries and thus the need of child spacing in order to allow the body to recover between births. Having control over reproductive choices was classified as part of the bodily strength as primarily it affects the health of the mothers, however it is recognised that is a crosscutting issue across quality of life dimensions (e.g. household wellbeing and inner wellbeing).

The wellbeing of other members of the household had a great influence on how a woman assessed her standard of living. A woman did not regard herself as living a good life if her children or her husband were not doing well: children should be well-fed, healthy, and should go to school; the husband should be respected and respectful, and the house should be kept clean and comfortable. This might be partially dictated by social expectations on gender behaviour, where the woman is expected to be responsible for the family welfare, as an appreciated wife and conscientious mother. However, the impediments to reach a better level of living conditions in the household were seen to be those same people whom the mother and wife needed to take care of. During the group discussions, women denounced verbal and physical abuses as a recurrent act in their communities. The violence was often generated by drinking behaviour or other forms of "misunderstanding": for example, when a woman refused to have sexual intercourse with her husband, or when she questioned him about extra marital affairs.

The World Health Organisation has identified marital violence as a major health threat (WHO 2002) as it has been found to cause severe physical and mental injuries to women. Domestic violence undermines women's capabilities and functionings since it can erode her employment opportunities and social relations (Agarwal and Panda, 2007). As the Commission on the Measurement of Economic Performance and Social progress reports, freedom from domestic violence needs to be a significant aspect for evaluating wellbeing and for expanding people's capabilities (Stiglitz 2009). The findings in this study are aligned with the conclusion that the Commission draws on this aspect of quality of life.

A rich literature from several disciplines stresses the value of social connections and social trustworthiness for economic and human development (Putnam 2000). A strong sense of belongings to one group or association can enhance a sense of unique personal identity in terms of the group she belongs to (Stiglitz 2009). There is also much evidence that social networks are very robust predictors of subjective measure of quality of life such as life satisfaction (Helliwell and Putnam 2004). The participants in this study brought up in the discussions that their quality of life, in addition to personal and family wellbeing, was also shaped by the interactions with the environment and the community. Women relied on bonding and bridging social capital as a strategy for increasing security in the village, coping with shocks and risks, and for disseminating knowledge, as happens with farming groups or community loan schemes. Social networks were reinforced with the principles of "good conduct": avoiding anti-social behaviour such as stealing, begging, gossiping, witchcraft. Social exclusion, marginalisation and the feeling of inadequacy and shame was widely associated with poverty and deprivation.

One dimension of the model was related to economic security, understood as the access to economic resources and the ability to cope with shocks. In addition to social networks, which can provide an

"emergency fund" in case of need, the ownership of assets such as livestock and the opportunity for cash-earning work such as contracted farming were crucial for achieving and maintaining a degree of independence and control over decisions on financial matters.

The last dimension refers to subjective wellbeing, in terms of people's feeling about their lives, how happy they are overall, how satisfied they are with the kind of life they are living, whether their life is meaningful. A long philosophical tradition starting from Aristotle views people as the best judges of their own condition (Diener and Suh 1997). Subjective wellbeing is closely linked to the utilitarian tradition but has a wider application due to the strong presumption that enabling people to be "happy" and "satisfied" with their life is a universal goal of human existence (Stiglitz, Sen et al. 2009).

In the findings, no significant difference was detected between rural and peri-urban areas; however between age groups there was some variation. For example younger women were more concerned about their appearance and peer-admiration. Ethnicity did not appear to influence the results, however in the focus group with people of the Senga ethnic group the process for eliciting the dimensions was more difficult as participants were more reserved and introverted.

The dimensions that emerged through the focus group discussions are a combination of factors influencing quality of life and components of quality of life. It was not possible to make a distinction between these two concepts. It is clear though that the dimensions were all valuable and important aspects of women's life because they enable women to prosper and flourish and to conduct a life of human dignity that it is worth living. For these reasons, the dimensions can be considered capabilities as defined by Sen.

4.5.2 Comparing the list with other sets of dimensions

It is interesting and instructive to compare the set of capabilities developed in this study with lists related to quality of life and wellbeing generated by other studies for different purposes and following different methodologies. The five sets of dimensions discussed in section 4.2.1, have been considered for this exercise: Nussbaum's Central Human Capabilities (Nussbaum 2003), Narayan's *Voices of the Poor* (Narayan 2000; Narayan, Chambers et al. 2000); Doyal and Gough's Basic Human Needs (Doyal and Gough 1991), Al-Janabi and Coast's ICECAP-A measure (Al-Janabi, N Flynn et al. 2012) and the list presented by the Commission on the Measurement of Economic Performance and Social Progress (Stiglitz, Sen et al. 2009).

4.5.2.1 Nussbaum's Central Human Capabilities

Despite the fact that the aim of Nussbaum's list and the methodology used to develop it differ substantially from those in this study, considerable areas of commonality were noted. For example, she describes *bodily health* and *bodily integrity* as being able to have good health, including reproductive health; to be adequately nourished; to have adequate shelter, being able to move freely from place to place; to be secure against violent assault, including sexual assault and domestic violence; having choice in matters of reproduction. These are all present in our framework, although not under the same category but distributed across the p*hysical, inner* and *household wellbeing.*

The *inner wellbeing* dimension is articulated in Nussbaum's list across three different capabilities: *Emotions; Senses, Imagination, and Thought;* and *Play* (e.g. to love those who love and care for us; not having one's emotional development blighted by fear and anxiety; being able to laugh, to play, to enjoy recreational activities).

One could argue that the recurrent concept of *good conduct* is associated with Nussbaum's *Practical Reason*: being able to form a conception of the good.

Her idea of *Affiliation* (e.g. to engage in various forms of social interaction; having the social bases of self-respect and non-humiliation; being able to be treated as a dignified being) is very similar to the *community wellbeing* presented in the study.

The main differences are that the study's set does not include any dimensions associated to *Other Species* (being able to live with concern for and in relation to animals, plants, and the world of nature) or to *Control over one's Environment* (e.g. being able to participate effectively in political choices that govern one's life). However, the participants in the focus groups did mention being able to hold property, which is part of this last capability.

Finally, in the Ten Central Human Capabilities there is no mention of social networks and strategies for coping with shocks and risks, which were two highly valued elements of the *community wellbeing* and *economic security* dimensions.

4.5.2.2 Narayan's Voices of the Poor

The aim and methodology used in Narayan's work are equivalent to the approach used in this thesis: both used participatory methods to elicit people's values and perceptions of well-being and ill-being. As an example, in *Crying out for Change*, the starting question was 'How do people define wellbeing or a good quality of life, and ill-being or a bad quality of life?' which is analogous to the opening question of this study's focus groups.

The similarities in the findings between Narayan's list of dimensions and the framework developed in this study are extensive. The majority of capabilities and functionings are present in both lists, are grouped under matching headings, and in many cases are described with the same or similar expressions, for example *Peace of mind*. The only dimension that does not explicitly overlap is S*ecurity*: in *Voices of the Poor* this concept includes civil peace and lawfulness which were omitted in the Malawian context (probably because the country had not experienced unrest or armed conflicts in recent history, and because access to formal justice in remote rural areas is considered unfamiliar hence not particularly valued). Finally, in the Malawian context the capability to practise family planning was highly valued although it does not explicitly appear in the *Voices of the Poor*.

4.5.2.3 Doyal and Gough's Human Needs

Despite major conceptual and methodological differences, their list of needs is reflected in the set of dimensions developed in Malawi. Nutrition, housing, physical and economic security, reproductive health rights, and relationships all feature in the list of capabilities developed in this study.

4.5.2.4 Al-Janabi and Coast's ICECAP-A measure

The ICECAP-A project and this work share many similarities in terms of aim, objectives and methodologies. They are also both set in the Health Economics discipline. However, the two sets of dimensions of wellbeing have substantial differences. In the ICECAP-A, basic capabilities such as being adequately nourished are absent, probably because in a developed nation these aspects of quality of life are given for granted. *Community wellbeing* which is a highly valued component in our set of dimensions is not explicitly present in the ICECAP-A, although it could be part of the *Love, friendship and support* dimension. In the Malawian list the *Achievement and progress* dimension is not mentioned. Despite sharing a similar aim, objectives and methods, the results of the two studies appear to reflect their specific cultural contexts.

4.5.2.5 Commission on the Measurement of Economic Performance and Social Progress

Despite the list proposed by the Commission being drawn from academic literature, and is targeted at a national level, there is a significant degree of overlap between the Commission's list of wellbeing dimensions and the quality of life for Malawian women. Although *education* is not mentioned directly in this study, nor is *political voice* and *environment*; s*ocial connections and relationship* matches with the community wellbeing dimension, and the last dimension (*insecurity*) includes both the economic security dimension and the freedom from domestic violence sub-dimension. The dimensions of health

and material wellbeing feature in both lists. In the Commission's list is missing a mental wellbeing dimension.

4.5.3 Limitations

While developing the framework, great care was given to produce mutually exclusive attributes of life, however this was not always possible as some sub-dimensions were cross-cutting the wellbeing dimensions. For example, domestic violence not only was regarded as having an impact on the wellbeing of the family but also on the victim's mental state and it might also affect her physical health. Also, having a good conduct is part of the inner aspect of wellbeing, however it has an impact on the individual's social life as well. Social networks are one feature of the community relations, however the economic aspect of the safety nets (for example being able to cope with shocks thanks to the financial or in-kind support from family and friends) are part of the economic security dimension.

The findings report the perceptions that women of child-bearing age in Mchinji District have of their quality of life. The focus group discussions were conducted by an experienced, trained and local moderator. As described above, and confirmed by the presence of the researcher, the discussions were lively and involved all women in the group. Every effort was made by the moderator to ensure active and inclusive participation. Where possible, participants led the discussion with the moderator posing follow up questions and probing rather than directing and influencing. However, as with all research of this nature, one can never be certain that the views being voiced are those that truly reflect the perceptions of the participants. The strategy used by the women to discuss domestic violence and sexual abuse, by speaking of others' experiences and of anecdotes heard, suggests that there were some topics that the women were not able to discuss from their *own* personal experience. As the researcher, all that can be done is to ensure a conducive environment and to record as much information as possible so as to be able to report the full picture of what was experienced. The fact that domestic violence was discussed at all and that there were no conflicting perspective across different groups, provides supportive evidence to suggest that genuine perceptions were expressed.

4.6 Conclusion

This paper has reviewed existing methods for selecting dimensions of quality of life. A participatory approach was chosen for eliciting women's perceptions of what good life means in Mchinji District, Malawi. A conceptual framework on quality of life has been developed based exclusively on women's contributions. The conceptual framework included six dimensions of quality of life, or capabilities, and a number of sub-dimensions: bodily strength, inner wellbeing, household wellbeing, community relations, economic security and happiness.

The core dimensions were expressed according to women's values, in their own words, hence they may not be generalisable beyond this population group and geographical area. The findings relate to the particular context where the study was carried out. However, the framework could be extended to women living in other areas of rural Malawi, or parts of neighbouring Zambia and Mozambique, as the majority of population belongs to the same ethnic group (Chewa) and shares values, norms and traditions. Further adjustments and validation tests would be needed if the list is used in different contexts.

Despite the list being developed in a specific context and for a specific group of people, the similarities with lists developed in other contexts, with different methods and for different purposes are considerable. This might lead to the conclusion that there are a number of core aspects of wellbeing that are considered a minimum requirement for a life of human dignity and that should be included in any exercise for assessing quality of life and human capabilities across populations.

Finally, this study shows that group dynamics are indeed appropriate for generating information on social values in a low-literacy rural context. However, it has not been possible to make a clear distinction between factors which have an influence on quality of life and the dimensions which forms quality of life.

London School of Hygiene & Tropical Medicine
Keppel Street, London WC1E 7HT
www.lshtm.ac.uk

Registry
T: +44(0)20 7299 4646
F: +44(0)20 7299 4656
E: registry@lshtm.ac.uk

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

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Chapter 5 Setting the weights: a multidimensional index of wellbeing for women in Malawi

5.1 Introduction

There is an established consensus rooted in Rawls' and Sen's theories that wellbeing is intrinsically multidimensional (Rawls 1971; Sen and Nussbaum 1993; Anand and Sen 1997; Stiglitz, Sen et al. 2009; McGillivray 2012).

Standard indicators of wellbeing such as the QALY for health and GDP per capita for economic development have been increasingly regarded by academics and policy makers as being too narrow in focus. They fail to address the complexity of human nature, social progress, and issues of equity (Coast 2004; Anand and Dolan 2005; Alkire and Santos 2013).

The 'measuring well-being' agenda calls for improved and new statistical measures, aimed at filling the gap between standard economic statistics (which are mainly focused on measuring the material wealth of people) and indicators that have a more direct bearing on people's lives (Stiglitz, Sen et al. 2009; OECD 2011).

In order to better assess and monitor progress in society, there is a need to develop multidimensional measures of wellbeing that encompass the full range of factors that make life worth living (Stiglitz, Sen et al. 2009). Some of the ongoing work on the development of wellbeing indicators is inspired by the capabilities approach developed by Amartya Sen (Sen 1982; Sen 1985; Sen 1993).

The implications of adopting the capability framework for understanding wellbeing are not limited to the measurement of people's quality of life but extend to the evaluation of social policies. Policies supportive of human development should expand the opportunities available to people, which would be valuable irrespective of the effect on people's states (Stiglitz, Sen et al. 2009).

The multidimensional nature of wellbeing increases the complexity of the evaluation and raises a number of methodological challenges that need to be considered when constructing a composite measure (Stiglitz, Sen et al. 2009): (1) development of a theoretical and empirical model: selection of dimensions and indicators; (2) aggregation of dimensions into one single measure: selection of relative weights; (3) validation of the instrument.

The search for appropriate weights in an aggregate measure is often perceived as the most significant challenge (Stiglitz, Sen et al. 2009; Decancq and Lugo 2012): to assess the importance of each dimension and whether and how to aggregate them.

There is a range of methods available for aggregating dimensions into one measure, depending on the philosophical perspective taken. Each approach will result in different scalar measures of quality of life, and will lead to different policy implications, for example the characteristics of people classified as "worse-off" in their society. The different methods for setting the weights are reviewed in the next section.

The available literature on the impact of adopting different methods for setting the weights in composite measures of wellbeing is limited, and little is known about the implications of different value judgments on the identification of the "worse off" in a society and the evaluation of social policy (Alkire and Seth 2013). Despite Sen and Anand's argument that the choice of weights be open to questioning and debate in public discussion (Anand and Sen 1997), several available measures of wellbeing do not make the value judgments explicit and thus cannot be open to public scrutiny on what a good life should look like.

5.2 Setting the weights in wellbeing indices

The Oxford Poverty and Human Development Initiative (OPHI) distinguishes three classes of categories for setting the weights in multidimensional measures of wellbeing that are based on different theoretical assumptions (Decancq and Lugo 2012):

a) Normative: equal/arbitrary and expert-based approaches.

b) Data-driven: Statistical techniques (e.g. principal component analysis, factor analysis, latent variable models).

c) Hybrid: Survey-based methods to elicit directly people's preferences (standard gamble, visual analogues, and willingness to pay) or making use of subjective well-being surveys.

5.2.1 Normative

Normative approaches are based on value judgments of a specific group of people, which can include the researcher, a panel of experts, the wider community or the participants in the study (Decancq and Lugo 2012).

The easiest and most common approach for setting the weights in multidimensional measures of wellbeing is to assume equal value for each dimension. Examples of this include the Human Development Index (Anand and Sen 1994), the Human Poverty Index and the Gender-related Development Index (UNDP 2013), OECD Better Life Index (OECD 2013), and the OPHI Multidimensional Poverty Index (Alkire and Foster 2011). Lorgelly and colleagues (Lorgelly et al. 2008) assigned an equal weight to each of the 18 questions of their survey. For example, being able to live a life of normal length is as equally important as being able to enjoy recreational activities and being capable of independent thinking.

This approach has been defended for its simplicity and for its 'agnostic' viewpoint (Decancq and Lugo 2012). However, there are many criticisms for its lack of explicit value judgments (Ravallion 1997), and it seems unrealistic to assume that all capabilities are equally valuable to people: "obviously convenient but also universally considered wrong" (Chowdhury and Squire 2006, p. 762)

Besides the equal weight approach, there is a range of more complex aggregation techniques based on people's values or expert opinions. Sen advocates for "open discussion, debate, criticism and dissent" as the means for eliciting values and priorities: "We cannot, in general, take preferences as given independently of public discussion." (Sen 1999 p.7). People's values can be elicited with participatory

methods such as the budget allocation technique: people are asked to distribute a budget of points to each dimension, the higher the importance of the dimension, the higher the number of points (Chowdhury and Squire 2006). The OECD Better Life Index by default sets equal weights to the eleven dimensions; however, the index is an interactive tool available on the OECD website, and users are allowed to set their own weights on a scale from 1 (least important) to 5 (most important). The ranking of the 33 OECD members' countries changes accordingly to the user's value judgment and this is then presented in a powerful graphic (OECD 2013).

5.2.2 Data-driven

Statistical approaches depend only on the distribution of specific achievement levels in society; they are not based on any value judgment. These techniques are based either on descriptive or explanatory models (Decancq and Lugo 2012)

The most common descriptive models are principal component analysis (PCA) and factor analysis. They are a set of multivariate statistical techniques that help to extract information from the data; they facilitate multidimensional analysis by reducing the number of variables and therefore reducing the complexity. PCA involves replacing a set of correlated variables with a set of uncorrelated 'principal components' which represent unobservable traits of the population. The principal components are linear combinations of the original variables; the weights can be obtained from the linear combination of the component that explains the largest proportion of the variance (first component) (Bartholomew, Steele et al. 2002). PCA is commonly used in the development of socio-economic status and wealth indices (Vyas and Kumaranayake 2006; Howe, Hargreaves et al. 2008)

Factor analysis has been also widely employed (Noble, Smith et al. 2000; Schokkaert and Van Ootegem 1990) but involves some challenges. First, if the observable variables submitted to factor analysis are measured on different scales, the factors might pick up method effects rather than substantive variance effects. Secondly, it is uncertain that if the real life functionings are correlated, orthogonal factors would represent adequately an individual's welfare (Decancq and Lugo 2012).

More complex and sophisticated aggregation approaches are explanatory models such as latent variable models, structural equation models and fuzzy set theory (Chiappero Martinetti 1994; Di Tommaso 2006; Krishnakumar 2007) These are based on the assumption that the indicators are dependent on a set of unobservable latent variables (e.g. quality of life). These probabilistic models are not straightforward to interpret (Bartholomew, Steele et al. 2002) and as a result can be said to lack transparency in terms of facilitating a clear understanding for policy makers and interested individuals who may be interested to use the findings.

5.2.3 Hybrid

The hybrid approach combines people's opinions with quantitative analysis. Survey-based approaches to weighting have employed standard methods from economics for eliciting preferences, such as discrete choice modelling (DCE) (Coast, Flynn et al. 2008; Watson, Sutton et al. 2008). Coast and colleagues valued the ICECAP index for older people using best-worst scaling along with a stated preference discrete choice experiment (BWS DCE). Because the respondent is asked what attribute is the best or the worst, and the respondent does not have to trade one for the other, Coast argues that it can be considered as a value judgment rather than a choice (Coast, Flynn et al. 2008). Moreover, this type of DCE is better than traditional DCE because it gives more information on preference heterogeneity rather than 'pick one' choices, and is less cognitively demanding (Flynn, Louviere et al. 2007). Colbourn also used a BSW DCE for valuing attributes in the Chichewa version of the WHOQOL-Bref questionnaire (Colbourn 2012). However, it has been argued that BSW DCE is more similar to a standard elicitation method than the capability framework (Cookson 2005). Other recommended methods include the use of vignettes (Lorgelly et al. 2008), the multi-attribute utility method (Kinghorn 2010) and survey ranking (De Kruijk and Rutten 2007).

This chapter aims to contribute to the literature on the implications of adopting different methods for setting the weights in composite measures of wellbeing. Two questions are addressed:

1) *Does it matter how the dimensions of a wellbeing index are aggregated?*
2) *What are the implications for the identification of the "worse off" in a society?*

Four weighting techniques are used for the aggregation of a multidimensional measure of wellbeing based on Sen's capability framework. The measure has been developed for assessing the capabilities of women of reproductive age in Mchinji District, Malawi and it will ultimately inform the evaluation of the Maimwana Project: a community based programme aimed to reduce maternal and neonatal mortality in the area (Lewycka, Mwansambo et al. 2010).

The background to the study was presented in Chapter 3. The process for selecting the dimensions of quality of life was described in Chapter 4 and the validation of the index will be provided in Chapter 6.

5.3 Overview of the wellbeing measure

The wellbeing measure in this thesis was developed following a number of steps: (1) development of a conceptual model informed by a series of focus group discussions as described in the previous Chapter 4; (2) development of a measurement model: selection of indicators and questionnaire design as described in the next Chapter 6; (3) building of the capability set for a sample of women (survey) as described in this Chapter, section 5.4.1; (4) aggregation of the index as described in this Chapter, section 5.4.2; and (7) validation of the index as described in the next Chapter 6.

Based on the conceptual framework, a measurement model was developed. The measurement model comprised six sections related to the capabilities, or wellbeing dimensions, derived from people's values (Chapter 4): *physical strength, inner wellbeing, household wellbeing, community relations, economic security, and happiness*. Each dimension comprised a set of sub-dimensions for a total of 26 sub-dimensions. The sub-dimensions of the model were assessed with different indicators for a total of 72 variables (Table 5.1).

Based on the measurement model, a survey tool was developed in order to collect data on the capabilities of a sample of women in Mchinji District, Malawi. The tool was extensively piloted and tested for content validity, as detailed in the next chapter that also includes further information on the construct validity and reliability of the measure.

Table 5.1 Structure of the capability set

physical strength: 4 sub-dimensions, 9 variables
- being able to do physical work: physical health, energy
- having enough food: types of food eaten in the last week
- being able to avoid diseases: hygiene, HIV awareness, HIV protection, bed net use
- being able to space births: family planning availability, FP practice
inner wellbeing: 5 sub-dimensions, 11 variables
- peace of mind: mental health, sleep lost, relax time
- control over personal matters: control over daily activities, permission to go to funeral, permission to go to clinic
- free from oppression: freedom of expression, lack of oppression
- living without shame
- knowledge: read, write
household wellbeing: 5 sub-dimensions, 13 variables
- free from domestic violence: domestic violence past, domestic violence likely in future
- control over money: access household money, control over minor expenditure, control over major expenditure
- living in a decent house: toilet, water, house tenure, fear of house eviction, house adequate, house adequate in 6 months
- children's education: all children will reach desired level of education
- family care: take care of children and husband
community relations: 5 sub-dimensions, 21 variables
- access services: easy/difficult to reach health centre, under 5 clinic, school, market, water source, church
- feeling safe and comfortable in the village: fear of witchcraft, moving away from village, safety village, assault past, assault future, theft past, theft future,
- being able to join community groups: groups available, group membership, position
- social exclusion and discrimination: not allowed in groups, gender discrimination, poverty discrimination,
- being respected: respect, admiration
economic security: 5 sub-dimensions, 16 variables
- safety net: help asked to you, you asked for help
- land: land ownership, fear of eviction,
- assets: bike, oxcart, ox, chicken, pig, goat, cow, radio, mobile, bed net
- business opportunities: access to business opportunities
- copying with shocks: able to feed the family if crisis
happiness: 2 sub-dimensions, 2 variables
- satisfaction: satisfied with life overall
- happiness: taking all things together, how happy are you?

5.4 Methods

5.4.1 Household survey

The data were purposively collected from a household survey conducted between March and June 2010 in Mchinji District, Malawi, on a sample of women.

The objective of the sampling was twofold: to gain representativeness of the study area and to compare, in a subsequent study, the quality of life of women who had been exposed to the MaiMwana Women's group intervention with women living in control areas. The sample included 6 out of 48 clusters of the MaiMwana Project trial (Lewycka, Mwansambo et al. 2010): 3 clusters with the intervention Women's Group only and 3 control clusters (no interventions). The clusters were allocated following discussions with the research team based on logistical and budget constraints. A total of 345 women who had delivered in the previous year were randomly selected from the surveillance register of participants enrolled in the main trial:

- 115 women from control clusters,
- 115 women from women's group clusters who participated in at least one Maimwana women's group meeting
- 115 women from women's group clusters who had never participated in a Maimwana women's group meetings

The survey was administered by two local fieldworkers trained on social research methods. Households were randomly allocated between interviewers and the share was even (52% and 48%). The non-response rate in the survey was 25 per cent: 78 (23%) women were not located for different reasons: moved village, died or were misclassified in the surveillance register; 9 (3%) women were located but were not available for the interview despite a second visit. The mean duration of the interview was 48 minutes (95% CI: 47-50).

All data cleaning and analyses were performed with Stata version 12.

5.4.2 Aggregation

As discussed in section 5.2, there are a range of methods that could be used to aggregate the data and develop the wellbeing measure, from simple sum-score to more complex modelling approaches such as latent variable modelling. Drawing on the work of OPHI (Decancq and Lugo 2012), four methods have been used for setting the weights in this study, one from each class of category, plus the equal-weight approach. The four methods are:

(1) equal: the dimensions have equal value

(2) normative: the weights are drawn from a participatory exercise based on collective value judgments

(3) hybrid: the weights are derived from survey-based individual preferences

(4) data: the weights are set using principal component analysis (PCA)

In the literature (Section 5.2.1), the equal weight approach is classified as a normative aggregation method. However, to avoid confusion in this study, the normative approach will only signify the participatory technique and, given its 'agnostic' view point, the equal weight is considered a separate category.

The dimensions in the equal-weight index (1) have been assigned equal value. The weights are calculated as the arithmetic mean across sub-dimensions and across dimensions.

The weights for the normative index (2) are based only on normative value judgments. They were derived from a deliberative democratic process (Burchardt 2012), consistent with Anand and Sen's argument for public debate and scrutiny in setting the weights (Anand and Sen 1997; Sen 2004; Alkire 2005). A series of focus groups were held with women of reproductive age in Mchinji District, Malawi with the twofold aim of selecting the capabilities for a "good life" (this process was described in detail in Chapter 4) and eliciting the values of each capability in a participatory manner. After having identified the relevant dimensions of quality of life, focus group participants discussed the relative importance of the dimensions, made partial-ordering and finally reached an agreement on the values, assigning up to ten beans for each dimension (ten beans was the maximum value, no trade-offs allowed). The weights were derived from the arithmetic mean of the bean-value assigned to each dimension across the different focus groups. The mean values were then normalised to a 0 - 1 scale.

The weights for the hybrid index (3) were derived from a combination of value judgments and statistical distribution. Individual preferences were elicited through the household survey (section 5.4.1). In the survey, respondents were asked to rank the dimensions from 1 (most important) to 6 (least important) according to their opinion.[5] The method adopted for moving from ranking to weights has been used in the multidimensional poverty literature (De Kruijk and Rutten 2007). First, a group

[5] The reliability of this method is discussed in Chapter 6.

ranking is calculated as the mean of individual rankings. The weight for dimension *j* is then determined by the following formula:

$$w_j = \frac{1 + d - r_j}{1 + d - \sum_{j=1}^{d} r_j}$$

where *d* is the number of dimensions and r_j is the ranking of dimension *j* with value 1 if it is the most important, 2 if it is the second most important dimension and so on.

For the normative (2) and hybrid (3) indices, the sub-dimensions were aggregated within each dimension using the arithmetic mean, as done in the OECD Better Life Index (OECD 2013). The six dimensions were then aggregated using the weights generated with the two different methods.

For generating the data-driven index (4), principal component analysis (PCA) was applied to the raw dataset and the factor loadings of the first component were used to predict the score for each individual in the sample. Amongst the data-driven methods, PCA has been chosen because it is an efficient and well understood descriptive statistical technique for determining weights for components of poverty and wealth indices (Noorbakhsh 1998; Klasen 2000; Filmer and Pritchett 2001).

5.4.3 Comparison

The indices were compared graphically, with correlation coefficients, across quintiles, and against a pre-defined benchmark. Given its agnostic nature, the equal weight approach was used as comparator. In addition, the indices were compared to a standard wealth measure.

In order to make a meaningful comparison, the values of the four indices were normalised. As Coast highlights (Coast, Peters et al. 2008), integrating dimensions raises concerns about the meaning of anchoring at death as is done in the QALY. Being alive is a pre-condition for enjoying any type of capability; however the debate remains over whether the absence of capability is equal to death, or worse than death.

The normalisation was done according to a standard function which converts the original values of the indicators into numbers varying in a range between 0 (for the worst possible outcome) and 1 (for the best possible outcome), without affecting the distribution. The transformation formula used was:

$$I'_i = (I_i - \min)/(\max - \min)$$

where I'_i is the rescaled score of the individual i, I_i is the original score of the individual i, and min and max are respectively the minimum and maximum values of the original indicator scored in the sample.

The distribution of each index was examined and compared graphically to assess the extent of skewness. The degree of correlation between the indices was estimated using the Pearson product-moment correlation coefficient. In addition, the correlation of the rankings of the population was explored with the Kendall tau rank correlation coefficient. The data is ranked in ascending order with the equal index (1) as reference. Two Kendall tau correlation coefficients were estimated to measure the association (similarities of ordering) between the different indicators. The Kendall τ coefficient is defined as:

$$\tau = \frac{(\text{number of concordant pairs}) - (\text{number of discordant pairs})}{\frac{1}{2}n(n-1)}.$$

The coefficient is expected to be in the range $-1 \leq \tau \leq 1$. If the agreement between the two rankings is perfect (i.e., the two rankings are the same) the coefficient has value 1. If the disagreement between the two rankings is perfect (i.e., one ranking is the reverse of the other) the coefficient has value −1. If the indicators are independent, the coefficient is expected to be approximately zero.

5.4.4 Analysis across quintiles and against a deprivation threshold

In order to facilitate comparison, the population was divided into quintiles according to their index scores and indices were compared to each other in terms of misclassification of individuals in quintiles. Individuals were grouped into 5 quintiles of 48 or 49 people each according to the ascending value of the indexes. Kappa statistics were calculated in order to assess the agreement of classification between indices. The Kappa statistic is a measure of reliability that takes into account the agreement expected on the basis of chance. A Kappa statistic of 1 indicates perfect agreement and a value of zero indicates no agreement better than chance. In general a Kappa value of less than 0.5 indicates poor agreement (Howe, Hargreaves et al. 2008).

In addition to the misclassification of quintiles, the distribution of the indices' scores was also investigated using a predefined threshold for the identification of individuals as "worse off" or "better off". A measure of relative deprivation as opposed to absolute deprivation is more appropriate for comparing the wellbeing scores in a given population. There are different ways of setting a cut-off point for the identification of the "worse off". For example, the Alkire-Foster method that is used in the Multidimensional Poverty Index identifies who is poor by considering the intensity of deprivations they suffer (Alkire and Foster 2011). In this study, an arbitrary cut off point was set at 60 percent of the median value of the index. This threshold is the internationally agreed measure of relative deprivation used throughout the European Union[6] (Atkinson, Marlier et al. 2004) and it was chosen for its simplicity, transparency and straightforward interpretation: the individuals who fell below the threshold were the ones who scored less than 60 percent of the median score in the capability index.

5.4.5 Comparison with a wealth index

The literature is rich in attempts made to compare different measures of wealth and deprivation; and the difference between the classification of income and other dimensions of wellbeing has long been noted (Atkinson 1983; Klasen 2000; Ruggeri Laderchi, Saith et al. 2003; Kingdon and Knight 2006). The work of OPHI brings extensive empirical evidence to bear on the mismatch of income-related indicators and multidimensional measures for the identification of people living below a deprivation threshold in society (Alkire and Seth 2009). Ruggeri Laderchi and colleagues (Ruggeri Laderchi, Saith et al. 2003) examine and compare different approaches to poverty. They show empirically that there is a considerable lack of overlap between individuals falling into income deprivation and capabilities' deprivation.

To further contribute to this growing literature, each index in this study was compared with a conventional measure of wealth. The aim was to assess the extent of divergence between a measure of deprivation based on capabilities with a more conventional approach based on socio-economic status.

Asset indices are often used for estimating people's socio-economic status, thanks to several comparative advantages they have over income or expenditure measures. Collecting accurate income data is time-consuming and difficult especially if large sectors of the economy are informal, goods are traded with goods, seasonality is high and income is produced from different sources (Montgomery, Gragnolati et al. 2000; McKenzie 2005; Vyas and Kumaranayake 2006). Expenditure data are more reliable and easier to collect compared to income data (Howe, Hargreaves et al. 2008), but they still require extensive (and expensive) fieldwork. For these reasons, using information on household assets

[6] The EU applies the threshold with income data

derived from the survey, an asset index was built using principal component analysis. A two-fold approach was used to select and retain the asset variables (Borghi 2006).

1) All asset variables for which data were available were included, regardless of the variation between households (Davidson R. Gwatkin, Shea Rutstein et al. 2007)
2) Assets were retained on the basis of their factor loading (Booysen, Van Der Berg et al. 2008).

Based on the survey, the following variables were available: type of water source, type of toilet, land ownership, house ownership, type of roofing material, bike, oxcart, ox, chicken, pig, goat, cow, radio, mobile and bed net. The assets with a factor loading smaller than 0.20 were dropped (Borghi 2006). The assets retained and included were: type of toilet, type of roofing material, bike, oxcart, ox, chicken, pig, goat, cow, radio, mobile, bed net. Principal component analysis (PCA) was applied to these twelve variables and subsequent scores derived.

5.5 Results

5.5.1 Socio-demographic characteristics

The socio-demographic characteristics of the respondents are presented in Table 5.2, with national statistics of women aged 15-49 for comparison. Almost all respondents (over 94 per cent) lived in rural areas (national: 81 per cent). Almost 78 per cent of women were younger than 35. The mean age was 29 years, with one woman younger than 16 years and 5 women aged over 50 years. The majority of women (around 85 per cent) were married or lived with a partner (national: 67 per cent). The dominant religion was Roman Catholic (63 per cent, national: 20 per cent) and the dominant tribe was Chewa (89 per cent, national: 34 per cent). Over 83 per cent of respondents declared that their husband or partner was the head of the household. More than 65 per cent of families had 3 or more members below the age of 15, and only 13 percent had 1 or 2 members above the age of 50. More than half of the respondents were able to read (national: 68 per cent), although only 11 percent had completed secondary school (national: 18 per cent). The vast majority of the respondents (over 88 per cent, national: 58 per cent) were agricultural farmers. The socio-demographic characteristics are in line with national statistics for women of reproductive age with the exception of religion and ethnic group.

Table 5.2 Socio-demographic characteristics of the respondents (n=258)

Variable	Values	Frequency	Sample (%)	Malawi* (%)
Area	Rural	242	94.2	81.3
	peri-urban	15	5.8	18.7
Age (approx)	< 16	1	0.4	-
	16 – 20	20	7.8	21.7
	21 – 25	93	36.1	19.8
	26 – 35	87	33.7	33.2
	36 – 45	52	20.2	18.5
	46 – 55	5	1.9	6.8
Status	married or with partner	219	84.9	67.4
	single or never married	3	1.2	19.7
	Divorced	33	12.8	9.3
	Widowed	3	1.2	3.6
Religion	CCAP[7]	23	9.0	16.6
	Roman Catholic	161	62.7	20.6
	Anglican	6	2.4	2.3
	Pentecostal or Adventist	48	18.7	6.7
	Other	19	7.4	53.8
Tribe	Chewa	230	89.2	34.1
	Ngoni	24	9.3	12.9
	other	3	1.6	53
Household headship	Yourself	30	11.6	
	husband or partner	215	83.3	
	mother or father	12	4.7	
	Other	1	0.4	
HH members under 15	1 or 2	89	34.5	
	3 or 4	135	52.3	
	5 +	34	13.2	
HH members over 50	0	225	87.2	
	1	26	10.1	
	2	7	2.7	
Education	never been to school	36	14.0	15.2
	Primary	193	74.8	64.8
	Secondary	29	11.2	18.1
	More than Secondary	0	0.0	1.8
Read	Yes	151	58.5	67.6
	No	107	41.5	33.4
Employment	Farmer	228	88.4	57.8
	Trader	17	7.0	24.7
	other / occasional job	13	6.0	38.5

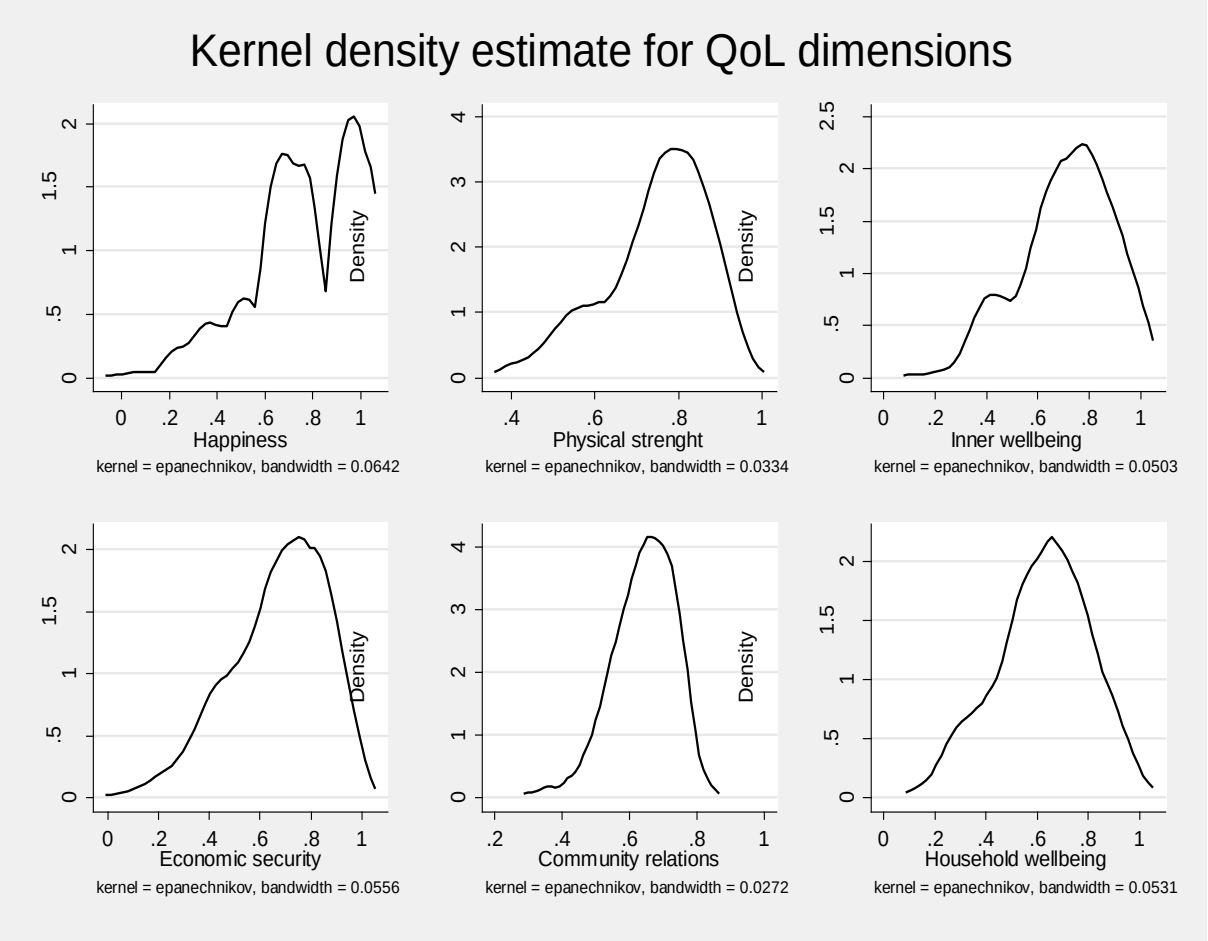
* Malawi DHS 2012: Percent for women aged 15-49, national

[7] Church of Central Africa Presbyterians

The distribution statistics of the non-aggregated dimension scores are presented in Table 5.3, in descending order sorted by mean value. The *happiness* dimension had the highest average score, followed by *physical strength*, *inner wellbeing*, and *economic security*. *Community relations* and *household wellbeing* had the lowest scores. The Graph 5.1 shows the density curve estimates of the dimensions. With the exception of *happiness*, all dimensions appear to be normally distributed. Happiness has a different shape probably because it is made up of only two indicators, compared to the other more complex dimensions.

Table 5.3 Dimension scores distribution statistics

Dimensions of Quality of Life	**Min**	**Max**	**Mean**	**Std. Dev.**
happiness	0.00	1.00	0.77	0.22
physical strength	0.39	0.97	0.75	0.12
inner wellbeing	0.13	1.00	0.71	0.18
economic security	0.05	1.00	0.67	0.19
community relations	0.31	0.84	0.64	0.09
household wellbeing	0.14	1.00	0.62	0.18



Graph 5.1 Kernel density curves of the Quality of Life dimensions

5.5.2 Aggregation

Four indices were created using the following aggregation methods:

(1) equal: the dimensions have equal value

(2) normative: the weights are based on collective value judgments from the focus groups

(3) hybrid: the weights are derived from survey-based individual preferences

(4) data: the weights are set using PCA

The weights derived from the equal, normative and hybrid methods are presented in Table 5.4 sorted by the normative weights in descending order. For the equal and hybrid approaches, the sum of the weights is 1. For the normative, the weights function as a deflator of the value of the dimensions, and hence do not sum to 1. The final index is calculated as the weighted average of the dimensions. The

weights for the data driven method are presented in a separate table (Table 5.5) because they are assigned to each variable rather than to the dimensions.

Table 5.4 Weights for equal, normative and hybrid approaches

	Weight		
Dimension	Equal	Normative	Hybrid
physical strength	0.17	0.95	0.29
household wellbeing	0.17	0.94	0.19
community relations	0.17	0.94	0.14
Happiness	0.17	0.88	0.05
inner wellbeing	0.17	0.87	0.24
economic security	0.17	0.84	0.10
Total	*1.00*		*1.00*

The weights for the data-driven index were derived from the first component of the PCA. 100 components were generated; the first component (that explains the largest variance) explained only 8.3 per cent of the variance. The highest five weights are presented in Table 5.5. The indicator *being able to cope with shocks* was assigned the highest weight, followed by *family care, being happy, being admired* and *having a bed net.* The scale reliability coefficient is 0.84, suggesting that the variables were highly correlated. The results of the PCA are presented in Appendix K.

Table 5.5 Weights for data-driven approach (five higher)

Indicator	**Weight**
Being able to cope with shocks	0.25
Being able to take care of the family	0.20
Being happy	0.19
Being admired	0.19
Having a bed net	0.18

The dimension for *physical strength* was given the highest weight in the normative and hybrid indices. *Economic security* was assigned a relative low value in both normative and hybrid indices, however the PCA assigned the highest weight to one of the components of this dimension. *Happiness* scored the lowest weight in the hybrid approach setting, however it was one of the top five variables in the PCA.

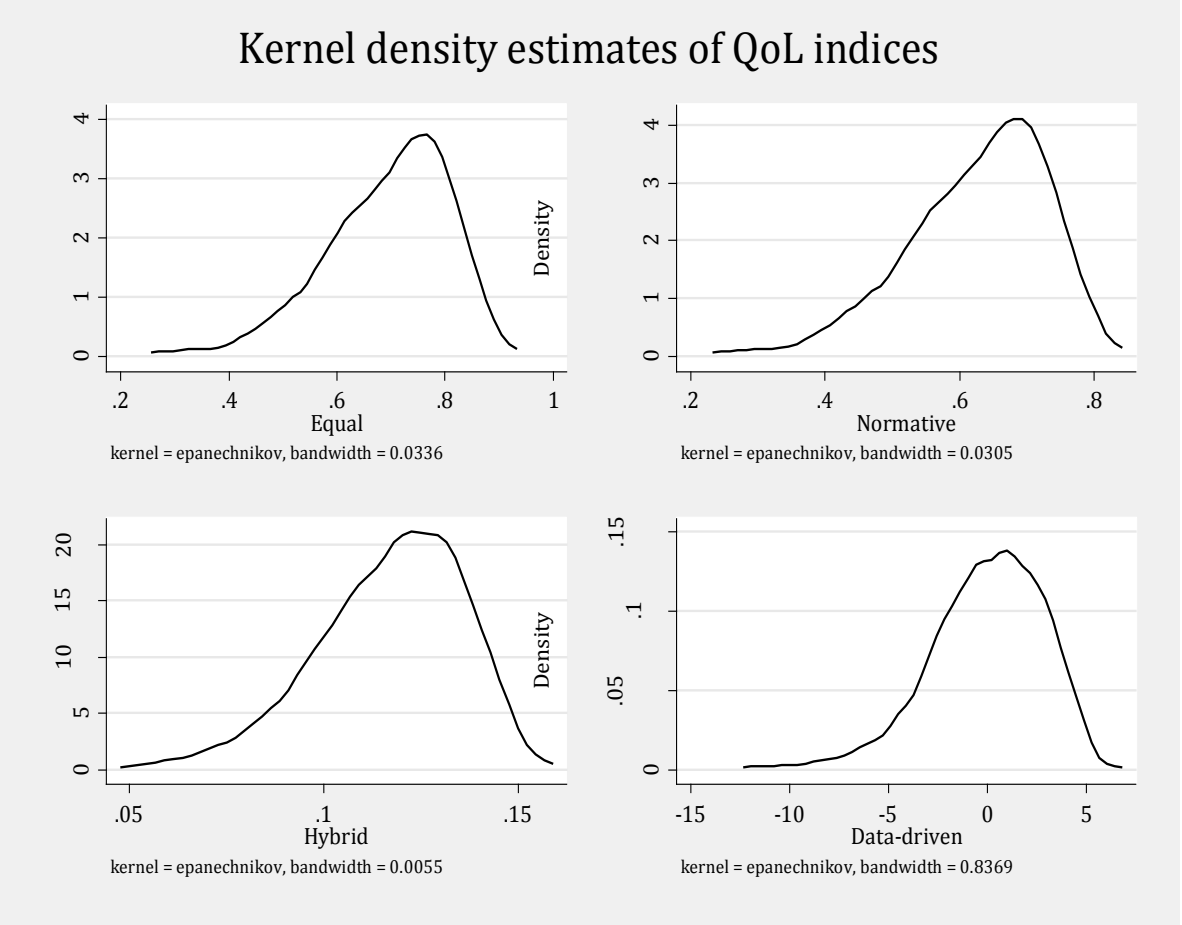
Table 5.6 presents the mean, standard deviation, minimum and maximum values of the indices. While the standard deviation was very similar for the four indexes, the mean value of the data driven index differed greatly from the mean values of the other three indices.

Table 5.6 Comparison of means, standard deviation, minimum and maximum values of the rescaled indexes

Index	Mean	Std. Dev.	Min	Max
Equal	0.67	0.18	0	1
Normative	0.66	0.19	0	1
Hybrid	0.64	0.18	0	1
Data-driven	0.29	0.20	0	1

5.5.3 Distribution and correlation of the indices

The Kernel density curves of the four indices are plotted in Graph 5.2. The graph suggests that the population was similarly distributed across the four indices, and slightly skewed at the right end with a long left tail, suggesting that there was a smaller number of people who were worse off versus a larger group which enjoyed better quality of life.



Graph 5.2 Kernel density curves of the indices

The Pearson product-moment correlation coefficients suggest that the indices are highly correlated (Table 5.7); the data-driven index shows a less strong correlation coefficient compared to the others but still very close to 1 (perfect correlation).

Table 5.7 Pearson product-moment correlation coefficients for the four indices

	Equal	**Normative**	**Hybrid**	**Data-driven**
Equal	1			
Normative	1	1		
Hybrid	0.97	0.97	1	
Data-driven	0.90	0.90	0.87	1

Similar results are suggested by the rank correlation coefficient. As Table 5.8 shows, the ranking of the data driven index is the one that differs the most to the ranking of the equal weight approach, compared to the other indexes.

Table 5.8 Kendall tau rank correlation coefficients for the four indices

	Equal	**Normative**	**Hybrid**	**Data-driven**
Equal	1			
Normative	0.99	1		
Hybrid	0.83	0.84	1	
Data-driven	0.70	0.70	0.66	1.00

5.5.4 Analysis across quintiles

Table 5.9 shows the movement across quintiles of individuals in the equal weight index compared to the other indices. The normative approach index has perfect agreement of classification in quintiles with the equal weight index: individuals remained in the same quintile regardless of the use of either measure. The value of Kappa statistics confirmed this.

Comparing equal weight and hybrid approach, 73 per cent of respondents remained in the same quintile, with a kappa statistic of 0.66. Less than 1 per cent of people were estimated to drop (or to increase) by two quintiles.

The flow of people across the groups was more significant when compared to the data driven approach, where nearly 45 per cent of people were misclassified. For example, 3 women were assigned to the middle quintile with the equal-weight index; however, if the data driven approach was adopted, they were in the bottom 20 per cent. The value of Kappa statistics was 0.44.

Table 5.9 Movement of individuals between quintiles of the equal index and quintiles of the other indices

% individuals moving between quintiles	**Normative**	**Hybrid**	**Data**
same quintile	100	72.84	55.14
move one quintile	-	26.34	37.83
move two quintiles	-	0.82	7.01
move three quintiles	-	-	-
move four quintiles	-	-	-
Kappa	*1**	*0.66**	*0.44**

* $p < 0.001$

5.5.5 Analysis against a deprivation threshold

The people who fell below the deprivation threshold were estimated to be 10-11 per cent of the population, if the equal, normative and hybrid approaches were adopted. If the data-driven approach was used, than the "worse off" were less than 7 per cent. If the wealth index was used, than the individuals who fell below the threshold were estimated to be around 28 per cent of the population.

The equal weight and normative approaches yielded very similar estimates of the deprived population, with less than a 1 per cent difference. The hybrid method also had similar estimate, with a 13 per cent more people classified as "worse off" compared to the equal value index.

The data-driven index failed to capture 44 per cent of deprived people that were so classified by the equal value index.

The "worse off" classification of the asset index was consistently different from the equal value index: an additional 21 per cent of the total population fell below the deprivation line if the asset index was used, compared with the equal value measure.

The same 10 per cent of the total population were estimated to fall below the deprivation line in the three approaches (equal, normative and hybrid). Together with the asset and data-driven indexes, the same 6 per cent of the population fell below the threshold regardless of the measure adopted. All of them were in the bottom quintile however the groups were formed.

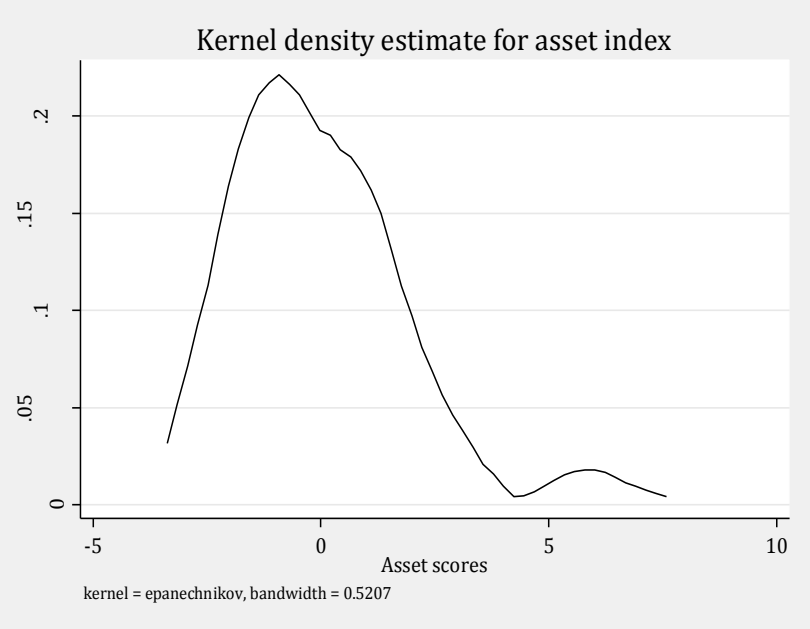
Taking a closer look at the people (14) who lived below the threshold regardless of the measure used, it is worth noting that half of them were in good health or with minor health issues that were not affecting their daily activities (sample: 70 per cent). The majority of them (86 per cent; sample: 42 per cent) were not able to read or write; almost 60 per cent (sample: 35 per cent) had been a victim of domestic violence, with 29 per cent (sample: 10 per cent) reporting frequent assaults. 64 per cent (sample: 33 per cent) were feeling oppressed to some extent and almost 80 per cent were feeling ashamed or inadequate (sample: 33 per cent); 57 per cent (40 per cent) reported that they did not have total freedom over personal decisions nor had access to household money without permission from the husband or from somebody else. 64 per cent (sample: 47 per cent) asked for assistance in terms of money or food during the last year, and the remaining 36 per cent (sample: 12 per cent) were too ashamed to ask for it. None of them had been asked for assistance (sample: 55 per cent). All of them had access to a piece of land, with 71 per cent of them (sample: 94 per cent) declaring being the land owner, although none of them was confident that she would be able to cope with a shock such as a failed crop (sample: 65 per cent). Finally, 64 per cent (sample: 7 per cent) declared that, taking all

things together, they were not satisfied with their lives, and only 21 per cent (sample: 87 per cent) reported being fairly happy.

5.5.6 Comparison with a wealth index

An asset index was created for each individual in the sample using PCA. The first component of the PCA, which is assumed to represent the wealth status of the individual, explained 31 per cent of the variance in the data. This percentage is high compared to the range from 12 per cent to 27 per cent presented in the review of socio-economic status indexes conducted by Vyas (Vyas and Kumaranayake 2006). The scale reliability coefficient was acceptable at 0.78, suggesting that this index is a robust measure of socio-economic status.

The graph below depicts the distribution of the wealth across the study population. The distribution is skewed towards the left, suggesting that there is a high number of individuals with a lower socio-economic status versus a small number of richer people. This distribution is as would be expected with an income distribution.



Graph 5.3 Distribution of the asset index

As Graph 5.2 and Graph 5.3 show, the distribution of the wealth index differed greatly from the distribution of the quality of life indices.

Findings from the analysis across quintiles showed that, relative to the wealth index, between 60 and 65 per cent of people were misclassified in terms of their socio-economic position if one of the capability indices was used. A small group of people were assigned to the first quintile with one measure and to the bottom quintile with the other indicators (and vice versa). The value of Kappa statistics ranged from 0.19 to 0.25.

Table 5.10 Movement of individuals between quintiles of the asset index and quintiles of the other indices

% individuals moving between quintiles	**Equal**	**Normative**	**Hybrid**	**Data**
same quintile	35.12	34.98	38.68	40.33
move one quintile	38.03	37.86	33.33	41.98
move two quintiles	19.53	19.34	20.16	15.23
move three quintiles	7.39	7.41	7	2.47
move four quintiles	0.41	0.41	0.82	-
Kappa	*0.19**	*0.19**	*0.23**	*0.25**

* $p < 0.001$

5.6 Discussion

The discussion will first consider the differences in the value between the six dimensions of quality of life or capabilities before considering the four index aggregation methods. The implications of adopting the different weighting approaches will then be discussed in relation to the identification of the "worst off" in society and the differences with a conventional socio-economic status indicator. The limitations of the study are then presented. The final section makes recommendations of the most appropriate aggregation method and concludes the chapter.

The findings suggest that women did not give the same value to the different dimensions of quality of life. As the normative and hybrid approaches showed, respondents were able to make a value judgment, giving a higher value to those capabilities that were considered more important; although sometimes this exercise was found to be demanding, as reported in the survey's comments (Chapter 6).

Physical strength had the highest value in both normative and hybrid indices, implying that having an able and strong body, being free from disease, having a choice in matters of reproductive health and having enough energy to work were regarded as the most important aspects in one's life. *Happiness* scored relatively low compared to more fundamental measures of survival. Finally, despite the vast majority of the interviewed people being subsistence farmers and would probably be classified as extremely poor by the World Bank's threshold of US$1.25 a day, *economic security* was the lowest priority in the participatory exercise, and the second lowest using the survey-based method. Economic resources, while important, were not all that mattered for women's wellbeing.

Nonetheless, the equal value approach and the normative weights were highly correlated and had similar distributions. This might be because during the participatory focus groups, women assigned high values to all of the dimensions (from seven beans upwards), and in some discussions all the dimensions received a value of ten. This could suggest that all dimensions were considered highly and equally important for achieving "a good life". There may well be a certain level of interdependence between the dimensions which made it difficult for someone to imagine the relative importance of say *community relations* in the absence of *physical strength*.

The data-driven index appeared to be the most different from the equal weight approach when tested with the kendall tau coefficient. This suggests that women would be ranked in a different way if the data-driven index is used for assessing their quality of life.

The difference between the capability indices and the socio-economic status measure was striking and builds on the findings of previous literature (Balestrino and Sciclone 2000). There was a substantial

mismatch between income poor and the capability poor: the wealth index only included asset ownership and not other measures of wealth or wellbeing. The asset index only showed one aspect of the capability index, material wealth, and missed out the more complex aspects of what constitutes a good life. Moreover, people valued *economic security* as the least important dimension in the capability set.

The distribution of the asset index was different from the distribution of the other indices, probably because in the latter what was important to people was derived from a democratic deliberative process of what makes a good life, hence the majority of people met the criteria for a good life with few below that.

The aggregation method used for setting the weights in the multidimensional measure of wellbeing did matter for establishing who were the "worst off" in society (especially if estimated with quintile distribution). Using a data-driven index, rather than a normative approach, made a substantial difference to who were the "worst off" in the population: only 65% of individuals remained in the bottom 20 percent regardless of the index used, and 56% of individuals remained in the top 20 percent regardless of the index used. This has great implications for policy aimed at improving the life of those at the bottom of society, as one of the first steps is to identify the people most in need.

This study faced a number of challenges. First, in the survey ranking, women commented that ordering dimensions from the most important to the least important was a difficult exercise. The results of the test-retest reliability described in the next chapter reflect this challenge. Instead, the participatory valuation process in the FGDs proved to be very effective. However, it was important to ensure that the process was truly democratic and that each woman had the opportunity to express her opinion. For this reason, the moderator of the FGDs received further training on facilitation techniques, and the researcher observed each FGDs to ensure that the process was as inclusive as possible.

The second limitation is related to the rescale of the scores of the indices from a 0 to 1 value. An assumption was made to anchor the index to the absence of capabilities rather than to death. Although the normalisation did not affect the distribution of the indices, it is important to note that the absence of capabilities could be considered worse than death. Further in-depth qualitative research would be required to explore this concern.

The third limitation is related to the choice of deprivation threshold. The threshold was chosen for its simplicity and transparency in the interpretation of the results. The choice of this threshold was arbitrary, and the results are likely to vary if a different deprivation line is set. However, the aim of the comparison of the indices against a predetermined benchmark was to assess the degree of

misclassification of the people rather than the actual classification of the people as deprived or not deprivation. Hence, for the scope of this exercise, the choice is felt to be appropriate.

Finally, data on capabilities could suffer from social desirability bias; hence the distribution is skewed more towards the right compared to the objective socio-economic status measure. The interviewers were part of the MaiMwana Project research team and had much experience in administering surveys on sensitive issues in the study area. A lot of care was taken to ensure that the respondents felt at ease and comfortable when answering the questionnaires. This should have minimised the social desirability bias.

5.7 Conclusion

The data driven method of letting the data decide how to put the weights does not allow for an independent and legitimate ranking of capabilities and there is no value judgement involved, which is a core component of Sen's theory of freedom (Alkire 2005). Moreover, the first component had low explanatory power (only 8.3 per cent) implying that it would be very limiting to use only the first component of the PCA for explaining the variation of the data.

The low explanatory power might indicate that the sample is homogenous; that there is little variance because people are similarly deprived, but it might also be due to the high number of variables included in the analysis and the complexity of correlations between variables (Vyas 2006).

The data-driven approach suggests two things: some dimensions are more diagnostic of the good life than others, and quality of life is multidimensional and complex; therefore cannot be accurately reflected through a simple sum score measure.

In addition, evidence from both the normative and hybrid methods revealed that people were valuing dimensions as more or less important for them, therefore it is a misrepresentation to suggest that equal weights can be applied across all dimensions.

The following chapter shows that the survey-based valuation proved to have an acceptable level of reliability but not with a high degree of correlation. Moreover, the ranking exercise was found to be cognitively demanding, as the respondents had to rank in order of preference aspects of their lives that were considered all highly valuable and important. For this reason, this method would not be recommended.

Therefore, the normative method appears to be the more appropriate: in addition with being the approach closest to Sen's philosophy for open discussion and public debate in the formation of values and priorities (Sen 1999), it was an effective deliberative democratic process in eliciting relative values for the different dimensions of wellbeing.

The high correlation and the matching quintile classification between the normative and the equal weight methods may give support to the idea that in a context of scarce resources and time constraints, the equal weight approach is no doubt the simplest solution: the estimates are likely not to differ substantially from people's values hence it can be considered as a good proxy.

In this chapter, a capabilities index is constructed using four different methods for setting the weights. The four approaches (equal value, normative, hybrid and data driven) were compared against each other and against a conventional wealth index. The results showed that the choice of aggregation had

an impact on the classification of the individuals in quintiles and as "worse off" in the society. Thus, in the development of multidimensional wellbeing indices it is important to make the choice of weighting as explicit and transparent as possible.

The next chapter will present the validation and reliability tests performed on the index.

London School of Hygiene & Tropical Medicine
Keppel Street, London WC1E 7HT
www.lshtm.ac.uk

Registry
T: +44(0)20 7299 4646
F: +44(0)20 7299 4656
E: registry@lshtm.ac.uk

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

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STUDENT ID NO: ...187844...

CANDIDATE'S SIGNATURE ...Giulia Greco... Date ...27/03/2013

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Chapter 6 Validity and reliability of a capabilities index for women of reproductive age in Malawi

6.1 Introduction

Increasing attention has been given to the evaluation of complex interventions in public health and social care. While the methods for the economic evaluation of clinical interventions are well established (Drummond 1997), the economic evaluations of broader and more complex public health interventions are scarce and raise additional methodological challenges (Weatherly, Drummond et al. 2009).

The QALY (or DALY) with its narrow focus on health is losing support for the evaluation of public health interventions, and there is an expanding field of research which is advocating for the need to develop outcome measures based on a broader evaluative space. Sen's capability approach proposes an alternative framework within which to build a multidimensional outcome measure (Coast, Smith et al. 2008; Lorgelly, Lawson et al. 2010; Smith, Lorgelly et al. 2012).

Sen's main argument is that what matters in the evaluation of good life are people's capabilities: the abilities to achieve those things that people have reason to value in life (Sen 1993). These valuable "beings and doings" can range from basic functionings, such as being well nourished and living in a decent house, to more complex functionings such as being in control over personal decisions. The capability framework distinguishes itself from other conventional approaches, which have a narrower evaluative space, such as utility, income or basic needs (Coast, Smith et al. 2008).

Despite great interest in Sen's work, a very limited number of capability measures have been developed and validated for practical use in the evaluation of social policies (Coast, Flynn et al. 2008; Al-Janabi, N Flynn et al. 2012). The two ICECAP measures (for elderly and for adults) have been validated across a large number of factors; however the investigation has been limited to construct validity (Coast, Peters et al. 2008; Al-Janabi, N Flynn et al. 2012).

This paper reports the results of a series of validity and reliability tests performed during the development of a capabilities index for women in rural Malawi. Evidence of the content, construct, convergent and discriminant validity and reliability of the instrument are presented.

6.2 Background

The MaiMwana Project is a community-based participatory intervention that aims at improving maternal and neonatal health in Mchinji District, Malawi. It organises groups of women in rural villages and during the meetings, women discuss, develop and implement strategies to overcome maternal and neonatal health issues. This intervention combines educational and social strategies with promotion of empowerment, capacity building and knowledge across different sectors. It emphasises health promotion activities that rely on community engagement and participation aimed at changing behaviour of healthy individuals (Lewycka, Mwansambo et al. 2010). Some programme effects are likely to go beyond health and might have an impact on several aspects of women's wellbeing. The complexity of MaiMwana Women's Groups raised methodological challenges on the choice of outcome measure to use for the evaluation of the intervention.

A multidimensional index based on Sen's capability framework has been developed for assessing the quality of life of women in rural Malawi (Chapter 5). The index is comprised of six sets of indicators that reflect the dimensions (or capabilities) that women in Mchinji have reason to value (Chapter 4).

Before the index can be used in the Malawian context for the evaluation of the MaiMwana Women's groups or other interventions targeting a similar population, it should be tested for validity and reliability. If it can be demonstrated that the index is measuring what it purports to, then more confidence can be put in the results generated from the use of this measure.

6.3 Validity and reliability

Validity and reliability assessments are a critical step in the development of a measure. An instrument should be tested and found to be adequate for the research purposes: validity – in terms of whether the indicator is actually measuring what is supposed to measure; and reliability – in terms of estimating the degree of error inherent in the measurement (Atkinson, Atkinson et al. 2002; Lohr 2002; World Bank 2004; Ibrahim and Alkire 2007; Reeve, Wyrwich et al. 2013).

There are two important aspects to be considered before setting up a validation process: the nature of what is being measured and the relationship of the observation to its intended cause (Kane 2006).

Since the particular nature of the variable "quality of life" does not allow for direct measurement like other variables such as blood pressure or income, no single instrument gives the right answer; hence a validity test is needed for assessing if the selected instrument can enable the researcher to make accurate inferences about an individual (Streiner and Norman 2008); or if the instrument is "fit for purpose".

The other reason why a validity test is needed in the assessment of quality of life depends on the relationship between the observation and what it infers. Given the fact that there is no direct observation of quality of life or capabilities (Hurley 2001), the predicted relationship of the latent variable (which is quality of life) with directly observable variables has to be validated against actual performance.

The aim of the validity tests is to address the question: to what extent is the instrument really measuring quality of life for women in rural Malawi?

There is no direct way to answer this, however several types of validity assessments can contribute to it. The "trinitarian" point of view advocates for the *three Cs*: content validity, criterion validity and construct validity (Landy 1986). In addition to this, an instrument should also be tested for reliability in order to estimate the degree of error that is intrinsic in any measure. The table below summarises and defines the attributes that should be verified in an instrument.

Table 6.1 attributes for the assessment of an instrument

Conceptual and measurement model – the rationale for and description of the concept that a measure is intended to assess and the relationship between these concepts
Validity — the degree to which an instrument reflects the concept it purports to measure
Content validity — the extent to which the measure includes the most relevant and important aspects of a concept in the context of a given measurement application
Construct validity — the degree to which scores on the measure relate to other measures.(e.g., patient-reported or clinical indicators) in a manner that is consistent with theoretically derived a priori hypotheses concerning the concepts that are being measured
Criterion validity — the degree to which the scores of a measure are an adequate reflection of a ‘‘gold standard.’’
Convergent validity – the degree to which two measures that theoretically should be related, are in fact related
Discriminant validity – the degree to which two measures that theoretically should not be related, are in fact not related
Known groups analysis – the degree to which a measure is able to discriminate between two groups of individuals with a specific characteristic
Reliability — the degree to which a measure is free from measurement error
Internal consistency reliability — the degree of the interrelatedness among the items in a multi-item measure
Test–retest reliability — the degree to which an instrument yields stable scores over time among respondents who are assumed not to have changed on the domains being assessed

Source: adapted from Reeve (2013) and Scientific Advisory Committee of the Medical Outcomes Trust (Lohr 2002)

One critical consideration in the development and use of a measure is whether the instrument's conceptual and measurement framework is appropriate and clearly defined (Lohr 2002; Burke 2006). A conceptual framework is a rationale for and description of the concepts and the target population that a measure is intended to assess, and the relationship between these concepts. A measurement

model puts the conceptual model into practice and is reflected in an instrument's structure (Lohr 2002).

Content validity was rated by ISOQOL[8] members as one of the most important form of validity tests for the development of patient-reported outcome measures (Reeve, Wyrwich et al. 2013). It is a critical phase in the item construction for ensuring that the meaning attributed to each question is conveyed in the right manner. It entails an analysis of the questions from the respondents' perspective to ensure there is consistency between the researcher and respondent understanding of the question. Failing to investigate the respondents' understanding of the questionnaire might lead to misinterpretation (for the respondents and/or the researcher), and inaccurate or missing answers (Bowden, Fox-Rushby et al. 2002).

Construct validity verifies that the chosen instrument is enabling the researcher to make sound inferences about a person (Streiner and Norman 2008). The inferences are derived from a series of constructs, or hypotheses, that have an expected relationship with the latent trait. If the expected relationship is found, then the hypothesis and the measure can be said to be sound. If no relationship is found, the error may lie with either the instrument or the hypothesis, or both. Construct validity differs from the other forms of validation because it cannot be established with a single experiment. As Streiner argues, construct validation is an on-going process of learning more about the construct, making new predictions and testing them over again. Construct validity has been widely used to test health measurement scales and psychometric instruments, including quality of life indices (Bonomi, Patrick et al. 2000; Webster, Nicholas et al. 2010; Colbourn, Masache et al. 2012). In the capability literature, it has been used to validate the ICECAP index for adults and for older people (Coast, Peters et al. 2008; Al-Janabi, Peters et al. 2012).

The construct validity of an instrument can be further investigated with a discriminant validity test and a known groups analysis. The discriminant validity test is based on the assumption that the construct should not only be related to specific variables, but should also *not* be related to others. The known groups analysis instead assumes that a group of respondents with a specific characteristic will score higher than the other (Eagly and Chaiken 1993). According to Portney (Portney and Watkins 1993), the known groups method is the most general type of evidence in support of construct validity. A criterion is chosen that can identify the presence or absence of a particular trait, and the theoretical context behind the construct is used to predict how different groups are expected to behave. Thus, the validity test is positive if the test's results support these known differences. In this study, the known groups analysis was not undertaken since it was not possible to separate individuals according to the presence or absence of a particular characteristic: the sample was relatively homogenous since it

[8] International Society for Quality of Life Research

included women who delivered in the previous year, and the vast majority were living in rural areas and had similar level of education.

Criterion related validity assesses the indicator against a certain gold-standard measure (Streiner and Norman 2008). In this case, given the very limited number of capability measures, it is not possible to find a gold-standard for the capability index. Hence criterion related validity was not investigated in this study.

However, several measures of quality of life do exist, hence the index was tested for convergent validity. Convergent validity refers to the degree to which two measures that theoretically should be related are in fact related. The WHOQOL-Bref has been chosen as a comparison scale. Even if its domains are not reflecting capabilities and are not drawn from what people value in their lives, the WHOQOL-Bref measures some aspects of quality of life that are included in the capability index and it has been translated and validated in Malawi, thus it can be considered as a good comparator. (Colbourn, Masache et al. 2012).

Reliability is the degree to which an instrument is free from measurement error. Reliability tests include (a) internal consistency, usually using Cronbach's alpha coefficient, and (b) reproducibility (e.g., test–retest or inter-observer reliability) (Lohr 2002). The first method requires one administration of the instrument; while the latter requires at least two administrations.

Whether a measure which has been shown to be reliable with one group of people in a specific context is reliable with other people and in different situations is an empirical question that must be formally assessed. It is more appropriate to speak of the reliability of test scores, rather than of tests (Streiner and Norman 2008). As Gronlund and Linn wrote (Gronlund 1981), "Reliability refers to the results obtained with an evaluation instrument and not to the instrument itself" (p. 78).

6.4 Methods

The capability measure in this study was developed following seven steps: (1) development of a theoretical framework informed by a series of focus group discussions; (2) qualitative weighting of the dimensions of quality of life through a deliberative democracy process; (3) development of a measurement model: selection of indicators and questionnaire design; (4) building of the capability set for a sample of women (survey); (5) ranking of the dimensions by survey respondents; (6) aggregation: data-driven (principal component analysis); normative (participatory exercise and equal value); and hybrid (ranking); and (7) validation of the index.

As an outcome of these steps, a capability set was built for each woman in the sample based on 6 capabilities, or dimensions of quality of life, derived from people's values (Chapter 4): *physical strength*, *inner wellbeing*, *household wellbeing*, *community relations*, *economic security*, and *happiness*. Each dimension comprises a set of sub-dimensions for a total of 26 sub-dimensions. The sub-dimensions were assessed with different indicators for a total of 72 variables. The scores of the indicators were normalised to a 0 – 1 scale (Chapter 5).

Data collection started in March 2010 and took place in Mchinji district, Malawi on a sample of 258 women who delivered during the previous year. Details of the sampling strategy were described in Chapter 5.

6.4.1 Conceptual and measurement model

The first step in the development of the survey instrument was to clarify the conceptual and measurement model amongst the research and field team (Figure 6.1). A protocol describing in lay terms the theoretical foundation of the index was presented and discussed with the team, with a proposition of a measurement model based on the re-elaboration of the lists of dimensions or capabilities that were identified during the explorative research (Chapter 4). With the adoption of the capability approach, each "being and doing" that was valued by women as important in their lives was considered part of the measure and no external value judgment was introduced in the development of the index.

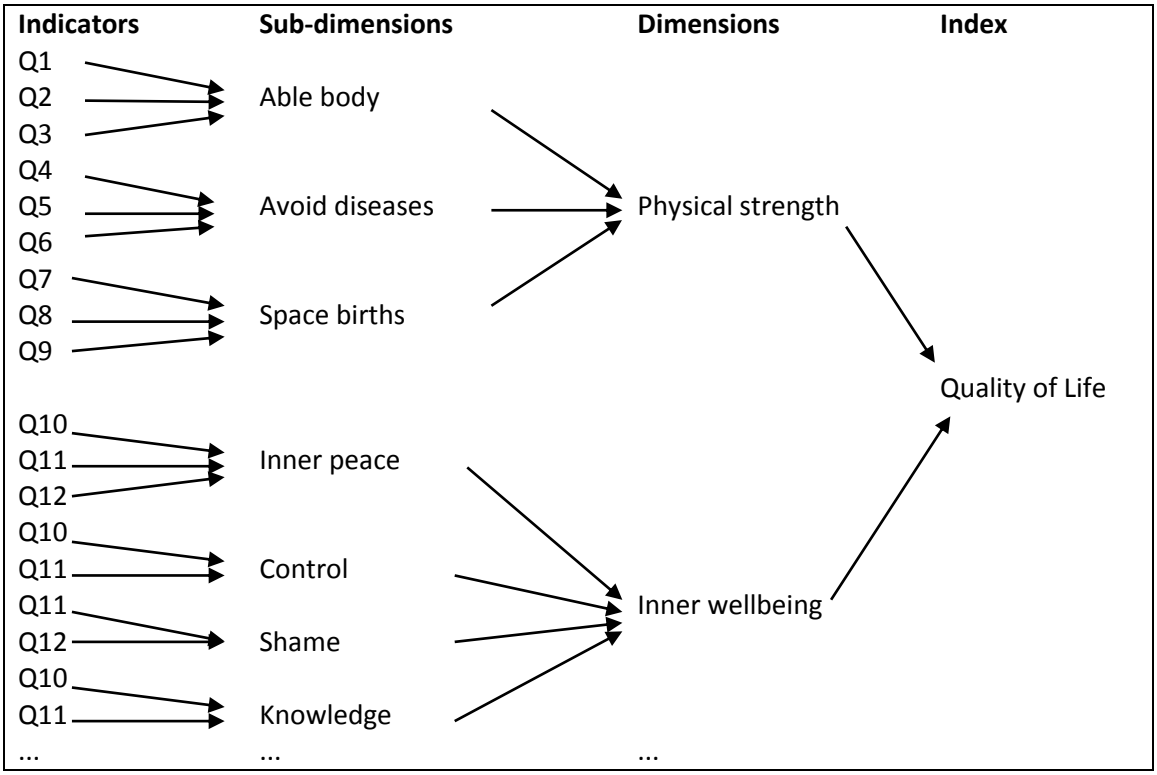


Figure 6.1 An illustration of the Conceptual Model

6.4.2 Development, pre-test and pilot of the instrument

To provide answers to a survey the respondents have to understand the questions, interpret them, retrieve the relevant information, and finally provide an answer. For this reason, a lot of care and time was given to the translation, pre-testing, piloting and testing of the instrument. The methods for this process drew largely on the experience of the KENQOL survey, a measure of health-related quality of life in Kenya (Fox-Rushby 2000; Bowden, Fox-Rushby et al. 2001; Bowden, Fox-Rushby et al. 2002).

A first draft of the questionnaire was developed in English, keeping some key recurring terms in the local language, for example *Mtendere* which is similar to "peace of mind" but entails a broader sense of serenity and being free from worries (Chapter 4). Existing available instruments were then identified and those questions which were relevant to the study were selected and adapted for integration in the tool. Some of the questions related to health were adapted from the SF-8 Health Survey. Pilot modules from the Oxford Poverty and Human Development Initiative and from the World Bank were adapted for capturing information on women's empowerment and domestic violence.

The first draft was translated into Chichewa by two bilingual field workers, who then carried out the survey. The two local researchers who were involved in the explorative phase (Chapter 4) checked the translation and the appropriateness of the language, ensuring that expressions and terminology that emerged from the focus group discussions were used and that the concepts were accounting for cultural and semantic differences. The draft was informally run with the project team to check the flow of the questions and correct skip patterns.

The second version of the questionnaire was pre-tested in two stages amongst two groups of six women randomly selected from a buffer zone near Mchinji Town. Four respondents focused on specific sections of the questionnaire, and two respondents ran through the entire length of the questionnaire. The two fieldworkers conducted one to one interviews and took notes of any clarification asked by the respondents and any non-verbal communication or emotional reaction.

After completion of the questionnaire (or of a section of it), the respondent reviewed it with the interviewer and was asked to express her views on the general understanding of the exercise. In particular, the following questions were asked:

- What do you think about the questions?
- Does any question seem strange, unclear, confusing, or objectionable?
- Is any question too difficult or problematic to respond to?
- Would you delete any of the questions?
- Would you add any questions?
- What do you think about the range of answers provided?
- Would you add any answers?
- Do you think that women of reproductive age will encounter problems or embarrassment in answering any of the questions?
- Are there questions that repeat themselves (ask the same things)?
- Is the questionnaire too long?
- Does it matter who is the interviewer in terms of age, sex, education, status?

Based on the feedback from the pre-test, a third version was produced. The third draft was piloted over a period of two weeks with around 10-15 respondents per day. The instrument was amended at the end of each pilot day. Piloting was undertaken iteratively until a final version of the questionnaire was produced. During the pilot process, the draft versions were also shared with researchers at the LSHTM, the MaiMwana project manager, the UCL - ICH technical advisers, and the Oxford Poverty and Human Development Group.

The fourth draft of the survey tool was assessed for content validity.

6.4.3 Content validity

Content validity was assessed during the pilot process using the fourth draft of the instrument, through cognitive debriefing interviews. These one to one interviews helped to determine whether concepts and items were understood by respondents in the same way that instrument developers intended. The cognitive debriefing interviews were conducted using two qualitative methods:

- think-aloud – respondents were asked to think aloud when answering the questions, in order to outline the process that generates the final response;
- paraphrasing – respondents were asked to repeat the questions in their own words.

These methods have been used extensively for the development of outcome measures (Bowden, Fox-Rushby et al. 2002) and are a key component of the cognitive debriefing process. A description of the intended referential and connotative meaning for each of the survey questions was drawn up together with the field work team and checked with the focus groups' moderator, before the field test. This process, in addition to guide the assessment of content validity, also clarified the concepts for the translation and use by other researchers, in the same or different context (Bowden, Fox-Rushby et al. 2002).

The data collection took place in March 2010 in the outskirts of Mchinji Town, Malawi. The interviews were conducted in the local language, Chichewa, by the same two fieldworkers who were going to administer the survey (Chapter 4). Twenty women of child bearing age were identified by the village headman from a buffer zone. Consent to participate was asked and obtained from all participants. It was clarified to the respondent that it did not matter what her responses to the questionnaire were, but rather we were interested in the process of understanding the question, and formulating the answers.

The fieldworkers took notes during the interviews and compiled detailed field reports at the end of each day. The reports were then compared and shared with the research team. Any change in the items or structure of the questionnaire was discussed within the team.

The final version of the survey tool was then administered on a sample of women in Mchinji District in order to collect data on women's capabilities. Based on the survey data, a capability measure was constructed for each woman in the sample. The capability measure was subjected to a range of *validity* and *reliability* that are presented in the next sub-sections.

6.4.4 Construct validity

Construct validity was tested on the instrument using the data gathered with the capability survey in April – June 2010 (Chapter 5).

Following Cronbach and Meehl's seminal work on validity in psychological tests (Cronbach and Meehl 1955), the latent variable in this research (quality of life and its dimensions) was linked to relevant contextual variables by a hypothesis or construct, before performing the test. The hypothetical constructs were tested to see whether the instrument, compared to other measures, was performing as expected *a priori*.

The hypothesised constructs drew mainly from the extensive qualitative work undertaken during the initial phase of the development of the instrument. This research set out not only to explore people's understanding of quality of life, but also to identify and value the different dimensions of wellbeing and the factors that have an influence on it (Chapter 4). Hence, the data collected provided a rich and solid base for building the hypothesised relationships. The expected associations are detailed below and are summarised in Table 6.2.

Following Coast and Al-Janabi (Coast, Peters et al. 2008; Al-Janabi, Peters et al. 2012), the association between measured capabilities and background factors was investigated using chi-squared tests for ordered categorical variables, and compared with the hypothesised relationship. Where a number of cell counts were less than 5, Fisher's exact tests were used when computationally feasible; where it was not possible, values were grouped and variables were re-coded to increase cell counts.

Those background variables that were part of a dimension (e.g. health is one component of the physical strength dimension), were not taken into consideration in the validity test of that particular dimension. Alongside the direction of the association, the statistical strength of the evidence for each relationship was checked and reported using significance levels of 5 and 1 %. All analyses were undertaken using Stata version 12.

6.4.4.1 Description of constructs

Women who live in rural villages compared to those living in peri-urban areas are expected to face harder economic conditions due to the remoteness of the area and lack of economic opportunities.

Women who are in good health are likely to score higher in most of the dimensions of quality of life, since having an able body is a pre-condition for achieving the majority of the capabilities (Sen 2002). Positive associations would be expected with inner wellbeing, household wellbeing, economic security and happiness.

More educated women are likely to score higher in the inner wellbeing dimensions since they are thought to be more in control over their lives. Also, it is likely that they have higher economic security because they might get paid jobs rather than rely solely on subsistence farming. Moreover, educated women are likely to be less discriminated against, more respected and play a more active role in the community. Older women are likely to have more physical health problems but are expected to be more respected in the community

Having a partner was regarded as a key element in a woman's quality of life (Chapter 4) hence the variable married is expected to have a positive association with almost all dimensions. Mothers who have a partner are likely to put less strain on their body (a lot of work is in agriculture) and hence to have better physical health compared to unmarried women. Though they are expected to be less in control over their lives, they might feel less ashamed compared to single mothers hence the association with the inner wellbeing dimension is ambiguous. During the explorative research, women had been reporting incidents of domestic abuse fuelled by excessive drinking habits of their partners. Moreover, single mothers are expected to be more control of financial expenditure hence the expected association between being married and the family wellbeing is negative.

Married women are also more likely to be respected in the community, to have more economic security (strong positive association) and to be generally happier in their lives.

Women with a higher wealth index score[9] are likely to have more bodily strength and to have less emotional worries. Moreover, they are expected to be more able to look after the other members of the household and to have a decent house. They are thought to be more respected in the community and to be happier and more satisfied with life.

Table 6.2 Summary of hypothesised associations between dimensions and contextual characteristics

Contextual characteristic	Type of variable	Physical strength	Inner wellbeing	Household wellbeing	Community relations	Economic security	Happiness
Rural area	Binary	None	None	None	None	Negative	None
Health	Ordered	n/a	Strong Pos	Positive	None	Strong Pos	Strong Pos
Education	Ordered	None	Strong Pos	None	Positive	Strong Pos	None
Age	Ordered	Negative	None	None	Positive	None	None
Married	Binary	Strong Pos	Ambiguous	Negative	Positive	Strong Pos	Positive
Wealth index	Ordered	Strong Pos	Strong Pos	Strong Pos	Positive	n/a	Positive

Note: n/a (not applicable): If the variable is part of the indicator, no association is estimated.

6.4.4.2 Discriminant validity

It is hypothesised that Quality of Life is not related to the religion or ethnicity of the individual. There was no evidence from the qualitative study (Chapter 4) or other sources (Colbourn, Masache et al.

[9] The details of the asset index were presented in Chapter 5

2012) that having a particular religion or being part of a specific ethnic group affected overall quality of life, or any aspect of it.

Discriminant validity was tested using chi-squared tests on each dimension and on the overall score, aggregated using a normative approach (Chapter 5). Where the number of cell counts was less than 5, Fisher's exact tests were used when computationally feasible; where they were not possible, values were grouped and variables were re-coded to increase cell counts.

6.4.5 Convergent validity

Convergent validity was tested on a sub-sample of 30 people randomly selected from the main survey sample, representing 10 %. The test was administered together with the test-retest, by the same two interviewers who were involved in the survey (Chapter 5).

The WHOQOL-Bref has been chosen as a comparative instrument because it is a standard measure of quality of life, it has been translated and validated in Chichewa and it has been used in Malawi to assess women's quality of life (Colbourn, Masache et al. 2012).

However, the WHOQOL-Bref does not measure capabilities; moreover, the selection of dimensions was not built with a bottom up participative process (the first selection of domains was done by a panel of experts), and there is no rule for aggregation (WHOQOL Group 1998).

The WHOQOL-Bref is composed of 26 questions grouped under four domains: physical domain, psychological domain, social relationship and environment. For the purpose of this validity test, the scores of the 4 domains were aggregated giving equal weights to each domain. The aggregated score was calculated as the average of the 4 scores.

The WHOQOL-Bref aggregated score was compared to the capability index score aggregated with four different methods (Chapater 5) for each individual. First, the kernel density distribution curves were compared, then the correlations between the scores was explored using Pearson's correlation coefficient.

It is important to note that any measurement has some associated error; hence we should expect that correlations among indicators of the same attribute should be in the range of 0.4–0.8. Any lower correlation suggests that either the reliability of one or the other measure is likely to be unacceptably low, or that they are measuring different dimensions (Streiner and Norman 2008).

6.4.6 Reliability

Reliability was tested in two ways: internal consistency, and test-retest.

6.4.6.1 Internal consistency

The test of internal consistency is the most widely used measure of reliability because it is the only one that can be derived with only one administration of the test. Consequently, many articles about instrument development report only this test and do not go further (Streiner and Norman 2008)

There is a need to derive some quantitative measure of the degree to which the items in the instrument are related to each other. If one item is found to be highly correlated with another, then one of the two items would add little additional information about the individual, and there would be much redundancy. If the items were un-related, then the instrument could possibly end up measuring many different traits. Hence, there should be a moderate correlation among the items (Streiner and Norman 2008).

Internal consistency of the instrument was tested for each item within each dimension and across dimensions. Cronbach's alpha test (α) was used for testing the indicators within each dimension (consistency within dimensions). In addition, the correlation between each item and all the dimension scores (consistency across dimensions) was estimated using the Pearson product moment correlation coefficient.

Cronbach's alpha tests the internal consistency by assessing the degree to which a set of items measure a single latent dimension (consistency within dimension). Alpha is equal to zero when the set of items measures different unrelated latent dimensions. When Alpha is equal to or bigger than 0.70 it is considered acceptable (Table 6.3) (Nunnally, Bernstein et al. 1967; Baggaley, Ganaba et al. 2007; Nedjat, Montazeri et al. 2008; Webster, Nicholas et al. 2010).

Table 6.3 Cronbach's alpha acceptability threshold

Cronbach's alpha	**Internal consistency**
$\alpha \geq 0.9$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

6.4.6.2 Test-retest reliability

Another step in providing evidence of the value of an instrument is to demonstrate that measurements of individuals at different times produce the same or similar results. In addition to assessing whether the instrument is measuring what is intended, it is also important to gather evidence that the instrument is measuring something in a reproducible way (Streiner and Norman 2008). However, it is worth highlighting that a test-retest reliability test says nothing about what the instrument is measuring.

The test-retest reliability was assessed following advice from the Guidelines for Evaluating and Expressing the Uncertainty of Measurement Results of the US National Institute of Standards and Technology (Taylor and Kuyatt 1994). According to these guidelines, the following conditions need to be fulfilled for the assessment of repeatability: the same measurement procedure, the same observer, the same measuring instrument, used under the same conditions, the same location, and repetition over a short period of time.

One of the conditions set by the NIST was not respected as only a subset of the questionnaire was administered.

A subsample of 30 respondents was randomly re-selected from the main survey, and interviewed a second time one month after the completion of the first interview. The test-retest was conducted on the last section of the questionnaire (the ranking exercise), during the administration of the WHOQOL-Bref survey.

In the ranking exercise women were asked to rank in order of preference from 1 (first) to 6 (last) the six dimensions of quality of life, according to their own values (Chapter 5). The Pearson correlation coefficient was used to estimate the degree of correlation between the first and second rounds of ranking.

6.5 Results

6.5.1 Content validation

The content validity process allowed checking that concepts were conveyed in the right manner. In general, the meaning of the questions was understood and interpreted by the respondents in the way the research team expected; the quotes reported below present evidence in support of the instrument's content validity.

Think-aloud interviews:

> Do you believe in witchcraft?
> *You want to know if I think that there is witchcraft in this village. I don't believe in things that that I cannot see.*

> Do you ever feel ashamed of your appearance?
> *This is how God made, so I am not ashamed.*
> *When I wear a poor "chitenge[10]" I do not want to go out and meet others, I feel ashamed.*

> Do you need to ask permission to go to the health clinic if you or your children are ill?
> *When I am sick I do not have to wait for my husband, I can just go.*

> How likely do you think that someone will get into your house and steal (or try to steal) something?
> *People are jealous of my household, so maybe it is possible.*

> Imagine a crisis such as your crops fail. How confident are you that you can feed your family for 4 weeks?
> *I need to find a way to get food. I have no immediate solution, I am not confident at all.*

Paraphrasing:

> In the past week, did you have time to relax and rest?
> *You want to know for example if I was able to meet with friends for a chat.*

> Are you able to express your feeling freely?
> *Am I able to put out what I have in my throat?*

> Have you ever felt threatened with eviction from this house?

[10] "Chitenge" is a bright coloured cloth that women wrap around their waists as a long skirt. "Poor chitenge" refers to, for example, a cloth that has faded colours, or with holes.

Am I scared that maybe one day I will be forced to move out from my house?

Do you feel oppressed?
If you lack necessities, or you lack freedom of speech by your husband, then you are oppressed. You are oppressed if you are denied the chance to buy or trade, or if you are working without being paid.

How safe do you feel walking alone in your village when it is getting dark?
Am I worried of being for example robbed if I walk alone?

The content validity identified some cases of ambiguity or misinterpretation of the question. The wording had to be modified to reflect the true meaning. These cases are reported here:

How safe do you feel walking alone in your village at night-time? This question was thought by various respondents to be referring to prostitution as usually nobody would walk around the village at night, only sex workers. It was rephrased as: *How safe do you feel walking alone in your village when it is getting dark?*

Do you know if your husband has any extra marital affairs? The question, phrased in this manner, was thought to imply that the interviewer knew about the husband's infidelity. It was changed to: *does your husband have extra marital affairs?*

In the event of a crisis, how confident are you that you can feed your family for 4 weeks? It was felt that more emphasis had to be placed on the imagination of the hypothetical context of the crisis. The question was changed to: *Imagine a crisis such as your crops fail. How confident are you…*

How safe do you feel in your community? "Safe" refers to "being free from street crime, theft, assault". However, some respondents understood it was referring to health: for example, having a well functioning hospital at a short walking distance. One person thought that safety referred to food security. This question was dropped when another question was changed to a similar meaning: "How safe do you feel walking alone in your village when it is getting dark? "

Are there any groups or associations in your village? People understood "groups or associations" as NGOs or charities working in the village. The question was amended with *community groups such as women's groups or farmer's groups*

Finally, the content validity process led to other minor changes, for example:

Change of the recall period: In the first draft of the questionnaire, the recall period was 4 weeks for some questions. However, it was changed to one week, because people were hesitant and found it too difficult to recall events beyond that.

Choice of response categories/options: The scale of possible answers was in some cases reduced from 5 to 3 or 4 levels (e.g. always, often, sometime, rarely) because respondents reported finding it easier to choose from fewer options.

Restructuring: some questions had to be split into two separate questions as it was too demanding to answer. For example the question *During the last week, how much did emotional problems keep you from doing your usual daily activities?* was split into two: *During the last week, did you have any emotional worry or problem?* Followed by: *If yes, did these emotional problems keep you from doing your usual daily activities?*

6.5.2 Construct validity

The non-response rate in the survey was 25 per cent: 78 (23%) women were not located for different reasons: moved village, died or were misclassified in the surveillance register; 9 (3%) women were located but were not available for the interview despite a second visit. The mean duration of the interview was 48 minutes (95% CI: 47-50).

Accounting for non-responses, data was collected for 258 women of reproductive age living in Mchinji district, Malawi. Descriptive statistics for the sample are presented in Table 6.4.

Table 6.4 Socio-demographic characteristics of the respondents (n=258)

Variable	Category	Frequency	%
Area[11]	Rural	242	94.16
	peri-urban	15	5.84
Age	< 16	1	0.39
	16 – 20	20	7.75
	21 – 25	93	36.05
	26 – 35	87	33.72
	36 – 45	52	20.16
	46 – 55	5	1.94
Marital status	married or with partner	219	84.88
	Single, divorced or widow	39	15.12
Education	never been to school	36	13.95
	Primary	193	74.81
	Secondary	29	11.24
Religion	CCAP[12]	23	8.95
	Roman Catholic	161	62.65
	Anglican	6	2.33
	Pentecostal or Adventist	48	18.68
	other	19	7.39
Ethnic group	Chewa	230	89.15
	Ngoni	24	9.3
	Senga	3	1.16
	other	1	0.39

The relationship between the socioeconomic characteristics and the dimensions of quality of life is presented in Table 6.5. Relationships that were anticipated are reported in italics. The direction of the relationship is noted in brackets, when negative. The remaining associations were tested for unexpected relationships and reported for completeness. Of the 20 anticipated non ambiguous relationships, 13 (65 per cent) were confirmed in the expected direction and one in the opposite direction at 1 percent significant level in the majority of cases. The results revealed one association that was not hypothesised a priori.

The expected association between the Physical Strength dimension and the variables *married* and *wealth index* were confirmed in the expected direction. The association with the variable related to *age* was not confirmed.

The association between the dimension Inner Wellbeing and the individual's characteristics all behaved as expected, and were significant at the 1% level.

[11] Measured as proximity to a trading centre or tarmac road
[12] Church of Central Africa Presbyterians

For the Household Wellbeing dimension, the hypothesised association with the *wealth* index was found to have a significant correlation in the expected direction with 99 per cent confidence. However, the relation with the variable *health* was found not significant. In addition, results revealed an unexpected positive association with 99 per cent confidence with the variable related to *marital status*.

The dimension Community Relations was found to have the expected positive relation with the variable related to *marital status* of the woman. However, the relation was not confirmed for the variables *education*, *age* and *wealth*.

The association between Economic Security and the individual's characteristics was confirmed as hypothesised, apart from the geographical area. The results suggested that there was no significant association between the distance of the village to a main road and the economic stability of the woman.

Happiness was found to have unexpected relations with *age* (older women appeared to be less happy and less satisfied with their lives compared to young women). The relation with the *health, marital status* and *wealth* of the individual was confirmed.

Table 6.5 Univariable association between dimensions of quality of life and socioeconomic characteristics

Socio economic variables	**Physical strength**	**Inner wellbeing**	**Household wellbeing**	**Community relations**	**Economic security**	**Happiness**	**Quality of Life**
Construct validity							
Rural area	0.535	0.827	0.917	1.000	*0.109*	0.321	0.774
Health	n/a	*0.002***	*0.316*	0.964	*0.004***	*0.005***	n/a
Education	0.093	*0.000***	0.625	*0.457*	*0.002***	0.193	0.001**
Age	*0.638*	0.638	0.830	*0.473*	0.740	(-) 0.034*	0.149
Married	*0.001***	0.853	*0.004*@@*	*0.001***	*0.000***	*0.016**	0.000**
Wealth index	*0.002***	*0.000***	*0.000***	*0.140*	n/a	*0.038**	n/a
Discriminant validity							
Religion	0.579	0.671	0.125	0.260	0.000**	0.403	0.005**
Ethnicity	0.633	0.883	0.174	0.052	0.305	0.766	0.894

Cells in italic are those where an association was expected a priori

* significant (in the expected direction) at 5 % level

** significant (in the expected direction) at 1 % level

@@ significant (in the opposite direction) at 1% level

6.5.2.1 Discriminant validity

It was anticipated that the religious belief and the ethnic group of the respondents would have no association with any dimension of quality of life. As Table 6.5 reports, no significant relationship was found in the dimensions, except for one. The economic security component of the index was found to have an unexpected strong association with the respondent's religion.

The relationship between the economic component of the index and these two individual characteristics was investigated further using the same correlation coefficient. The results in Table 6.6 show that people who belonged to the CCAP church scored significantly higher in the Economic Security component of the index, while Anglicans and other religions (such as Jehovah's witness) scored lower.

Table 6.6 Univariable association between religious faiths and the dimension Economic Security

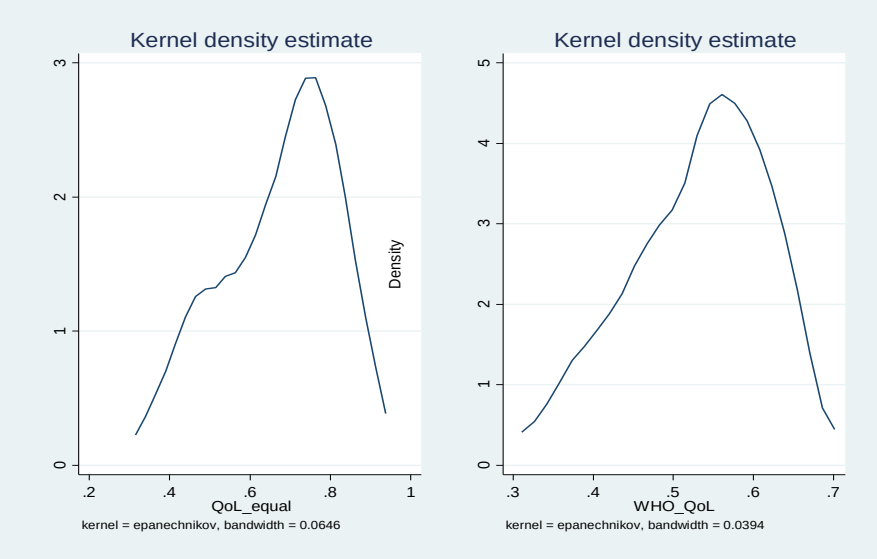
Religion	**Economic security**
CCAP	0.008**
Roman Catholic	0.897
Anglican	(-) 0.004**
Pentecostal or Adventist	0.331
Other	(-) 0.015*

* significant (in the expected direction) at 5 % level

** significant (in the expected direction) at 1 % level

6.5.3 Convergent validity

The capability index aggregated with equal weight (Chapter 5) and the WHOQOL-Bref were compared. As Graph 6.1 depicts, the two indexes were similarly distributed.



Graph 6.1 Kernel density curves for QoL equal and WHOQOL-Bref

Then, the correlation between the capabilities indices (aggregated in four different methods as described in Chapter 5) and the WHOQOL-Bref was explored using the Pearson's correlation coefficient (Table 6.7). The coefficients were considered acceptable because they were in the range 0.4 – 0.8 (Streiner and Norman 2008).

Table 6.7 Correlation coefficients for the WHOQOL-Bref and the capability indexes

	WHOQOL-Bref
Data-driven	0.6223
Equal	0.6104
Normative	0.6095
Hybrid	0.5669

6.5.4 Reliability

6.5.4.1 Internal consistency

The highest correlation coefficient across the dimensions for each item is highlighted in bold in Table 6.8. All but one item were found to be mostly correlated to the dimension that they were assigned to, with the majority (85 per cent) of the Pearson correlation coefficients within the acceptable range of

0.4–0.8. The variable related to food intake seemed to be more associated with the dimension Economic Security rather than Physical Strength.

The Cronbach's alpha values for each dimension ranged from 0.5 to 0.9. Happiness and Economic Security showed the greatest internal consistency with values of alpha greater than 0.7. Physical strength had the lowest internal consistency with the alpha just smaller than 0.5. The alpha coefficient on the overall index was at an acceptable level of 0.74.

Table 6.8 Correlation matrix of dimensions and sub-dimensions of the capability index

	Physical strength	**Inner wellbeing**	**Household wellbeing**	**Community relations**	**Economic security**	**Happiness**	**Cronbach's alpha**
Physical strength							0.4518
ABLE BODY	**0.6555**	0.3513	0.1250	0.0243	0.1945	0.2228	
FOOD	0.4727	0.2233	0.3321	0.3908	**0.5088**	0.2770	
AVOID DISEASES	**0.5769**	0.2173	0.3230	0.3040	0.3692	0.2459	
SPACE BIRTHS	**0.6316**	0.0261	0.1364	0.1396	0.1320	0.0831	
Inner wellbeing							0.6425
INNER PEACE	0.3166	**0.4277**	0.1328	0.1722	0.1197	0.1119	
CONTROL	-0.0944	**0.3409**	0.0788	-0.0887	-0.1644	-0.0067	
OPPRESSION	0.2894	**0.5687**	0.1860	0.1996	0.3237	0.3388	
SHAME	0.2619	**0.6800**	0.2428	0.1825	0.3594	0.3104	
KNOWLEDGE	0.2097	**0.6509**	0.1381	0.0680	0.2905	0.1757	
Household wellbeing							0.587
DOMESTIC VIOLENCE	0.0791	0.1183	**0.3517**	0.2162	0.2213	0.1252	
CONTROL MONEY	-0.0719	0.0480	**0.3836**	0.0068	-0.0916	-0.1343	
HOUSE	0.2594	0.1941	**0.4932**	0.3736	0.4751	0.2811	
EDU CHILDREN	0.2058	0.2585	**0.5879**	0.1458	0.2787	0.2314	
FAMILY CARE	0.3874	0.1221	**0.6750**	0.3207	0.4452	0.3439	
Community relations							0.6443
ACCESS SERVICES	0.1416	0.0490	0.1212	**0.4833**	0.0971	-0.0267	
SAFETY	0.1635	0.0042	0.1380	**0.5190**	0.1083	0.0790	
COMMUNITY GROUP	0.1075	0.1785	0.1746	**0.3489**	0.1996	0.1112	
DISCRIMINATION	0.1435	0.0187	0.2323	**0.5035**	0.1446	0.0416	
RESPECT	0.2356	0.1768	0.3157	**0.7721**	0.4241	0.2486	
Economic security							0.7645
SAFETY NET	0.3060	0.2836	0.2822	0.1901	**0.6434**	0.1937	
LAND	0.1395	0.0904	0.0255	0.2054	**0.4025**	0.1911	
ASSETT	0.2082	0.3470	0.3167	0.2903	**0.6497**	0.3073	
BUSINESS	0.3231	0.1883	0.3511	0.2309	**0.6958**	0.3378	
COPE SHOCK	0.3641	0.2513	0.4994	0.3725	**0.7106**	0.3922	
Happiness							0.8664
SATISFACTION	0.2900	0.3241	0.2988	0.1617	0.4289	**0.9360**	
HAPPYNESS	0.3161	0.3077	0.3053	0.2152	0.4287	**0.9438**	
Overall							0.7385

6.5.4.2 Test-retest reliability

Test-retest reliability was checked in order to assess the extent to which the survey yielded the same results on repeated trials. Even if the test was not done on the entire the questionnaire, the correlation coefficient between the two rankings might suggest the degree of the instrument's reliability.

The ranking of the two rounds of the survey were compared for each of the 30 respondents using the Pearson correlation coefficient (Table 6.9). The data showed an average level of reliability, with only 63 per cent of the retested rankings having a correlation coefficient above the acceptability threshold of 0.40.

Table 6.9 Reliability coefficient for the ranking exercise

Min	Max	> 0.40	> 0.70	Median	Obs
-0.62	0.98	19	6	0.50	30

6.6 Discussion

This study has investigated the validity and reliability properties of a newly developed measure for assessing women's capabilities in rural Malawi. The measure has been systematically tested for content, construct and convergent validity, internal consistency and test-retest repeatability.

The pre-test, pilot and content validity process improved significantly the quality of the tool. The validity exercise was found very useful because, in addition to amending those questions that could be misunderstood or misinterpreted by the respondents, it also clarified the meaning of the questions amongst the fieldworkers. Moreover, it emerged from field reports that respondents felt very much involved in the development of the tool, making it a truly "participatory" survey, in line with Sen's ideals for social inclusion and democratic deliberation (Alkire 2005).

This extensive process of validation led to nearly all respondents answering all questions and almost 80 percent of people reported that none of the questions was difficult to answer. This is an indication of a high degree of acceptability and comprehensibility of the instrument. However, it was reported by the fieldworkers that the validation process was time consuming and cognitively demanding for the respondents as usually respondents are asked to limit their contribution to answering a question, and not to give feedback on the question itself.

The relationship between the socioeconomic characteristics and the dimensions of quality of life was investigated and compared with *a priori* expectations to investigate the construct validity of the measure. The majority of hypothesised associations (70 per cent) were found to be highly significant in the expected direction. This provides evidence that the instrument was measuring quality of life as intended in the conceptual model. Notable positive associations with the capability index were education and economic stability: more educated women appeared to have better business opportunities and to own more assets. By contrast, data suggested that single mothers had more financial difficulties and were likely to be less able to cope with shocks.

Despite supportive findings for the majority of the constructs, a number of hypothesised relationships were not confirmed.

It was expected that people living in remote villages would have fewer chances for business opportunities and were more economicly insecure; however results suggested that there is no statistically significant association between the distance of the village to a tarmac road or trading centre and the woman's economic stability. This might be due to the fact that over 94 per cent of respondents lived in rural areas; in fact the geographical variable had no association with any dimension.

Although schooling, knowledge and material prosperity had been regarded by women in the FGDs as a valuable component in their lives, it appeared that more educated or wealthier women did not necessarily enjoy better community relations. The only significant driver of the social status appeared to be having a partner, and not the assets owned or the number of years spent at school. These results are similar to a study that used the WHOQOL-Bref on the general population in a different part of the country (Colbourn, Masache et al. 2012).

Younger women were expected to have more bodily strength and to be less respected in the community compared to older women, but these associations were found. A possible explanation could be that all women in the sample had had a baby in the previous year and the majority of them (70 percent) were in the age range 21 – 35.

The association between marital status and the family wellbeing was expected to be negative. However, it appeared that mothers living with a partner scored significantly higher in the family-related dimension probably because they enjoyed better housing and the children had more chances to get educated and be well nourished.

Spiritual beliefs and ethnic background were not expected to have an influence on the woman's wellbeing. However, it is interesting to note that there was a highly significant relationship with religion: women who were part of the Church of Central Africa Presbyterian were more economically secure compared to those who were from other faiths. The CCAP is the first missionary church established in Malawi with the arrival of the Scottish explorer David Livingstone in the second half of the 19th century. An explanation for this association could be that, despite not being the biggest church in Malawi (the DHS gives an estimate of less than 17 per cent (National Statistical Office and ICF Macro 2011), it is the oldest and more settled, hence people who are part of it might be in stronger financial positions. Further anthropological research could provide better insights and understanding of these dynamics.

Additional evidence in support of the instrument's validity was drawn from the distribution of the index, which appeared to be similarly distributed to an instrument measuring comparable (but not identical) domains of quality of life: the WHOQOL-Bref. The Pearson's coefficients between the two measures of quality of life showed a good degree of correlations implying that the two instruments were indeed measuring similar concepts.

The results from the internal consistency and the test-retest repeatability offered reasonably encouraging evidence on the reliability of the instrument. All but one dimension had adequate internal consistency with both correlation coefficients and alpha scores at acceptable levels. All but one item were found to be mostly correlated to the dimension to which they were assigned, with the majority of the correlation coefficients greater than or equal to 0.40. This value is within the acceptability

threshold given in other reliability studies (Baggaley, Ganaba et al. 2007; Nedjat, Montazeri et al. 2008; Webster, Nicholas et al. 2010; Colbourn, Masache et al. 2012). The item which was not mostly correlated to the assigned dimension was the indicator related to food availability and consumption. This variable was mostly correlated with the dimension Economic Security. This might be due to the fact that people who were more likely to be food secure also had greater economic security and were more likely to be wealthier (Dreze and Sen 1989). This has implications for the reliability of the Physical Wellbeing dimension, which showed a lower degree of internal consistency compared to the other dimensions.

The test-retest exercise did not show a perfect correlation, suggesting that some people did change their responses when they were asked a second time to rank in order of importance the different aspects of their quality of life. This might be due to the challenge respondents faced when ordering dimensions that are all highly valuable. Respondents were asked at the end of the survey to indicate which question was the hardest to answer to: the ranking exercise question was found the most challenging. Even so, the reliability coefficient is comparable to, or higher than, results generated in other studies in the health sector (Dong, Kouyate et al. 2003; Onwujekwe, Fox-Rushby et al. 2005).

A limitation of this study is that the test-retest exercise was not done on the entire length of the questionnaire, but only on one section: the ranking exercise. The ranking exercise provided the weights for index aggregation using the hybrid approach, as described in Chapter 5. It was felt that administering the whole questionnaire to the same respondent after a short period of time was too much of a burden for the woman, especially since she was asked to answer the WHOQOL-Bref during the same interview. Moreover, the test-retest reliability is considered desirable but not required evidence for a patient-reported outcome measures (Reeve, Wyrwich et al. 2013).

6.7 Concluding comments

The results of the validity and reliability tests provide supportive evidence that a newly developed measure, based on Sen's capability framework, could be used as a robust tool for the assessment of women's quality of life in rural Malawi.

The validation process was limited to assessing the reliability and validity of the instrument and was not aimed at investigating the relationship between people's capabilities and their achieved functionings. However, future research could make use of this data to explore the dynamics between the freedom that women have to lead the kind of life they have reason to value, and what they end up achieving in their lives.

Chapter 7 : Discussion and conclusion

The final chapter synthesises the main findings of the thesis and provides a reflection on the methodology used; identifying the overall limitations of the study and the contribution of the research to existing knowledge. To conclude, implications for future research and policy are explored.

This thesis aimed to tackle one of the challenges of applying standard methods of economic evaluation to public health and community based interventions: the development of an outcome measure with a broader evaluative space that could capture health and non-health outcomes.

Sen's capability approach was adopted for the development and valuation of a multidimensional index for use in the assessment of women's quality of life in Mchinji Distrct, Malawi. In so doing, a mixed methods approach was used for the development, valuation and aggregation of such a measure. The index will, in due course, inform the evaluation of the MaiMwana Project: a community-based development initiative aimed at improving maternal and neonatal health in Mchinji District.

There are a range of methodological challenges associated with the operationalisation of Sen's theoretical framework: the development of a theoretical and empirical model (selection of dimensions and indicators); the aggregation of dimensions into one single measure (selection of relative weights); and the validation of the instrument. The thesis posed a set of research questions that reflect these methodological challenges:

1. What are the capabilities that are relevant for the target population?
2. What is the most appropriate method for aggregating the different capabilities into a single measure?
3. Is the capability index a valid and reliable measure?

The first question is addressed in Chapter 4, the second in Chapter 5 and the third in Chapter 6.

7.1 Main findings

7.1.1 What are the capabilities that are relevant for the target population?

One of the objectives of this thesis was to explore the meaning of a "good life" and the different aspects of quality of life for women of childbearing age in the district of Mchinji, Malawi.

There is broad agreement that wellbeing is intrinsically multidimensional (Rawls 1971; Sen and Nussbaum 1993; Anand and Sen 1997; Stiglitz, Sen et al. 2009; McGillivray 2012). Defining a multidimensional measure empirically, however, represents a significant challenge; the concept does not imply a straightforward observable variable. The findings from the explorative research discussed in Chapter 4 suggested that quality of life is indeed multidimensional, hence not adequately represented in one single measure or proxy.

Sen argues against a fixed and "cemented" list of capabilities that cannot be adapted to different contexts, times and societies (Sen 2005). Every person may aspire to lead and enjoy a good life, but what does "good life" mean for women who recently gave birth in rural Malawi? In contrast with other studies that used either a predetermined list (Anand and van Hees 2006) or generated a list based on the researcher's values or data availability (Chiappero-Martinetti 2000; Klasen 2000), in this thesis the list of capabilities was developed through a deliberative democratic process aimed at eliciting women's values and perceptions about what a good life is.

A concern before embarking on the empirical study was that poorly educated women living in remote and deprived areas would be concerned only with basic needs for survival, such as food, money and shelter. *A priori* this may limit the ability to elicit and explore more nuanced and abstract concepts that the researcher expected to affect the conceptualisation of a good life.

However, as discussed in Chapter 4, through the focus group discussions employed for eliciting the perception and determinants of a good life, women were able to express abstract and complex concepts, detailing the main factors of a life that is worth living. These included being free from oppression, being respected in the household and in the community and having a supportive network of relationships. Moreover, not only basic needs were expressed, but even what might be considered higher order needs such as having time to relax and enjoy the company of friends and family. These too were described as key determinants of a good life. Women's contributions in the focus group discussions to the understanding of wellbeing were organised in six interconnected spheres: inner wellbeing, bodily strength, family and community relations, economic security and happiness.

Inner wellbeing reflected not only emotions and feelings, but also intellect and power: having M*tendere*, or "peace in the heart", being a free mind and being in control, having knowledge, living a life without shame.

A strong and healthy body was one of the main concerns of women who spent much of the day engaged in physical activity, such as farming, collecting wood or fetching water from a pump. Good health was mainly considered a critical "conversion factor" that enabled capabilities and functionings in other aspects of life. For example, this may include the importance of being healthy in order to be in a position to generate sufficient resources (income or subsistence crops through farming) to feed the children and so avoid the need to ask for support and the stigma and shame associated with the request.

In addition to the importance of fulfilling their roles as mothers, wives, and carers in the household, women voiced their need for family planning and child spacing. The high burden of childbearing affected their quality of life in two ways: it was a threat to their health as maternal mortality and morbidity rates are high, and it also limited the development of other aspects of life since little time and energy were left for doing other things beyond attending to children's needs.

Having control over the number of children not only avoided weakening the body but also prevented overcrowding in the household and the associated economic burden this entails. One of the main concerns raised by women was being able to look after the children properly and a limited number of children meant that mothers were in a better position to feed and educate them. This suggested that the wellbeing of the woman depended also to a large extent on the wellbeing of her children. A good education for the children was one of the top priorities; however it was not only threatened by financial constraints but also by early pregnancy and marriage for girls.

Women reported frequent disagreements with their partners on matters of reproductive choice. There was a clear tension in a society where the male status in the community is established by the number of children he has, while women recognised that fewer but better educated and healthier children were what constitute a better quality of life. HIV was widely mentioned by the women, not just as an illness, but also as a threat to household stability because of the strong association with promiscuity, prostitution, stigma and domestic violence. Related tensions between partners included verbal and physical abuses suffered by women and usually triggered by alcohol, anger or an argument related to money.

The community aspect of wellbeing was largely driven by the intensity of supportive relationships and social capital. A solid and extended network of social relations was a vital strategy for coping with economic and emotional shocks as it provided financial and in kind support, it enhanced respect in the community and avoided witchcraft.

Given the prevalence of religious faith in Malawi (Mchinji district is no exception), it is perhaps surprising that religious belief was never mentioned as a component or determinant of quality of life. Good conduct and moral integrity, which are in part related to religious teaching, were, however, reported as key elements for living a good life particularly as they affected the life in the community.

Economic wellbeing is another dimension which forms part of the framework. Financial security, material wellbeing and access to economic resources were described in terms of asset ownership and the availability of business opportunities in the area, which included being able to access microcredit schemes. As detailed in Chapter 5, the vast majority of people living in Mchinji district were subsistence agricultural workers, with very limited access to cash earning opportunities and thus it was virtually impossible for them to have savings. Farm animals and other assets were considered savings, in the sense that they can be sold in the event of food shortages as a result of low crop yields. Having access to money either through cash-earning job opportunities or micro-lending was considered critical for being economically secure.

The last dimension concerns people's feeling about their lives, how happy they are overall and how satisfied they are with the kind of life they are living. Women in Malawi valued happiness as an important dimension in their lives: it was suggested that being happy had an impact on their health and on their social life. Their thoughts are in line with the idea that enabling people to be "happy" and "satisfied" with their life is a universal goal for all human beings (Stiglitz, Sen et al. 2009).

The capability set developed through this study clearly suggests the conclusion that the health status and the economic resources, while important, are not all that matters in people's lives. Measuring quality of life requires looking at a range of comprehensive aspects of wellbeing: health and non-health, economic and non-economic, subjective and objective. This lends support to the arguments made by Sen and Stiglitz against using a univariate measure as a proxy for well-being (Stiglitz, Sen et al. 2009).

Despite the capabilities all being considered significant and valuable dimensions, women were able to value different areas of quality of life as more or less important. Physical wellbeing had the highest value when the valuation process was conducted using normative methods. This implies that having an able and strong body, being free from disease, having a choice in matters of reproductive health and having enough energy to work were regarded as the most important aspects in one's life. Happiness scored relatively low compared to more fundamental measures of survival. The majority of the women were subsistence farmers and would likely be classified as extremely poor by the World Bank's threshold of $1.25 a day. Despite this, economic security was reported as the lowest priority in the participatory exercise, and the second lowest using the survey-based method.

The normative and hybrid valuation exercises described in Chapter 5 suggest that the capabilities have different weights, thus it would be considered inaccurate to aggregate them assigning equal weight to each dimension. Chapter 5, therefore, explored and identified the most appropriate methods for setting the weights in a multidimensional index of wellbeing.

7.1.2 What is the most appropriate method for aggregating the different capabilities into a single measure?

In Chapter 5, four weighting methods were used for aggregating the multidimensional capability index: equal weight, normative (participatory), hybrid (survey ranking) and data driven (PCA). The findings suggest that the aggregation method used for setting the weights does change the score of quality of life and how people are ranked. The aggregation method used has an impact on establishing who the "worst off" are in society. This has major implications for policies aimed at improving the lives of those who fall below a defined well-being threshold. A critical element for policy is to determine and identify those most in need of support.

The equal weight approach and the data-driven approach certainly demand fewer resources for data collection and are less demanding in terms of time; however there is no legitimacy attached to the values of the dimensions (Decancq and Lugo 2012); furthermore, interpretation of some statistical models is not straightforward and as a result can lack transparency when results are communicated.

People's own values of the capabilities were elicited in two ways: an individual survey-based ranking and a deliberative participatory exercise.

The survey-based valuation was found to be demanding of the respondents: women reported some difficulties in ranking the capabilities according to their relative importance, and the test-retest reliability in Chapter 6 confirmed this challenge. The difficulties encountered in this type of exercise have been also reported in other studies in Malawi (Colbourn 2012).

The deliberative democratic process that took place during the focus group discussions was effective in eliciting values for the different dimensions of wellbeing. However, it was crucial to ensure that the process was truly democratic and participatory and that the voices of all participants were taken into account

Amongst the four approaches used to determine the weights, the participatory normative approach could be argued to be the most suitable aggregation method, because in addition to be effective in eliciting people's values, it can be considered the only one that most closely reflects Sen's philosophical position. Sen rejects the use of preferences or desires to value capabilities, but instead

argues that the most appropriate means to determine values are public discussion and debate; preferences, he argues, cannot be set without open debate (Sen 2005).

However, the very high correlation between the participatory normative and the equal weight methods may lend support to the idea that in a context where time and resources are limited, the equal weight approach can be considered as a suitable alternative since the estimates are likely not to differ substantially from people's values, and the likelihood of misclassification of the "worst off" in the society could be relatively small.

7.1.3 Is the capabilities index a valid and reliable measure?

The capability measure was systematically tested for content, construct and convergent validity, internal consistency and test-retest repeatability as discussed in Chapter 6. Studies of capabilities and wellbeing have not previously undertaken such a full array of tests, which are the gold-standard practice in the development of psychometric and patient-reported outcome measures (Reeve, Wyrwich et al. 2013). This study therefore represents a significant contribution to the literature on multidimensional measures of wellbeing and enhances the robustness and credibility of the instrument.

It has been argued in the literature that community members feel that evaluations are imposed upon them, that they are not actively involved in the process, and that the evaluation process is not considering the uniqueness of their community, its resources and capacities (Judd, Frankish et al. 2001). The extensive content validity process gave a sense of ownership of the survey tool to both the fieldworkers and the respondents. This in itself is important to note and adds to the potential significance and validity of the findings. Both respondents and fieldworkers reported that it was their first experience of active participation in the design of a survey tool. Despite some questions being considered quite sensitive (although not inappropriate) such as questions about domestic violence, the survey had a very high response rate denoting a high degree of acceptability and comprehensibility.

Construct validity was assessed by investigating the expected relationships of the wellbeing dimensions with key socioeconomic characteristics. The majority of hypothesised associations were found to be highly significant in the expected direction. This provides evidence that the instrument is measuring quality of life as intended in the conceptual model. Notable positive associations were education and economic security. More educated women had more opportunities for business such as access to microcredit and they were likely to enjoy more material wealth. Findings suggested that married women had less financial difficulties compared to single mothers and were likely to be more able to cope with shocks.

Despite supportive evidence for the majority of the hypothesised constructs, a number of relationships were not confirmed as expected. For example, during the explorative research in Chapter 4, religious faith was not mentioned as a valuable aspect in life, although faith was never specifically probed during the discussions. Despite religion not being expected to have an influence on women's quality of life, findings from the construct validity test revealed that there was a highly significant and positive association between one particular religious group and economic wellbeing. Further research could provide insights into these dynamics which were beyond the scope of this study.

Further evidence in support of the index's validity was given by the high degree of correlation between the index and another scale measuring comparable (but not identical) domains of quality of life (WHOQOL-Bref). Finally, the results from the internal consistency and the test-retest repeatability also offered encouraging evidence on the reliability of the instrument.

7.2 Limitations

This thesis has a number of limitations, presented in this section.

First, the literature in Chapter 2 has identified four challenges for evaluating public health and community-based initiatives; however this thesis is limited to tackling only one: the identification and valuation of health and non-health outcomes.

A second limitation was reported in Chapter 4. When the conceptual framework was developed great care was given to produce mutually exclusive dimensions of life; however, this was difficult at times since a number of sub-dimensions cut across all of the wellbeing dimensions. For example, domestic violence is likely to impact a woman's physical and mental wellbeing, and also her family unity, her community relations and her economic conditions. Moreover, the passage from conceptual to empirical models was challenging at times, as some concepts such as *Khalidwe* (good conduct) were difficult to capture with one or two indicators. Hence a larger set of questions were developed to capture the influence of these attributes on women's life rather than the attribute *per se*.

Furthermore, the wellbeing measure is built on women's perceptions of their reality. The data were collected through one to one interviews and therefore were liable to bias in reporting. When asked, for example, "have you ever been beaten by your husband?" with the response options "never, once, sometimes, often", one may expect that the respondent will have a tendency to under-report, and the results might suffer from social desirability bias: the tendency for people to perceive themselves to be better off than they actually are. An attempt was made to minimise this bias by employing field-workers who were well trained and had many years of experience interviewing women on sensitive issues.

It is also worth noting in this concluding chapter (previously addressed in Chapter 5) that an assumption was made to anchor the index to the absence of capabilities (score 0) to full capabilities (score 1) rather than to death, as is usually done for patient reported outcome. Although the normalisation did not affect the distribution of the indices, it is important to note that the absence of capabilities could be considered worse than death.

Another possible limitation of this study concerns the answer scale. The valuation of the dimension scale was not assessed; for example, the answers to the question related to overall happiness (very happy, moderately happy etc.) are all considered to have equal value, although people might have different perceptions of "very" and "moderately". More sophisticated approaches such as latent variable modelling could offer an alternative, however the results generated by these models are not straightforward to interpret (Bartholomew, Steele et al. 2002).

Although the findings of this study are specific to a given population in a particular setting (women of reproductive age in Mchinji District, Malawi), the methods adopted and the process used for the generation of the capability index are generalisable and could be used in different contexts. This will be discussed in the next two sections.

7.3 Contribution to knowledge

An important strength of this study is that it drew on both the health economics literature on outcomes development and the literature on capabilities on the assessment of quality of life.

In contrast to standard techniques for the development of outcome measures in health economics (Brazier, Roberts et al. 2004) but in line with Sen's argument for open discussion and public debate (Alkire 2005; Sen 2005), participatory techniques were employed for the development and valuation of the index, with the final aim of creating a reliable and valid measure that could be used in the evaluation of complex interventions.

The measure also drew on the capability framework in its method of anchoring the index at no capability (value 0) and full capability (value 1), which is in contrast with the preference-based elicitation techniques used in health economics to value against death (Coast, Flynn et al. 2008).

This study thus contributes to two literatures: the health economics and the capability literature.

7.3.1 Health economics

The study has presented an alternative route for tackling the challenges of applying methods of economic evaluation to public health and community based programmes. As discussed in Chapter 2, conventional CEA and CBA have been recognised to have limits (Borghi and Jan 2008; Weatherly, Drummond et al. 2009) since their evaluative space is too narrow and they might fail to capture the broader impact of such interventions on people's lives. Based on Culyer's arguments, Sen's framework has been proposed by many as an alternative paradigm (Culyer and Wagstaff 1993; Coast, Smith et al. 2008; Smith, Lorgelly et al. 2012), however the direct application of the approach to health economics has been limited to a few studies only, and all of them have been conducted in high income contexts (Grewal, Lewis et al. 2006; Lorgelly et al. 2008; Al-Janabi, N Flynn et al. 2012).

This study contributes an initial step towards the use of a broader outcome measure based on people's capabilities that could incorporate a wide range of benefits generated by community based health promotion activities in a low income setting. This index offers the potential for a broader and more valid measure of the impact of such interventions on people's lives.

The ICECAP measures (Coast, Flynn et al. 2008; Al-Janabi, N Flynn et al. 2012) have been valued with a best-worst scaling discrete choice experiment to allow its integration into standard economic evaluation techniques. In this study, four weighting methods have been used and compared. The recommended method is a deliberative democratic approach that reflects Sen's argument for value

judgements as opposed to preferences. Aside from the philosophical underpinning, it could also be argued that undertaking a DCE with a set of 26 sub-attributes and 72 indicators would be an unrealistic and unachievable task.

The valuation exercise based on people's values and the absence of attributes' trade-offs do not allow for a direct integration of the index into a conventional economic evaluation. For this reason, the index could be used as an additional source of information in the assessment of health and social programmes, with no claim to substitute but rather to complement the QALY or DALY measures, or the number of lives saved. For example, the index could aid comparison across intervention and control groups alongside a randomised controlled trial such as the MaiMwana Project (described in Chapter 3); controlling for other factors, women who are exposed to the women's groups are likely to have a higher capabilities index compared to women in control clusters. However, this exercise is beyond the scope of this thesis.

The extensive validity and reliability tests performed on the index provide encouraging evidence on the robustness of the measure. As a result, more confidence can be placed in the results generated from its use. A strong case can be made for further research to build on this study, using the generalisable methods to develop capability indices in other contexts. Whether a measure like this capability index would be accepted and used by academics and policy makers for the identification and assessment of outcomes generated by complex interventions such as community-based programmes is an issue that should be further investigated.

7.3.2 Capability literature

The challenges of operationalising the capability approach have been widely recognised (Sugden 1993) to the extent that it was defined as "an unworkable idea" (Rawls 1999). As argued by Robeyns (Robeyns 2000) the capability approach may not be the easiest approach for the evaluation of quality of life, but it might be the most relevant and interesting.

This study is one of the few studies and the only one in a low-income setting that applies the capability approach empirically and collects quantitative data with the specific purpose of measuring capabilities. It provides evidence of the feasibility of developing a valid and reliable measure based on Sen's capability framework for assessing people's lives.

The methodological challenges tackled in this study for operationalising Sen's approach were addressed using a combination of quantitative and qualitative methods. The mixed-method approach represents an important step towards the development of a multidimensional index of wellbeing based on the capability framework that can be used and adapted for different contexts.

These methods have been shown by the study to be well suited for defining and measuring challenging concepts such as the meaning of a good life in a setting that is economically deprived and geographically remote. This study demonstrated that it is possible to collect meaningful and reliable data on capabilities, desires, choices and freedoms, reaching beyond people's economic, material and health conditions.

One of the main challenges in the operationalisation of Sen's capabilities approach was to understand and differentiate between the concepts of capability and functioning (Cookson 2005; Robeyns 2005). The dimensions of quality of life that women brought up in collective discussion (Chapter 4) were all valuable and important aspects of their lives because they enabled women to flourish and develop, and to lead the kind of life they have reason to value and that is worth living. For these reasons, the dimensions can be considered capabilities as defined by Sen (Sen 1985; Sen 1993).

Although in some cases they were expressed as functionings (for example being well-fed and being free from domestic violence), the dimensions of quality of life can be considered capabilities because of their "enabling" nature. For example, being well-fed enables women to perform an array of different physical activities and being free from domestic violence enables women to live a life of human dignity and respect. Another example is related to family planning, which is expressed in terms of capabilities: the real choice for women in rural Malawi in matters of reproductive health. The question concerning the availability of family planning methods in the community, and the follow up question over the reason why family planning may not be practised (for example due to religious beliefs, fear of side effects, or partner's impediment) are aimed at investigating the restriction or deprivation of reproductive choices.

The overlap between the capabilities drawn from women's contributions in rural Malawi and other lists developed in different contexts with various methodologies is remarkable, as detailed in chapter 4. Some dimensions are recurrent, such as bodily health, inner peace, social connections and security.

The list in this study features valuable and important dimensions of quality of life for women living in a country with "low human development" according to the most recent Human Development Report (UNDP 2013) where Malawi ranks 170 out of 187 countries. Thus, it makes further progress towards the conceptualisation of a universal core set of capabilities that is drawn, scrutinised and endorsed from the bottom up as recommended by Sen and Robeyns (Sen 2005; Robeyns 2005). It is in contrast to an expert-led list like the one proposed by Martha Nussbaum (Nussbaum 2007) which has been criticised for its degree of prescription (Alkire 2002), academic legitimacy (Robeyns 2003) and lack of consistency with Sen's central idea of pluralism (Sugden 1993).

The implications of adopting the capability approach for assessing wellbeing are not limited to the measurement of people's quality of life but extend to the evaluation of social policies. Interventions

supportive of human development should, according to Sen (Sen 1999; Sen 2003), expand the freedoms available to people, which would be valuable irrespective of the effect on people's states. Thus, this index could also be used for monitoring social progress of a particular sub-population (woman of reproductive age) at different points in time, in order to have dynamic estimates of social progress.

This study provides important insights into the implications of using different aggregation techniques, and Chapter 5 demonstrated how the choice of aggregation methods affects the identification of the worst off in a society. Any policy that aims at targeting the most deprived people in a population should take into account the consequences of choosing one aggregation method over another and the choice should be left open to public debate and discussion, as advocated by Sen (Alkire 2005).

Measures of both objective and subjective well-being, and economic and non-economic wealth provided key information about people's quality of life. The findings lend support to the recent recommendations made in the context of multidimensional wellbeing measurement by the Commission's report (Stiglitz, Sen et al. 2009): statistical offices should incorporate questions to capture people's life evaluations, experiences and priorities. Quantitative measures of these aspects of wellbeing hold the promise of delivering not just a good and reliable measure of quality of life, but also a better and more valid understanding of its determinants. The types of question that have proved their value within small-scale and unofficial surveys such as the one in this study should be tested for inclusion in larger-scale surveys undertaken by official statistical offices (Stiglitz, Sen et al. 2009).

Whether this is a feasible policy implication for a country with very scarce resources such as Malawi is uncertain. However, it is important to bear in mind that social policy and development interventions are likely to influence a broad range of dimensions of quality of life, hence when a decision has to be made on how and where to invest limited resources, it is desirable to invest in those programmes that are shown to expand people's capabilities, and this could be assessed with a capability measure similar to the one developed in this study.

Given the unspecified nature of the capability approach, it is likely that there will always be considerable scope for debate about the most appropriate method to identify, select, value and measure capabilities. The index proposed in this thesis contributes to this debate.

7.4 Future research agenda

The development of the index stemmed from the need for a broader outcome measure in the evaluation of a community-based programme. This thesis is limited to the development and validation of the measure, but the intention is to use it for assessing the impact of the MaiMwana Project on women's quality of life. Its use in the evaluation of MaiMwana Women's Groups, or other development initiatives targeting women of reproductive age in the area, will be explored in a subsequent study and may be valuable for capturing those benefits that fall beyond health and income.

Furthermore, the voices of other members of the community (for example men, or the elderly) could be included to generate a more inclusive list of capabilities and to attach a value to these dimensions. The improved index could be used to capture the externalities generated by the MaiMwana Project on those people that did not take part in the project but could have benefited (or not) from it. In a similar women's group project in Nepal, it was found that there was no significant difference between the Willingness To Pay of women's group members compared to female non-members; and surprisingly, men's WTP were significantly more than women (Borghi and Jan 2008).

Another possible area of future research would be to explore the relationships between capabilities and functionings. It would be interesting to investigate the freedoms and opportunities that women have to lead the kind of life they have reason to value, and to assess what they end up achieving in their lives.

The avenues for future research also stretch beyond the study setting. The methodology for developing the instrument can be employed for adapting this measure or creating similar measures for use with women of reproductive age in other areas of Malawi, in Sub-Saharan Africa or in other contexts.

Before the index can be used in other settings, an explorative phase should be conducted in order to assess the extent to which the list of capabilities generated in this study is valuable and important to people in the new context. Given the similarities with other lists of dimensions identified in Chapter 4, it is likely that the list of capabilities will have a significant degree of overlap. What is likely to change is the identification of the indicators for measuring the capabilities. The adaptation process of the tool should also involve a new valuation exercise to elicit people's values. This could be done using participatory techniques that proved effective in this study. In the participatory process of valuation, one of the issues to be considered is who to include in the interested group, if only the people targeted by the evaluation or also other members of the family or community, or policy experts and government (Alkire 2005; Burchardt 2012).

The OECD Better Life Initiative proposes an online tool that allows users to build and customise their own index according to the importance *users* give to each of 11 dimensions that shape a good life in a country. Once a user creates an index, it will enter a database; this is a great source of information for understanding what people from across the OECD member countries believe constitutes a good life (OECD 2013). While very attractive in theory, the possibility of using such an interactive tool in a lower income setting where electricity and internet connectivity are not accessible to all and with a large proportion of the population illiterate is unlikely to be feasible at present. However, it should be recognised that technology is expending at great speed in many developing countries (the rapid spread of mobile phone coverage is the clearest indicator of this phenomenon). At present, however, the process for eliciting value judgments in a low income setting Malawi is likely to be most appropriately conducted using deliberative participatory methods such as the ones employed in this study.

The capability approach is mainly concerned with equality as it relates to capabilities, rather than a maximisation of a particular outcome, for example, health. As Coast and colleagues (2008) argued, the application of the maximisation principle in a context of capabilities is problematic because issues of redistribution cannot be addressed: it is not possible to transfer capabilities from one person to another; and maximising capabilities without addressing issues of equity and redistribution may not an acceptable policy either. Focussing on a minimal acceptable level of capabilities met by the majority of the population could be considered as a reasonable policy approach (Coast, Smith et al. 2008).

This thesis contributes to the debate on the identification of a minimal acceptable level of freedoms, since the capabilities were chosen and valued by women living in underprivileged conditions and thus could be considered as a minimum requirement for a life of human dignity that could lead to the development of a universal framework for the assessment of quality of life and social advantage. There is significant scope for future research to further explore the concerns of equity within and across populations.

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Appendix A: Streams of research in quality of life

FAMILIES OF APPROACHES	FOCUS AND SCOPE (per variant)	DISCIPLINE(S) / THEORY BASE	VALUES	PURPOSES AND STANDPOINT
[1] SUBJECTIVE WELL-BEING (SWB); three aspects:- 1 – happiness (positive affect) 2 – pain (negative affect) 3 – life satisfaction	Individual well-being (WB) as felt by the individual. Work on 'instant happiness' stresses aspects 1 & 2 more than does work in a eudaimonic / reflective well-being tradition.	Psychology, and neo-utilitarian economics and sociology. (But psychology has diverse schools.) Aristotelian philosophy stresses aspect 3.	(Priority to) Individuals' judgements of A. pleasure/pain B. meaning	- For description and explanation; & - For evaluations by the individual or that seek to represent the individual
[2] HEALTH-RELATED QUALITY OF LIFE	[2a] Individual WB/QoL - Physical (and mental) functionings & capabilities; listed by professionals (or the subject individuals), then measured by professionals (or self-rated). [2b] Health-related QoL of communities	Health sciences	- Ideas about normal capabilities and functionings - Either belief in superior knowledge and judgement of professionals; or belief in rights and superior knowledge of patients	For allocation of rights and resources for medical care: - policy level - programme level - individual cases
[3a] 'UTILITY'	Here individual WB is imputed from individual's resources and/or choices, especially choices in real or simulated markets	Mainstream market-oriented economics	Values of market: 1. spenders' values, insofar as money-backed; 2. income distribution given; 3. people held responsible for own choices (which are assumed to reflect preferences)	For describing, explaining, and conducting allocation according to market principles
[3b] NEEDS AND CAPABILITIES – all variants consider WB & (actual or potential) QoL of individuals	A. Prudential values theory B. Human needs theories C. Doyal & Gough's theory of need	Humanistic economics. Philosophy. Humanistic psychology. Critical social policy	Humanistic values:- In A: what makes lives go better. In B: requirements of a decent life. In C: avoidance of serious harm; social participation.	Variants B, E: for explanation All the theories: for public policy (constitutional and legal frameworks; strategies, programmes, projects, specific allocations to persons)
	D. Sen's capability approach E. Nussbaum's capabilities approach	Humanistic economics. Humanistic philosophy.	In D: positive freedom to achieve reasoned values. In E: As B plus D.	
[4] POVERTY STUDIES – on individual (potential) QoL, and its social determinants	A. Work on poverty lines B. Wider concepts of deprivation C. Attention to processes and outcomes of social inclusion and exclusion	Social economics Social policy Sociology	Similar to 3b, but: Variant A is often limited to material aspects and values; variants B & C are not.	Variant A: for description, and public policy. Variants B & C: also for explanation
[5] COMMUNITY STUDIES – on social context/fabric & community QoL	Study of the direct value and indirect impacts of various forms of social capital and social cohesion	Sociology Social policy Public health	Emphasis on people as group members	- Explanation. - Background work for public policy
[6] SOCIETAL QUALITY OF LIFE CONSTRUCTS	A. Bernard's democratic dialectic	Sociology	Liberty, equality, fraternity	For public policy (through from constitutional and legal frameworks, to projects)
	B. Berger-Schmitt & Noll: overarching QoL construct	Social policy	Implies all the values listed above	
	C. Social Quality approach (Beck et al, 2001)	Sociology	Similar to values of [3b], plus of [5]	

Source: David Phillips' *Quality of Life* in Gasper 2010

Appendix B: A review of empirical studies with the Capabilities Approach

author	year	country	n' variables	n' dimensions	capabilities	functionings	selection criteria	data	level	area of research	aggregation	methods	validation	findings
Al-Janabi	2012	UK		5	stability attachment achievement autonomy enjoyment		In-depth, informant-led, interviews	New	micro	Quality of life Health economics	ICECAP-A measure of capability wellbeing for adults	BSW DCE (in progress)	Construct validity	Health status is an influence over broader attributes of capability wellbeing
Alkire	2002	Pakistan		8	Life/health/security Knowledge Work/play Relationship Beauty/environment Self-integration inner peace Religion Empowerment		participatory methods	new		small NGO projects for income generation (Oxfam)		Social cost-benefit analyse Impact assessment Participatory methods		CBA can be combined with qualitative data through participatory methods in order to have a more *holistic* assessment
Anand, Hunter, Smith	2005	UK			health housing, social relations, leisure, employment, having a partner ...		Nussbaum's Central Human Capabilities	BHPS		capability assessment		descriptive stats		available data on capability from the BHPS are strongly correlated with data on subjective wellbeing
Anand, van Hees	2006	England		10	Life, Bodily health, Bodily integrity, Senses imagination and thought, Emotions, Practical reason, Affiliation, Other species, Play, Control over one's environment		Nussbaum's Central Human Capabilities	new	micro	capability assessment		ordinal logistic regression model		
Balestrino	1996	Italy		3		health, education, nutrition	researcher's value, data availability	official poverty register (281 hh)	regional	poverty assessment				137 hh are income poor and functioning poor. 73 hh are only functioning poor and 71 hh are only income poor

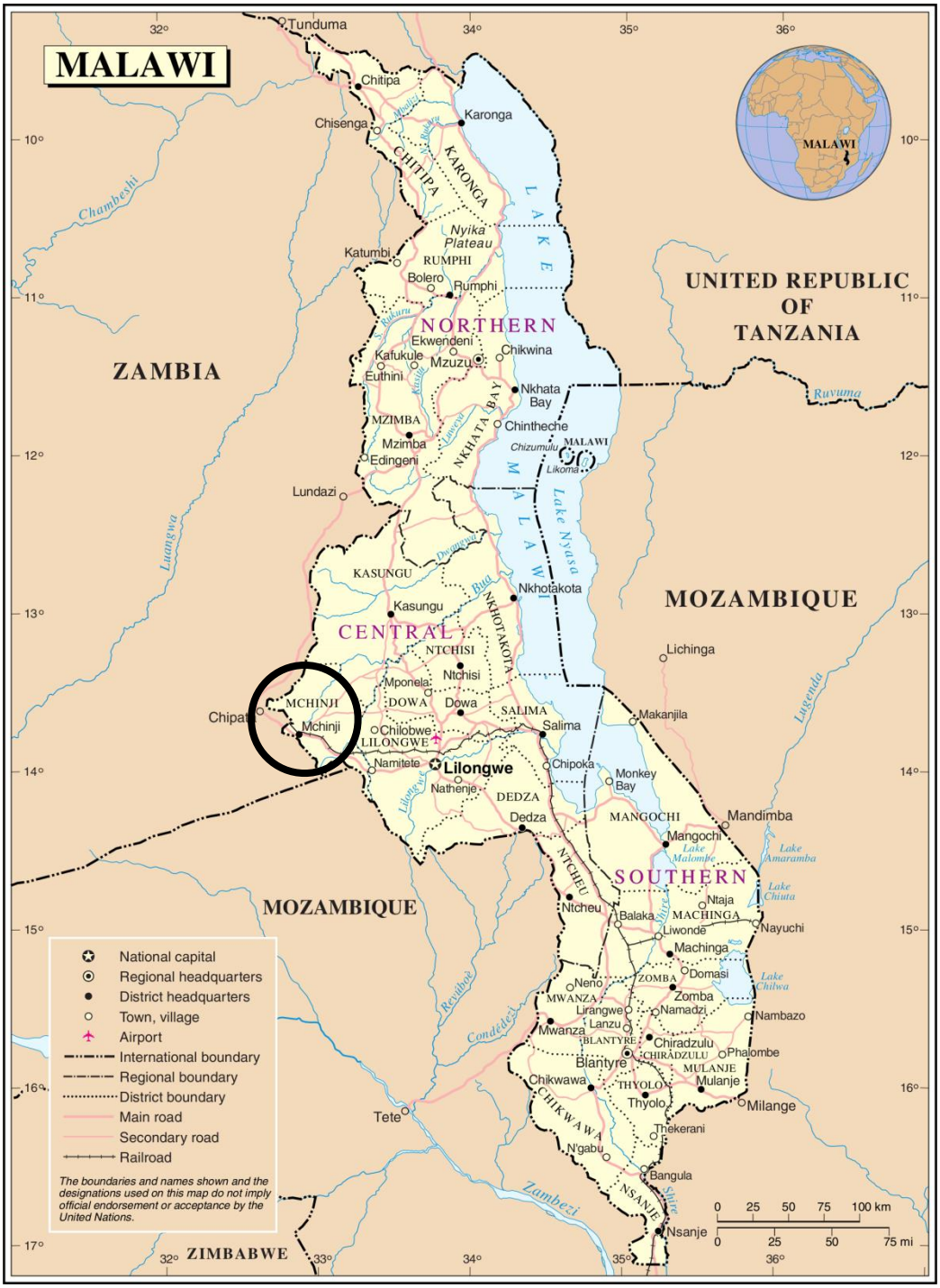
author	year	country	n' variables	n' dimensions	capabilities	functionings	selection criteria	data	level	area of research	aggregation	methods	validation	findings
Balestrino and Sciclone	2001	Italy	26	6		being healthy, educated, employed, well-sheltered, security, clean environment	researcher's value, data availability	1991 household survey, provincial data	regional	poverty assessment	functioning-based wellbeing index	factor analysis, complete ranking		ranking with functionings differs for 7 out of 20 regions compared to income ranking
Brandolini, D'Alessio	1998	Italy	20	6			researcher's value, data availability	Italian Household Survey	micro	poverty assessment	functioning deprivation index	descriptive statistics, sequential stochastic dominance, partial and complete ranking		
Burchardt, LeGrand	2002	UK			being able to be employed		researcher's value, data availability	1998-99 BHPS	micro			reference group		the capability to be employed is identified by assessing whether the unemployment status is a choice or due to barriers. In 10% of unemployed people, it was a choice
Chiappero-Martinetti	2000	Italy	34	5		health, education, social interaction, psychological wellbeing, housing	researcher's value, data availability	1994 Italian Household Survey	micro	poverty assessment	overall wellbeing index	fuzzy set theory, complete ranking		achieved functionings are lower for women, older people, housewives, blue-collar workers and people living in the south
Clark and Qizilibash	2002	South Africa	30	12		education, employment, water and sanitation, cooking facilities, room per household	researcher's value, data availability	SALDRU, provincial level national census	micro	poverty assessment		descriptive stats and fuzzy set theory		ranking with functionings differs from ranking with expenditure

author	year	country	n' variables	n' dimensions	capabilities	functionings	selection criteria	data	level	area of research	aggregation	methods	validation	findings
Coast et al	2008	UK		5	attachment, security, role, control, enjoyment		in-depth interviews	new	micro	quality of life of older people health economics	ICECAP index for older people	best-worst scaling, Discreet Choice Experiment	construct validity	the quality of informants' lives was limited by the loss of ability to pursue the attributes
Jayasundara	2011	142 developing countries	7	1	Reproductive capability			UN, WHO, World Bank	macro	Maternal and reproductive health		factor analysis; confirmatory factor analysis; Path analysis and structural equation method	Validity, reliability	the indirect effect of social development on maternal mortality through reproductive capability/freedom was stronger than the direct effect of social development on maternal mortality
Kinghorn	2010	UK		9	self-respect, social interaction, role of parent/grandparent, physically and mentally active, positive and individual identity, independence/control, loving relationship, physical and mental wellbeing, enjoyment from life		focus groups, in-depth interviews		micro	quality of life of chronic pain patients		multi-attribute utility method		
Klasen	2000	South Africa		14		health, education, nutrition, housing, water and sanitation, energy, income, transport, safety, financial services, perceived well-being	researcher's value, data availability	1994 SALDRU	micro	poverty assessment	multi-component deprivation index	principal component analysis, complete ranking		17% of functioning poor people are not expenditure poor
Kuklys	2005	UK		3		being healthy, being well-sheltered, income	researcher's value, data availability	BHPS		disable people		regression analysis, structural equation model		capability set of a disable is 40% reduced compared to a similar non-disable

author	year	country	n' variables	n' dimensions	capabilities	functionings	selection criteria	data	level	area of research	aggregation	methods	validation	findings
Lorgelly et al	2008	UK	18	10	Life, Bodily health, Bodily integrity, Senses imagination and thought, Emotions, Practical reason, Affiliation, Other species, Play, Control over one's environment		Nussbaum list, Anand questionnaire, focus groups, vignette	new	micro	evaluation of public health interventions	index of capability	arithmetic mean	reliability, validity, sensitivity	people who live in more deprived areas have a lower level of capability in these dimensions: Bodily health, Bodily Integrity, Affiliation and social networks. Capability index and EQ-5D are highly correlated (correlation 0.576; p-value <0.001)
Phipps	2002	Canada, USA, Norway				low birth weight, accidents, asthma, activity level, anxiety, concentration, disobedience at school, bullying	researcher's value, data availability	1995 children survey		wellbeing assessment				Children in Norway rank better achieved functiongs compared to children in the USA and Canada
Robeyns	2002	UK		14		physical wellbeing, mental wellbeing, social relations, education, domestic work, paid work, housing, mobility, leisure	researcher's value, data availability	BHPS	micro	gender inequality		descriptive statistics		some women's functionings are lower then men's. Correlations between functioning measure and income measure is low
Ruggeri Laderchi	1997	Chile				health, education, child nutrition	researcher's value, data availability	1992 national survey	micro	poverty assessment				
Ruggeri Laderchi, saith, Stewart	2003	Peru				health, education	researcher's value, data availability	1994 ENNIV survey	micro	poverty assessment				

author	year	country	n' variables	n' dimensions	capabilities	functionings	selection criteria	data	level	area of research	aggregation	methods	validation	findings
Salardi	2007	Brasil				being healthy	researcher's value, data availability	2003 national household survey and regional dataset for health services	micro	conversion of public and private resources for achieve the health functioning		probit and ordered probit regression model, principal component analysis		younger people convert less efficiently public resources into the health functioning. Men are more able to convert private resources compared to women
Schokkaert and Van Ootegem	1990	Belgium	46	6		social, psychological, physical, financial functionings, micro-social contact, activitiy levels	researcher's value, data availability	new (?) survey	micro	unemployed people		Factor analysis, regression analysis		
Sen (C&C)	1985	Brazil, China, India, Mexico, Sri Lanka	3	3		life expectancy, infant and child mortality	researcher's value, data availability	1980-1982	macro	wellbeing assessment, country comparison				ranking with GDP is different from ranking according to functionings
Sen (C&C)	1985	India	3	3		Mortality rate, nutrition status, morbidity	researcher's value, data availability	1981-1983	macro	gender inequality				women's functionings are lower then men's
UNDP	1990	global	4	3		life expectancy, adult literacy and enrolment rates, GDP per capita	researcher's value, data availability	national data	macro	wellbeing assessment, country comparison, HDI	Human Development Index	normalization through scaling, arithmetic mean, complete ranking (HDI)		ranking with GDP is different from ranking according to functionings. Now it has been standardised with a year index HDI

Appendix C: Map of Malawi



Appendix D: Topic Guide for FGDs

Introduction

Thanks for coming to the meeting

Explanation of the aims of the study, read consent form

Taking written consent + give them a copy of consent form to keep

Fill in background form

First part – Generating dimensions of QoL

We would like to think about what are those "beings and doings" that are important for achieving a good life. We start from thinking about what is a good quality life, and what is a bad quality life. This example can help.

Think about a tomato: how do you judge the good quality or the bad quality of a tomato? What are those important characteristic of the tomato that make it of a good quality? It has to be round (shape), it has to be red (colour), it has to be firm and not soft (texture), it has to be mature and not rotten (health), it has to taste good (taste), it has to be big (size). All these are valuable dimensions of the quality tomato: size, colour, texture, shape, and so on.

Then, we can think about how the tomato can achieve a good quality: it needs seeds, sun (but not too much), rain (but too much), fertilizers. These are factors that influence the dimensions of the tomato.

Now, can we think about how to judge the good quality or bad quality of our life?

What does the term good life mean for you?

What are those important and valuable dimensions of our lives that make the life good?

What it is about these dimensions that is important to you?

What are the factors that contribute to these dimensions?

And what are those dimensions of our lives that make the life bad?

What are the things that you would like to see change?

What factors contribute to a bad quality of life?

What is about these factors that make QoL poor?

What opportunities/freedoms/choices do you value?

Wrap up and list key components of your lives that contribute to your own QoL

Second part – Valuation exercise

Ask to rank every item on the list. Beans will be used, should put a maximum of 10 beans for each item. The maximum level (10 beans) indicates that the dimension is valued very much, that we couldn't live without it. And so on.

Ending

Thanks for participation, provide refreshment and travel compensation if needed.

Appendix E: Questionnaire (English and Chichewa)

WCBA ID number [ ] version_final

QUALITY OF LIFE SURVEY: HOW IS LIFE FOR MOTHERS IN MCHINJI ? MOYO WA AMAYI M'BOMA LA MCHINJI?		
Field information	**Read the question then read the possible answers. Do NOT read the answers if indicated. Multiple responses are allowed ONLY when indicated. Otherwise, only ONE response is allowed. CIRCLE THE NUMBER ANSWER if not otherwise indicated.**	
Zone ID		
WCBA ID		
Name		
Surname		
Other names		
Traditional Authority		
Group Village Headman		
Village		
(1) Type of area		
Deep rural	1	
Rural	2	
Peri-urban	3	
(2) name of interviewer		
Nicholas	1	
Christopher	2	
(3) First visit – Date (dd/mm/yy) :	Time start (24hrs):	
Reason why the interview did not take place		
(4) Second visit – Date (dd/mm/yy):	Time start (24hrs):	
Reason why the interview did not take place		
(5) Third visit – Date (dd/mm/yy):	Time start (24hrs):	
Reason why the interview did not take place		
(6) Other people attending the interview (in case you are not allowed to be alone with the respondent)		
Husband	1	
Sister	2	
Mother	3	
Children	4	
Other *specify*	5	
None	6	
Comments and observations		

1

WCBA ID number [ ] version_final

Respondent background information		
(7) What is your name? Dzina lanu ndinu ndani?		
(8) What is your age? Muli ndi zaka zingati?		
Under 16	1	
16 – 20	2	
21 – 25	3	
26 – 35	4	
36 – 45	5	
46 – 55	6	
Over 56	7	
(9) What is your marital status? Ndinu wokwatiwa/muli pa banja?		
Married/living with partner	1	
Single/never married	2	
Divorced	3	
Widowed	4	
(10) How many people are living in your household, including you? Mumakhala ndi anthu angati mnyumba mwanu?		**WRITE NUMBER**
Below the age of 15	[ ]	
Between the age of 16 and 49	[ ]	
Above the age of 50	[ ]	
(11) Who is the head of this household? Wamkulu wa banjali ndi ndani?		
Yourself	1	
Husband/male partner	2	
Mother/Father	3	
In-laws	4	
Other *(specify)*	5	
(12) What is your religion? Ndinu a chipembedzo chanji?		**DO NOT READ ANSWERS**
CCAP	1	
Roman Catholic	2	
Muslim	3	
Anglican	4	
Pentecostal / Evangelistic / Adventist	5	
Traditional believes	6	
Other *(specify)*	7	
(13) What is your tribe? Ndinu a mtundu wanji?		
Chewa	1	
Ngoni	2	
Senga	3	
Other	4	
(14) What is the highest level of school that you have reached? Munalekera kalasi yanji?		
Never been to school	1	
standard 1 – 4	2	
standard 5 – 8	3	
form 1 – 2	4	
form 3 – 4	5	
any higher that secondary	6	
(15) Can you read this line to me aloud? Kodi mungathe kuwerenga mau awa moti ndimve?		
Yes	1	
No	2	
(16) Are you able to write (more than your name)? Kodi mumatha kulemba? (Kuposera kulemba dzina lanu)?		
Yes	1	
No	2	
(17) What was the highest level of formal education your mother reached? Kodi mai anu analekeza kalasi yanji?		
Never been to school	1	
standard 1 – 4	2	
standard 5 – 8	3	
form 1 – 2	4	
form 3 – 4	5	

WCBA ID number [ ] version_final

any higher that secondary	6	
Don't know	7	
(18) What was the highest level of formal education your father reached? Kodi bambo anu analekeza kalasi yanji?		
Never been to school	1	
standard 1 – 4	2	
standard 5 – 8	3	
form 1 – 2	4	
form 3 – 4	5	
any higher that secondary	6	
Don't know	7	
A. Physical strength	**We want you to think about the strength of your body.... Kukhala wa thanzi, chakudya chabwino, madzi, ukhondo**	**INTERVIEWER INSTRUCTIONS**
(19) During the last week, did you have any physical health problems? Msabata yapitayi, kodi munali ndi mavuto ena aliwonse amphamvu za mthupi?		
No	1	**Go to (21)**
Yes Malaria	2	
Yes Diarrhoea	3	
Yes Fever / Headache / Backache / periods	4	
Yes , other *(specify)*	5	
(20) If Yes, How much were your activities affected by these physical problems? Ngati inde, kodi mavutowa anakulepheretsani motani kugwira ntchito zanu?		**Read answers**
Not at all Sanandilepheletse nkomwe	1	
Very little Anandilepheletsako pang'ono	2	
Somewhat Pakatimpakati	3	
Quite a lot Anandilepheretsa kwambiri	4	
Could not do physical activities Sindidathe kugwira ntchito	5	
(21) During the last week, did you have enough energy to work? Msabata yapitayi, munali ndi mphamvu zoti nkugwira ntchito?		**Read answers**
Yes, very much Inde, zambiri zedi	1	
Yes, quite a lot Zambiri	2	
Some Pakatimpakati	3	
No, a little Ayi, pang'ono	4	
None Ndinalibiletu	5	
(22) Where do you mainly get your food from? Zakudya zanu mumazipeza kuti kwenikweni?		DO NOT READ ANSWER Multiple Responses, rank them
I buy it from the market	1 [ ]	
I grow it in my garden	2 [ ]	
I grow it in a communal garden	3 [ ]	
I receive it from family/church/government	4 [ ]	
Other *specify*	5 [ ]	
(23) Thinking about food, can you tell me which **nutritious** food is available in this area? Ganizirani za zakudya, mungandiuzeko zakudya **zopatsa thanzi** zomwe zimapezeka mudera lino?		DO NOT READ ANSWER Multiple Responses, rank them
Vegetables (carrots, tomatoes, green leaves)	1	
Fruits (Paw-paw, Mangoes, Guavas, oranges)	2	
Beans , peas	3	
Eggs	4	
Fish, Meat, Chicken	5	
Rice, Cassava, Potatoes	6	
Soya, Groundnuts	7	
Others *(specify)*	8	

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(24) During the last week, were you and your children able to eat these foods? Msabata yathayi, kodi inu ndi ana anu munadyako.....?					**Read the list of food and the answers**
	Not at all Sindinadye	Yes, but not enough Inde, koma chosakwanira	Yes, enough Inde, chokwanira	Yes, more than enough Inde, chochuluka	
Vegetables (carrots, tomatoes, green leaves) Ndiwo zamasamba	1	2	3	4	
Fruits (Paw-paw, Mangoes, Guavas, Oranges) Zipatso	1	2	3	4	
Beans , Peas Nyemba	1	2	3	4	
Eggs Mazira	1	2	3	4	
Fish, Meat, Chicken Nsomba, nyama, nkhuku	1	2	3	4	
Rice, Cassava, Potatos Mpunga, Chinangwa	1	2	3	4	
Soya, Groundnuts Soya, Mtedza	1	2	3	4	
Others *(specify)* *Zina(Tchulani)*	1	2	3	4	

(25) Are you able to take good care of your body, as you wish, for example cleanliness and bathing? Kodi mungathe kudzisamalira thupi lanu momwe, mungafunire?		**Do not Read Answers.**
Yes	1	
No, because I don't have enough money	2	
No, because I don't have enough time	3	
No, because ... *specify*	4	
(26) Are family planning methods available in your village or nearby? Kodi njira zakulela zimapezeka mmudzi mwanu muno kapena mmadera oyandikira.		
Yes	1	
No	2	
Not sure	3	
(27) Do you practice family planning? Inuyo mumatenga njira zakulela?		
Yes	1	
No	2	**Go to (29)**
(28) If yes, which method do you use? Ngati inde, mumatenga njira yanji?		DON'T READ ANSWERS
Condom	1	**Go to (30)**
Injection	2	
Contraceptive pill	3	
Abstinence / safe period	4	
Loop	5	
Traditional methods	6	
No husband / partner	7	
Other *(specify)*	8	
(29) If not, what is the reason? Ngati ayi, chifuwa chiyani simutenga kulera?		**DO NOT READ ANSWERS**
Religion	1	
Husband doesn't want	2	
I want to have more children	3	
Scared of side effects	4	
I cannot bear children any longer (age/tube legation)	5	
Other *(specify)*	6	
(30) Are you aware of HIV/AIDS? Kodi mumadziwa za matenda a Edzi?		
Yes	1	
No	2	
(31) Are you able to protect yourself from contracting HIV/AIDS? Kodi mungathe kudziteteza nokha kuti musatenge kachirombo koyambitsa matenda a Edzi?		
Yes	1	
No	2	**Go to (33)**

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(32) If yes, how? *Ngati inde, munjira yanji?*		**DO NOT READ ANSWERS**
Condom	1	**Go to (34)**
Faithfulness / abstinence	2	
Other *(specify)*	3	
(33) If not, what is the reason? Ngati ayi, chifukwa chiyani simungadziteteze?		**DO NOT READ ANSWERS**
Religion	1	
Husband doesn't want / Unfaithful	2	
I want to have more children	3	
I have extra marital affairs	4	
I don't know how to protect myself	5	
No condoms available	6	
Other *(specify)*	7	
B. Inner wellbeing: we would like to ask you some questions about your inner feelings and peace of mind. (Mtendere Wamumtima)		INTERVIEWER INSTRUCTIONS
(34) During the last week, did you have any emotional worry or problem? Msabata yathayi, kodi munali ndi nkhawa kapena mavuto ena aliwonse?		
Yes	1	
No	2	**Go to (36)**
(35) If yes, did these emotional problems keep you from doing your usual daily activities (working in the garden, household chores)? Ngati inde, kodi nkhawazi zinakulepheretsani kugwira ntchito zanu za tsiku ndi tsiku (monga kulima, kugwira ntchito za pakhomo)		**Read answers**
Not at all Sizinandilepheletse nkomwe	1	
Yes, Very little Inde, zinandilepheletsako pang'ono	2	
Yes, Somewhat Inde, Pakatimpakati	3	
Yes, Quite a lot Inde, zinandilepheletsa kwambiri	4	
Yes, Could not do activity Sindidathe kugwira ntchito	5	
(36) In the last week, have you been losing sleep over worries or troubles? Msabata yapitayi, mumalephera kupeza tulo chifukwa cha nkhawa kapena mavuto?		**Read answers**
Yes very much Inde, kwambiri zedi	1	
Yes a little Inde, pang'ono	2	
Not very much Sikwenikweni	3	
Not at all Sizinachitikepo	4	
(37) In the past week, did you have time to rest and relax, for example meeting with friends for chatting? Msabata yathayi, munali ndi nthawi yopuma, monga ngati kukumana ndi kucheza ndi anzanu?		**Read answers**
Yes, often Inde, kawirikawiri	1	
Yes, sometimes Inde, nthawi zina	2	
No, never Ayi, sindinaupeze mpata	3	
(38) How much freedom do you feel you have in making personal decisions that affect your everyday activities (for example what food to cook, washing clothes)? Kodi muli ndi ufulu wocholuka bwanji popanga maganizo panokha wokhudza ntchito za tsiku ndi tsiku (mwachitsanzo: zakudya zomwe mungafune kuphika, kapena kuchapa zovala?		**Read answers**
Total freedom Ufulu wochuluka kwambiri	1	
A lot of freedom Ufulu wochulukirapo	2	
Somewhat Pakatimpakati	3	
Very little freedom Ufulu wocheperapo	4	

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No freedom at all Ndilibiletu ufulu	5	
(39) What things would you like to change in your life? Ndi zithu ziti zomwe mungafune kuti musinthe mmoyo wanu?		**WRITE 3 THINGS or CIRCLE ANSWER**
A:		
B:		
C:		
I do not want to change anything	1	
(40) Who do you think will contribute most to **any** change in your own life? Ndindani yemwe mukuganiza kuti angathandizire kwenikweni kusitha kulikonse m'moyo wanu?		**DO NOT READ ANSWERS**
Myself	1	
Husband/Family	2	
women's group	3	
Community	4	
Traditional authority	5	
Government	6	
God	7	
Other (specify) :	8	
(41) Are you able to express your feeling freely? Kodi mumatha kulankhula zakukhosi kwanu momasuka?		**Read answers**
Yes, very often Inde, nthawi zambiri	1	**Go to (43)**
Sometime Nthawi zina	2	
No, never Ayi, sindingathe	3	
(42) If **2 or 3**, why can you not express yourself freely? Ngati ayi **(2 or 3)**, ndichifukwa chiyani simungathe kulankhula momasuka?		**Write answer**
(43) Do you feel oppressed? Kodi mumadziwona ngati muli opondelezedwa?		**Read answers**
Yes, very often Inde, nthawi zambiri	1	
Yes, sometimes Inde, nthawi zina	2	
No, never Ayi, mpang'ono pomwe	3	**Go to (45)**
(44) If yes, why do you feel oppressed? Ngati inde, ndi chifukwa chiyani mumadziwona ngati ndinu opondelezedwa?		
(45) Do you believe in witchcraft? Kodi mumakhulupilira kuti ufiti uliko?		
Yes	1	
No	2	
No answer	3	
(46) Are you scared of being bewitched? Kodi muli ndi mantha kuti mwina mutha kulodzedwa?		
Yes	1	
No	2	
No answer	3	
(47) Do you ever feel ashamed/ embarrassed for your appearance, such as your aspect, your clothes? Kodi mumachita manyazi ndi maonekedwe anu kapena zovala zanu?		
Yes, very often Inde, nthawi zambiri	1	
Yes, sometimes Inde, nthawi zina	2	
No, never Ayi, sindimachita manyazi	3	

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(48) If yes, why?		
(49) Are adult literacy schools available in your village? Kodi mmudzi muno muli sukulu za kwacha?		
Yes,	1	
No	2	**Go to (50)**
I don't know	3	
(50) If yes, have you ever attended one? Ngati inde, mudakaphunzirako?		**DO NOT READ ANSWERS**
Yes	1	
No, not enough time	2	
No, I don't need it	3	
No, other reason ... *specify*	4	
C. Household wellbeing: I would like to ask you some questions on how is the life in your household (Mtendere M'banja, Mgwirizano M'banja, Chikondi M'Banja)		
(51) Does your household have a toilet? Banja lanu lili ndi chimbudzi ?		**DO NOT READ ANSWERS**
Yes, flush toilets	1	
Yes, Pit latrines	2	
Yes, VIP latrines	3	
Neighbour's toilet, because *specify* ...	4	
Bush, because *specify*...	5	
(52) What is the source of water for this household? Kodi madzi anu mumatunga kuti?		**DO NOT READ ANSWERS**
Well	1	
Stream/river	2	
Communal pipe	3	
Borehole	4	
(53) What does this household do to make the water safer to drink? Kodi banja lanu limatani kuti liteteze madzi akumwa?		**DO NOT READ ANSWERS**
Treat with waterguard/chlorine	1	
Boil	2	
Let is stand and settle	3	
Do nothing, we do not have water guard/chlorine	4	
Do nothing, it is already safe to drink	5	
Other *specify*	6	
(54) Do **you and all your family** sleep under a mosquito net? Kodi **inu ndi onse a pa banja lanu** mumagona mu neti?		**DO NOT READ ANSWERS**
Yes, **all of us** Inde, tonse	1	
Some are sleeping under mosquito net, some are not Ena akugona mu neti ena sagona	2	
No, there are no mosquito nets Tilibe ma neti	3	
No, it's hot for the mosquito net	4	
No, other reason (*specify)* *Ayi, zifukwa zina(fotokozani)*	5	
(55) What is the ownership status of your house? Kodi nyumba yomwe mumakhalayi ndi ya ndani?		**DO NOT READ ANSWERS**
Owned outright	1	
Owned but with mortgage / not fully paid	2	
Rented	3	
Borrowed	4	
I don't have a house	5	
(56) Are you worried that may be one day you will be forced to move out of this house? Kodi mumakhala ndi nkhawa zoti mwina tsiku lina mungadzathamangitsidwe mu nyumbayi?		**Read answers**
Yes, very scared Inde, ndimakhala ndi nkhawa zambiri	1	
Yes, a little scared Inde, ndimakhala ndi nkhawa zochepa	2	
Not, at all Ayi, ndilibe nkhawa nkomwe	3	**Go to (57)**
(57) If yes, why are you scared? Ngati inde, ndi chifukwa chiyani mumakhala ndi nkhawa?		**DO NOT READ ANSWERS**

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Husband may ask me to leave	1	
in-laws / other family members may grab it	2	
Chief / community may ask me to leave	3	
No money to pay rent/mortgage	4	
Other reason (*specify*)	5	
(58) Is your house appropriate (good enough) for you and your family? Kodi nyumba yanuyi ndi yabwino?		**DO NOT READ ANSWERS**
Yes Inde	1	Go to (59)
No, too small Ayi, ndi yaying'ono kwambiri	2	
No, the roof is leaking Ayi, imadontha	3	
No, structural problem (e.g. cracked walls) Ayi, khoma ndi long'ambika	4	
No, other reason *specify* Ayi, zifukwa zina *(fotokozani)*	5	
(59) If not appropriate, do you think in the next 6 months you are going to have the appropriate house? Ngati nyumba siyabwino, mukuganiza kuti miyezi isanu ndi umodzi ikubwerayi mudzakhala ndi nyumba yabwino ?		**DO NOT READ ANSWERS**
Yes	1	
No, don't have enough money	2	
No, husband/head of household doesn't want / lazy	3	
No, Other reason *(specify)*	4	
(60) Thinking about your sons, what level of education do **you wish** them to reach? Ganizirani za ana anu amuna, mumafuna kuti adzafike kalasi yanji pa maphunziro awo?		**DO NOT READ ANSWERS**
standard 1 – 4	1	
standard 5 – 8	2	
form 1 – 2	3	
form 3 – 4	4	
any higher that secondary	5	
No son	6	**Go to (62)**
(61) Do you think they will manage to reach this desired level? Mukuganizira kuti adzakwanitsa kufika kalasi yomwe mukufunayi?		
Yes	1	**Go to (62)**
No	2	
Don't know	3	
(62) If not or don't know, what is the reason? Ngati ayi, ndi chifukwa chiyani?		**DO NOT READ ANSWER**
the school is too far sukulu ili kutali	1	
there is no money for school fees / uniforms Ayi, palibe ndalama zolipirila sukulu	2	
they have to work in the garden/household chores Ayi, amatithandiza ntchito za kumunda kapena zapakhomo	3	
they will not want to go Ayi, samafuna	4	
They are not intelligent enough Ndiwopanda nzeru kwenikweni	5	
other reason (specify) Ayi, zifukwa zina (zitchuleni)	6	
(63) Thinking about your daughters, what level of education do **you wish** them to reach? Ganizirani za ana anu akazi, mumafuna kuti adzafike kalasi yanji pa maphunziro awo?		**DO NOT READ ANSWER**
standard 1 – 4	1	
standard 5 – 8	2	
form 1 – 2	3	
form 3 – 4	4	
any higher that secondary	5	
No daughter	6	**Go to (65)**
(64) Do you think they will manage to reach this desired level? Mukuganizira kuti adzakwanitsa kufika kalasi yomwe mukufunayi?		
Yes	1	**Go to (65)**

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No	2	
Don't know	3	
(65) If not or don't know, what is the reason? Ngati ayi, ndi chifukwa chiyani?		**DO NOT READ ANSWER**
the school is too far sukulu ili kutali	1	
there is no money for school fees / uniforms Ayi, palibe ndalama zolipirila sukulu	2	
they have to work in the garden/household chores Ayi, amatithandiza ntchito za kumunda kapena zapakhomo	3	
they will not want to go Ayi, samafuna	4	
They are not intelligent enough Ndiwopanda nzeru kwenikweni	5	
Early marriages / pregnancies	6	
other reason (specify) Ayi, zifukwa zina (zitchuleni)	7	
(66) Are you able to take good care of your household members, as you wish, such as bathing, washing? Kodi mumakwanitsa kusamalira anthu omwe mumakhala nawo, mmene mumafunira?		**DO NOT READ ANSWER**
Yes	1	
No, because I don't have enough money	2	
No, because I don't have enough time	3	
No, because ... *specify*	4	
(67) Do you feel that you and your husband are joining effort for household development, like working together in the garden? Kodi mumaona kuti pali mgwirizano pakati pa inu ndi amuna anu pankhani zotukula banja lanu, monga kulima.		**Read answers**
Yes very much Inde, kwambiri	1	
Sometime Nthawi zina	2	
Never Ayi, palibe mgwirizano	3	
No husband /partner	4	
(68) Does your husband have any extra marital affair? Kodi amuna anu ali ndi akazi ena kapena zibwenzi?		**DON'T READ THE ANSWER**
Yes, he has	1	
No, he has not, he is faithful	2	**Go to (70)**
I don't know	3	
No husband /partner	4	
(69) If yes, what have you done? Ngati inde, mwachitapo chiyani?		**DON'T READ THE ANSWER** **Multiple answers**
Nothing	1	**Go to next question**
I talked to him, but nothing has changed	2	**Go to (70)**
I talked to him, successfully	3	
I spoke with the traditional authorities, but nothing has changed	4	
I spoke with the traditional authorities, successfully	5	
I spoke with the marriage counsellor, but nothing has changed	6	
I spoke with the marriage counsellor, successfully	7	
No husband /partner	8	
Other (*specify*)	9	
(70) If you have done nothing, why? Ngati simunachite kalikonse, ndi chifukwa chiyani?		**DON'T READ THE ANSWER** **Multiple answers**
I want to save the marriage/relationship	1	
None will believe me / understand me	2	
There is nothing I can do, It's useless	3	
I am afraid of him / his reaction	4	
I don't know what to do / where to go	5	
Other (specify)	6	
(71) Have you ever been beaten by your husband (or ex husband) or by other household member? Kodi munamenyedwapo ndi amunanu (amuna anu akale) kapena wina aliyense wa mbanja mwanu?		**Read answers**
Yes often Inde, kawirikawiri	1	

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Yes sometime Inde, nthawi zina	2	
Yes, once Inde, kamodzi	3	
Never Sindinamenyedwepo	4	**Go to (73)**
(72) If yes, did you tell/report it to anyone? Ngati inde, mudauza ndani?		**DON'T READ THE ANSWER**
Told another household member / family	1	**Go to (73)**
Reported to traditional authorities	2	
Told Church or Women's organization	3	
Reported to Police or government authorities	4	
Told Friends	5	
Told marriage counsellor	6	
Told others *specify*	7	
I did not tell anyone nor report it	8	Go to next question
(73) If you did not tell anyone, what is the reason? Ngati simunauze aliyense, ndi chifukwa chiyani?		**DO NOT READ ANSWERS**
I want to protect the assaulter	1	
I want to save the marriage/relationship	2	
None will believe me / understand me	3	
It's useless to report	4	
I was afraid of being beaten again	5	
Other (specify)	6	
(74) Do you think it might happen in the future? Kodi mukuganiza kuti zingadzachitike mtsogolo?		**Read answers**
Very likely Kwambiri zedi	1	
Quite a lot Kwambiri	2	
Somewhat Mwina	3	
Unlikely Sizingachitike	4	
Impossible Zosatheka	5	
(75) In case it happens, will you tell/report to anyone? Zitadzakuchitikirani, mudzauza ndani?		**DO NOT READ ANSWERS** **Multiple responses**
Tell another household member / family	1	Go to (76)
Report to traditional authorities	2	
Report to Church or Women's organization	3	
Report to Police or government authorities	4	
Tell Friends	5	
Tell marriage counsellor	6	
Tell to others *specify*	7	
I do not know	8	
I will not tell anyone nor report it	9	Go to next question
(76) If you will not tell anyone, what is the reason? Ngati simungadzauze aliyense ndi chifukwa chiyani?		**DO NOT READ ANSWERS**
I want to protect the assaulter	1	
I want to save the marriage/relationship	2	
None will believe me / understand me	3	
It's useless to report	4	
I am afraid of being beaten again	5	
I don't know	6	
Other (specify)	7	
(77) Can you access household money without your husband / head of household's permission? Mumatha kugwilitsa ntchito ndalama za banja lanu popanda chilolezo cha amuna anu kapena wamkulu wa pabanja?		**DO NOT READ ANSWERS**
Yes, I can access without permission	1	
No, I need to ask permission	2	
I am the head of the household	3	

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(78) Who normally decides how the money should be used for minor household expenditure, such as buying soap, sugar, salt, oil? Ndi ndani yemwe amapanga mfundo za kagwilitsidwe ntchito ka ndalama pogula zinthu zing'ono zing'ono za pabanja monga sopo, sugar, mchere, mafuta?		**DO NOT READ ANSWERS**
Myself	1	
Me and my husband jointly	2	
Husband alone	3	
Someone else *specify*	4	
Jointly with someone else *specify*	5	
(79) Who normally decides how the money should be used for major household expenditure, such as buying clothes? Ndi ndani yemwe amapanga mfundo za kagwilitsidwe ntchito ka ndalama pogula zinthu zazikulu za pabanja monga zovala?		**DO NOT READ ANSWERS**
Myself	1	
Me and my husband jointly	2	
Husband alone	3	
Someone else *specify*	4	
Jointly with someone else *specify*	5	
(80) Do you need to ask permission to attending a funeral outside the village? Kodi mumapempha chilolezo kuti mupite ku maliro omwe achitika m'mudzi wina?		**DO NOT READ ANSWERS**
No	1	
Yes, to my husband	2	
Yes, to other (specify)	3	
(81) Do you need to ask permission to going to the health clinic if you or your children are ill? Kodi mumapempha chilolezo chopita kuchipatala pomwe inu kapena ana anu adwala?		**DO NOT READ ANSWERS**
No	1	
Yes, to my husband	2	
Yes, to other (specify)	3	
(82) Who normally decides if your children should go to school or not? Ndi ndani amene amapanga maganizo oti ana anu apite ku sukulu kapena ayi?		**DO NOT READ ANSWERS**
Myself	1	
Me and my husband jointly	2	
Husband alone	3	
Someone else *specify*	4	
Jointly with someone else *specify*	5	
No school-age children	6	

D. Community relations: I would like to ask you some questions on how life is in your village. (Mgwirizano Wam'mudzi)

(83) How easy/difficult is for you to reach the closest
Nkosavuta bwanji kapena nkovuta bwanji kuti mukafike

	Very easy Nkosavuta kwambiri	Easy Nkosavuta	Difficult Ndikovuta	Very difficult Ndikovuta kwambiri	**Read answers**
Health centre Ku Chipatala chaching'ono	1	2	3	4	
U5 clinic Chipatala cha ana ang'ono	1	2	3	4	
School Ku Sukulu	1	2	3	4	
Trading centre (market) Ku msika	1	2	3	4	
Water source Kotunga madzi	1	2	3	4	
Church / your religious place Kutchalitchi/ malo amapemphero	1	2	3	4	

(84) Have you ever thought about moving away from this village? Mudayamba mwaganizirapo zodzachoka m'mudzi muno?		**Read answers**
Yes, often Inde, nthawi zambiri	1	
Yes, sometimes Inde, nthawi zina	2	
Yes, once Inde, kamodzi	3	
No, never	4	**Go to (85)**

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(85) If yes, what is the reason? Ngati inde, ndi chifukwa chiyani?		**DO NOT READ ANSWERS**
Fear of theft	1	
Fear of violence	2	
Witchcraft	3	
Fear of being poisoned	4	
Not enough land	5	
Other (specify)	6	
(86) How safe do you feel walking alone in your village when it is getting dark? Kodi mumaona kuti ndinu otetezedwa bwanji mukamayenda mmudzimu pamene mdima wayamba ?		**Read answers**
Completely safe Otetezedwa zedi	1	Go to (87)
Very safe Otetezedwa	2	
Not very safe Osatetezedwa kwenikweni	3	
Very little safe Otetezedwa pang'ono	4	
Not at all safe Osatetezedwa nkomwe	5	
(87) If not safe, what is the reason? Ngati ndinu osatetezedwa, ndichifukwa chiyani?		**DO NOT READ ANSWERS**
Fear of theft	1	
Fear of violence / rape	2	
Witchcraft	3	
Other (specify)	4	
(88) In the past 12 months, have you or any member of your household been assaulted? Mmiyezi khumi ndi iwiri yapitayi, kodi inuyo kapena munthu wina wa mbanja lanu anayamba wa nyozedwapo kapena kuchitidwa chipongwe mu njira ina iliyonse?		
Yes	1	
No	2	**Go to (90)**
Don't know	3	
(89) If yes, did you tell/report it to anyone? Ngati inde, mudauza ndani?		**DO NOT READ ANSWERS**
Told another household member / family	1	**Go to (90)**
Reported to traditional authorities	2	
Told Church or Women's organization	3	
Reported to Police or government authorities	4	
Told Friends	5	
Told other *(specify)*	6	
I did not tell anyone nor report it	7	**Go to next question**
(90) If you did not tell anyone, what is the reason? Ngati simunauze aliyense, ndi chifukwa chiyani?		**DO NOT READ ANSWERS**
I want to protect the assaulter	1	
None will believe me / understand me	2	
It's useless to report	3	
Other (specify)	4	
(91) Do you think it is possible that you will be assaulted in the future? Mongoganizira, mukuona ngati mungadzachitilidwe chipongwe kapena kunyozedwa mtsogolo muno?		**Read answers**
Very possible Nzotheka kwambiri	1	
Possible/Likely Nzotheka	2	
Somehow Mwina	3	
Unlikely Sindikukhulupilira	4	
Impossible Zosatheka	5	
(92) In case it happens, will you tell/report to anyone? Zitadzakuchitikirani, mudzauza ndani?		**DO NOT READ ANSWERS** **Multiple responses**
Tell another household member / family	1	**Go to (93)**
Report to traditional authorities	2	
Tell Church or Women's organization	3	

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Report to Police or government authorities	4	
Tell Friends	5	
Tell other *(specify)*	6	
I do not know	7	
I will not tell anyone nor report it / do nothing	8	**Go to next question**
(93) If you will not tell anyone, what is the reason? Ngati simungadzauze aliyense, ndi chifukwa chiyani?		**DO NOT READ ANSWERS**
I want to protect the assaulter	1	
None will believe me / understand me	2	
It's useless to report	3	
Fear of the assaulter	4	
Other (specify)	5	
(94) In the past 12 months, did someone steal (or try to steal) your belongings? Mmiyezi khumi ndi iwiri yapitayi, pali yemwe anakuberani kapena kufuna kukuberani chinthu chilichonse?		
Yes	1	
No	2	**Go to (96)**
(95) If yes, did you tell/report it to anyone? Ngati inde, mudauza ndani?		**DO NOT READ ANSWERS**
Told another household member / family	1	**Go to (96)**
Reported to traditional authorities	2	
Reported to Church or Women's organization	3	
Reported to Police or government authorities	4	
Told Friends	5	
Reported to other *specify*	6	
I did not tell anyone nor report it	7	Go to next question
(96) If you did not tell anyone, what is the reason? Ngati simudauze aliyense, ndi chifukwa chiyani?		**DO NOT READ ANSWERS**
I want to protect the assaulter	1	
None will believe me / understand me	2	
It's useless to report	3	
Fear of the thief	4	
Other (specify)	5	
(97) Do you think that it is possible that someone will steal (or try to steal) your belongings? Mongoganizira, mukuona ngati munthu wina angadzakubeleni kapena kufuna kukuberani chinthu china chilichonse?		**Read answers**
Very possible Nzotheka kwambiri	1	
Possible/Likely Nzotheka	2	
Somehow Mwina	3	
Unlikely Sindikukhulupilira	4	
Impossible Zosatheka	5	
(98) In case it happens in the future, will you tell/report to anyone? Zitadzakuchitikirani, mudzauza ndani?		**DO NOT READ ANSWERS** **Multiple answers**
Tell another household member / family	1	**Go to (99)**
Report to traditional authorities	2	
Report to Church or Women's organization	3	
Report to Police or government authorities	4	
Tell Friends	5	
Report to other *specify*	6	
I don't know	7	
I will not tell anyone nor report it	8	Go to next question
(99) If you will not tell anyone, what is the reason? Ngati simungadzauza aliyense, ndi chifukwa chiyani?		**DON'T READ ANSWER**
I want to protect the assaulter	1	
None will believe me / understand me	2	
It's useless to report	3	
Fear of the thief	4	
Other (specify)	5	
(100) Are there any of these groups in your community? Kodi mdera lino muli magulu awa ?		**Read answers** **Multiple responses**

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Church/religious group Magulu aku tchalitchi	1			
Micro credit Magulu ongongole	2			
Women's group Magulu amayi	3			
Farmer's group Magulu azaulimi	4			
Other Ena	5			
I am not aware / there are no groups Sindikudziwa magulu aliwonse/ kulibe magulu	6			**Go to (103)**
(101) Are you part of any of these community groups? Ndinu membala wa gulu lina lilonse?				**Multiple responses**
Yes, Church/religious group	1			
Yes, Micro credit	2			
Yes, Women's group	3			
Yes, Farmer's group	4			
Yes, Other	5			
I am not part of any group	6			**Go to (102)**
(102) Have you ever held office in any of these groups? Munayamba mwakhala ndi udindo mu maguluwa?				
No	1			
Yes, Church/religious group, *position*	2			
Yes, Micro credit *position*	3			
Yes, Women's group *position*	4			
Yes, Farmer's group *position*	5			
Yes, Other *position*	6			
(103) Are there any of these groups in which you think you are **not** allowed to participate? Pali magulu ena omwe simuloledwa kulowa?				**Multiple responses**
Yes, Church/religious group	1			
Yes, Micro credit	2			
Yes, Women's group	3			
Yes, Farmer's group	4			
Yes, Other	5			
No, I can participate in any group if I want to	6			**Go to (104)**
(104) If yes, why do you think you are not allowed to participate? Ngati inde, mukuganiza kuti ndi chifukwa chiyani simuloledwa kulowa nawo?				**DO NOT READ ANSWERS**
Because I am a woman	1			
Because I am poor	2			
Because I am not good enough, I am not adequate	3			
Because of my appearance (cloths)	4			
Because of ethnic group	5			
Because of religion	6			
Because my husband doesn't let me	7			
Other reason (specify)	8			
(105) Do you think that being a **woman** prevents the chance of Mukuganiza kuti kukhala **munthu wa mkazi** kukhoza kukulepheretsani mwayi.....				**Repeat question**
	Yes	No	Not sure	
Access to health care Wopeza chithandizo cha zaumoyo	1	2	3	
Employment or business opportunities Wopeza ntchito kapena kuchita bizinezi	1	2	3	
Completing formal education up to form 4 Womaliza maphunziro mpaka Form 4	1	2	3	
Being heard by the local authorities Woti maganizo anu angathe kumveka kwa atsogoleri a mdera lanu	1	2	3	
Take part in community decisions Wotenga nawo mbali pa zochitika za m'mudzi	1	2	3	
(106) Do you think that being **poor** prevents the chance of Mukuganiza kuti kukhala **wosauka** kukhoza kukulepheretsani mwayi.....				**Repeat question**
	Yes	No	Not sure	

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Access to health care Wopeza chithandizo cha zaumoyo	1	2	3	
Employment or business opportunities Wopeza ntchito kapena kuchita bizinezi	1	2	3	
Completing formal education up to form 4 Womaliza maphunziro mpaka Form 4	1	2	3	
Being heard by the local authorities Woti maganizo anu angathe kumveka kwa atsogoleri a mdera lanu	1	2	3	
Take part in community decisions Wotenga nawo mbali pa zochitika za m'mudzi	1	2	3	
(107) To what extent do you feel that people in your community treat you with respect? Mumaona kuti anthu m'mudzi muno amakulemekezani motani?				**Read answers**
Entirely Amandilemekeza kwambiri	1			
A lot Amandilemekeza	2			
Somewhat Choncho	3			
A little Amandilemekeza pang'ono	4			
Not at all Samandilemekeza nkomwe	5			
(108) To what extent do you feel that people in your village admire you, appreciate you? Mumaona kuti anthu m'mudzi muno amakusilirani ndi kukuyamikirani motani?				**Read answers**
Entirely Amandisilira/kundi yamikira kwambiri	1			
A lot Amandisilira/kundiyamikira	2			
Somewhat Choncho	3			
A little Amandisilira/kundi yamikira pang'ono	4			
Not at all Samandisilira/kuyamikira nkomwe	5			
(109) To what extent do you feel that people in your village are jealous of you? Mumaona kuti anthu m'mudzi muno amachita nanu nsanje motani?				**Read answers**
Not at all Samachitanane nsanje nkomwe	1			
A little Amachitanane nsanje pang'ono	2			
Somewhat Pakatimpakati	3			
A lot Amachitanane nsaje	4			
Entirely Amachitanane nsaje kwambiri	5			
(110) To what extent do you feel that people in your village Gossip about you? Mumaona kuti anthu m'mudzi muno amakuchitani miseche/kukujedani				**Read answers**
Not at all Samandichita miseche/kundijeda nkomwe	1			
A little Amandichita miseche/kundijeda pang'ono	2			
Somewhat Pakatimpakati	3			
A lot Amandichita miseche/kundijeda	4			
Entirely Amandichita miseche/kundijeda kwambiri	5			
(111) In the last 12 months, did someone in your village ask for your assistance in terms of food or money? Miyezi khumu ndi iwiri yapitayi, pali yemwe anakupemphani chithandizo monga chakudya kapena ndalama mmudzi muno?				
Yes	1			
No	2			**Go to (112)**

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(112) If yes, did you manage to help him/her? Ngati inde, mudakwanitsa kumuthandiza?		
Yes I did	1	
No, I did not have money or food	2	
No, I did not want to help him/her	3	
No, other reason *(specify)*	4	
(113) In the last 12 months, have you asked for assistance from someone outside your household (in terms of food or money)? Miyezi khumu ndi iwiri yapitayi, pali yemwe mudampemphako chithandizo monga chakudya kapena ndalama mmudzi muno?		
Yes	1	
No, I had enough	2	**Go to (114)**
No, I felt ashamed to ask	3	
(114) If yes, did you receive the assistance you needed? Ngati inde, adakwanitsa kukuthandizani?		
Yes	1	
No, they did not have money or food	2	
No, they did not want to help me	3	
No, other reason *(specify)*	4	
E. Economic security	***Ndalama***	
(115) What do you do for your living ? Kodi mumagwira ntchito yanji/Ntchito yeniyeni yopezela ndalama?		**DO NOT READ ANSWER Multiple responses**
Farming	1 [ ]	
Business (trade)	2 [ ]	
Public sector (teacher, HSAs, agri ext, nurse)	3 [ ]	
Private sector (NGOs, CBOs, farm estate)	4 [ ]	
Artisan (Tailor, builder, mechanic)	5 [ ]	
Domestic work	6 [ ]	
Other	7 [ ]	
(116) During the past 6 months did you do any piece work (ganyu) ? Miyezi isanu ndi umodzi yapitayi (6), munagwirapo ganyu yamtundu wina uli onse kupatula ntchito yanu yeniyeni yomwe mumagwira?		**DO NOT READ ANSWER Multiple responses**
Piece work agriculture	1	
Piece work Business (trade)	2	
Piece work Public sector (teacher, HSAs, agri ext, nurse)	3	
Piece work Private sector (NGOs, CBOs, farm estate)	4	
Piece work Artisan (Tailor, builder, mechanic)	5	
Piece work Domestic work	6	
Piece work Other	7	
Nothing	8	
(117) Do you or your household own the following : Kodi banja lanu liri ndi:		**Read the items and circle the ones owned**
Bicycle Njinga	1	
Ox cart Ngolo	2	
Chickens/Poultry Nkhuku/ ziweto za mtundu wa mbalame	3	
Pigs Nkhumba	4	
Goats Mbuzi	5	
Oxen Mtheno	6	
Cows Ng'ombe	7	
Iron sheet roof house Nyumba ya denga la malata	8	
Thatched roof house Nyumba ya denga la udzu	9	
Radio Wayilesi	10	
Mobile phone Foni ya m'manja	11	
Mosquito nets Ukonde wa udzudzu (neti)	12	
(118) Do you have access to business opportunities? Kodi muli ndi mwayi wopanga bizinezi?		**DON'T READ ANSWERS Multiple responses**
Yes	1	
No, there are no credit options near by	2	
No, my husband doesn't let me	3	
No, fear of debts	4	
No, I don't have a collateral (start up capital)	5	
No, other *specify*	6	

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(119) Imagine if you want to set up a business in the future. What would you do in order to get money? Tiyelekeze kuti mukufuna kuyamba bizinesi mtsogolo muno, mungatani kuti mupeze ndalama?		**DON'T READ ANSWERS Multiple responses**
I will ask my spouse	1	
I will ask Friends	2	
I will ask Micro credit	3	
I will ask Family	4	
I will ask In-laws	5	
I will ask Community	6	
I will ask Women's group	7	
I will ask Religious organization	8	
I will sell some asset (e.g. goats, surplus harvest)	9	
I will do a piece of work (ganyu)	10	
I will do nothing / I don't know	11	
I will work harder in the garden	12	
Other *(specify)*	13	
(120) Do you have access to a piece of farm land? Muli ndi malo olima?		**Multiple responses**
Yes, owned	1	
Yes, rented or borrowed	2	
Yes, but it's rented out	3	
Yes, a communal garden	4	
No, I am a visitor in the village	5	
No, I do not need one	6	
No, it has been taken away	7	
Other *specify*	8	
(121) If yes, have you ever felt threatened with eviction from this land? Ngati inde, munayamba mwakhalapo ndi nkhawa zoti mwina angakulandeni malowo?		**Read answers**
Yes, often Inde, kawirikawiri	1	
Yes, sometimes Inde, nthawi zina	2	
Yes, once Inde, kamodzi	3	
No, never	4	**Go to (122)**
(122) If yes, why? Ngati inde, ndi chifukwa chiyani?		
Husband / in laws / family	1	
Chief	2	
No money to pay rent	3	
Other reason *(specify)*	4	
(123) Imagine a crisis such as your crops fail, how confident are you that you can feed your family for 4 weeks? Tiyelekeze nthawi yamavuto monga kukolola zinthu zochepa, muli ndi chikhulupiliro chotani choti mukhoza kudyetsa banja lanu kwa mwezi wathunthu?		**Read answers**
Very confident Ndili ndi chikhulupiliro chonse	1	
Quite confident Ndili ndi chikhulupiliro	2	
Somewhat Pakatimpakati	3	
Not very Ndili ndi chikhulupiliro chochepa	4	
Not confident at all Ndilibiletu chikhupiliro	5	
(124) What would you immediately do to cope with this crisis? Mungatani kuti muthane ndi vutoli mwamsanagamsanga?		**DO NOT READ ANSWERS Multiple responses**
I will ask Friends	1	
I will ask Micro credit	2	
I will ask Family	3	
I will ask In-laws	4	
I will ask Community groups	5	
I will ask government or NGOs	6	
I have enough money to cope, no need for help	7	
I would sell some asset (e.g. goats)	8	
I will do a piece of work (ganyu)	9	

I will do nothing , I will be ashamed	10	
I will do nothing	11	
Other *specify*	12	
F. Satisfaction and Happiness I would like to ask you a final GENERAL question about your life. Kukhutitsidwa, Chisangalalo		
(125) Taking all things together in your life, how satisfied are you with your life? Tikaonetsetsa zonse zokhudzana ndi moyo wanu, ndinu wokhutitsidwa bwanji ?		**Read answers**
Completely satisfied Ndinu wokhutitsidwa kwambiri	1	
Satisfied Ndinu wokhutitsidwa	2	
Somewhat Choncho	3	
Unsatisfied Ndinu wosakhutitsidwa	4	
Not satisfied at all / very unsatisfied Simuli wokhutitsidwa konse	5	
(126) Taking all things together in your life, would you say you are Tikaonetsetsa zonse zokhudzana ndi moyo wanu, mungati.....		**Read answers**
Very happy Ndinu wosangalala kwambiri	1	
Fairly happy Ndinu wosangalala	2	
Not very happy Simuli wosangalala kwambiri	3	
Not at all happy Simuli wosangalala konse	4	
G. RANKING		
(127) Can you order from the most important to the least important of the dimensions of quality of life that we have discussed today? Mungandiuze chofunikira kwambiri pa za umoyo wabwino monga momwe takambirana lerozi, kuyambira ndi chofunikira kwambiri kumalizira ndi chofunikira pang'ono?		Read dimensions. Write ranking numbers. More than one dimensions in the same rank is allowed.
Mphamvu, wa thanzi	[ ]	
Mtendere Wamumtima	[ ]	
Mtendere M'banja	[ ]	
Mgwirizano Wam'mudzi	[ ]	
Kapezedwe ka ndalama /chuma	[ ]	
Chisangalalo	[ ]	
H. THE END: ZIKOMO! Thank you very much for your time, in answering these questions, you are helping to develop research on Quality of Life.		
(128) Is there any question/s that you found difficult to answer? Kodi pali funso/ mafunso omwe mwaona kuti ndiovuta kuyankha?		
No	1	
Yes, number	[ ][ ][ ]	
(129) Do you have any comments? Muli ndi ndemanga ina iliyonse?		
(130) Have you ever participated in a MaiMwana Women's Group meeting? Kodi mudakhalapo pa misonkhano ya gulu la amayi a MaiMwana?		
Yes	1	
No	2	
(131) If yes, how many times in the last 12 months? Ngati inde, kokwana kangati?		**WRITE NUMBER**
Number	[ ]	
Time end of the interview (24hrs):		

Appendix F: Consent form survey (English)

Consent form: one-to-one interview (English)

My name is _____. I am a student from UK and I want to ask for your consent to take part in some research. MaiMwana Project is trying to improve the health of mothers and babies in Mchinji District. We are working with some communities by forming women's groups where mothers discuss the problems they have during pregnancy, delivery and after birth. This research has been approved by the National Health Sciences Research Committee of Malawi.

We want to learn from you and we want to see whether what MaiMwana is doing is making a real difference in your wellbeing. We want to know if MaiMwana is reducing poverty in the villages, and if the quality of life of the people has increased. Results from this research will be shared with communities and district partners in Mchinji as well as with the government of Malawi and we hope that other communities and countries can learn from us.

I am here to collect some information and I would like to ask you some short questions about yourself. I will record your answers on my form and it will be kept safe at the office. Nobody will have access to your answers. If there are any questions you do not want to answer, you do not have to answer them. There are no wrong answers to the questions. If you do not understand a question, please ask me to explain it again.

Everything you tell me today will be between us and will only be used for study purposes. Your participation is voluntary. You may choose not to participate, or withdraw you consent for any reason at anytime , without any problem. If you do not wish to take part, this will not affect your right to take part in other MaiMwana activities now or in the future. The advantages of taking part are that you will assist the project in understanding how to improve the wellbeing of mothers and babies.

I will answer any questions you may have about the study but should you have any further questions or points of clarification you should call Mrs Giulia Greco at the MaiMwana office on … . If you have any questions or concerns about your rights in taking part in this research study, you may contact the vice chairperson of the National Health sciences Research Committee who reviewed and approved this study.

Now I will ask your consent for to participate in the interview: *Please indicate whether you agree or not and then put your signature or thumbprint in the space below*

I confirm that I have read the above information for the study on wellbeing dated June 2009. I have understood the content of this said information sheet and I have had the opportunity to ask questions	Yes ☐ No ☐
I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason	Yes ☐ No ☐
I consent to this interaction to being recorded and that written notes of my comments may also be recorded	Yes ☐ No ☐
I understand that all information will be kept anonymous and confidential by the researcher.	Yes ☐ No ☐
I agree to quotes or other results arising from my participation in the study being included, even anonymously in any reports about the study	Yes ☐ No ☐
I agree to take part in this study	Yes ☐ No ☐

Respondent's name	Signature (or thumb print)	Date
Researcher's name	Signature	Date

Appendix G: Consent form survey (Chichewa)

Consent form: one-to-one interview (ChiChewa)

Dzina langa ndine _____. Ndimagwira ntchito ku bungwe la MaiMwana. Ndipo ndikupempha chilolezo kwa inu ngati mungatengepo mbali mu kafukufuku. Bugweli la MaiMwana likuyesetsa kupititsa patsogolo umoyo wa amai ndi ana m'boma lino la Mchinji. Timagwira ntchito ndi anthu a m'midzi m'madera ena popanga magulu omwe amakambirana amai, momwe amakambirana za mabvuto omwe amakumana nawo panthawi yomwe ali woyembekezera, pochira komanso atachila kumene. Kafukufukuyu ndi obvomerezeka ndi likulu la kafukufuku ndziko muno.

Tikufuna tiphunzire kuchokera kwa inu, ndi kuona ngati zomwe MaiMwana ikuchita zingabweretse kusiyana pamoyo wanu. Tikuchita izi kuti tiwone ngati bungwe la MaiMwana likuthandizapo kuchepetsa umphawi mmidzi komanso kuona ngati umoyo wa anthu mmidzi imeneyi wapita patsogolo. Zotsatira za kafukufukuyu tidzakambirana ndi anthu akumidzi ndi mabungwe omwe timagwira nawo ntchito kuno ku Mchinji komanso boma la Malawi. Tili ndi chikhulupiliro kuti ma boma ndi maiko ena adzaphunzira kuchokera kwa ife.

Ndikufunsani mafunso pang'ono okhudzana ndi zaumoyo wanu. Ndizilemba mayankho papepala ndipo zidzasungidwa bwino ku ofesi kwathu. Palibe amene adzadziwe zotsatirazo. Ngati pali mafunso ena amene simukufuna kuyankha simukuumirizidwa kutero. Palibe mayankho olakwika kumafunsowa. Ngati simunamvetsetse funso, ndiuzeni kuti ndikufotokozereni bwino.

Zonse zimene tikambirane pano ziri pakati inu ndi ine ndipo zidzagwiritsidwa ntchito pa kafukufuku. Kuengapo mbali pa kafukufukuyu ndikongozipereka ndipo ngati simukufuna kutengapo mbali, simuli okakamizidwa, komanso muli ndi ufulu kusiya kutengapo mbali nthawi yina ili yonse ndipo sipadzakhala vuto, ngakhale kuti tinayamba kale. Kusiatenga nawo mbali kwanu pa kafukufuku ameneyu sikuzalepheretsa kutenga nawo mbali mu zinthu zina zomwe MaiMwana ikuchita tsopano kapena m'tsogolomuno.

Ubwino wakutenganawo mbali kwanu, kuthandiza bungweli kuti limvetse bwino m'mene lingapititsire mtsogolo ntchito zaumoyo ndikuchepetsa imfa za amai ndi ana.
Ndiri okonzeka kuyankha mafunso aliwonse mungakhale nawo okhudza kafukufukuyu. Ngati muli ndi mafunso ena kapena ngati simunamvetse bwino malo ena, mutha kuyimbira foni Mai Giulia Greco (0999086770)

Ngati muli ndi mafunso kapena madandaulo okhudzana ndi ufulu wanu ngati otenga mbali mu kafukufuku, mutha kuyimbira foni wachiwiri kwa wa pampando wa bungwe lomwe lidabvomereza litaunika kafukufukuyu (National Health Sciences Research Committee).

Ndawerenga ndi kumvetsetsa zomwe zalembedwazi zokhuza kafukufuku uyu wa mwezi wa June 2009 ndipo ndinali ndi mwayi wofunsa mafunso.	Yes ☐ No ☐
Ndamvesetsa ndi kudziwa kuti kutengapo mbali pa kafukufukuyu sikokakamizidwa ndipo ndili ndi ufulu wosiya kutengapo mbali nthawi ina iliyonse popanda kupereka chifukwa china chilichonse.	Yes ☐ No ☐
Ndikuvomereza kuti zokambirana zathu zilizonse zitha kujambulidwa komanso kulembedwa	Yes ☐ No ☐
Ndamvetsa kuti zokambirana zathu zonse zizasungidwa bwino komanso mwachinsisi.	Yes ☐ No ☐
Ndagwirizana nazo zoti tikambirane komanso kujambulidwa ngati zinthu izi zizasungidwa mwachinsisi.	Yes ☐ No ☐
Ndavomera kutengapo mbali mukafukufukuyu.	Yes ☐ No ☐

Respondent's name	Signature (or thumb print)	Date
Researcher's name	Signature	Date

Appendix H: Consent form FGD (English)

Consent form: focus group discussion (English)

Dear Participants, welcome! First of all, many thanks for coming here. My name is _____. I am assisting Giulia Greco, a student from a University in London who is doing research in Mchinji. I want to ask for your consent to take part in her research. This research has been approved by the National Health Sciences Research Committee of Malawi.

I am here to collect some preliminary information on the meaning of quality of life. I would like to ask what are those things (beings and doings) that are important and valuable for you, in your life. Then, I would like all of you to draw a list together, and agree on the ranking of these things (doings and beings). I will explain more in details and will guide you in this exercise. A researcher will record your interactions and your dialogues. All the information will be kept safe at the office. Nobody will have access to it. If there is anything you do not want to say, you do not have to say it. There are no wrong or right things to say. If you do not understand a question, please ask me to explain it again, and we will help you.

Everything you tell us today will be between us and will only be used for study purposes. Your participation is voluntary. You may choose not to participate, or withdraw you consent for any reason at anytime , without any problem. If you do not wish to take part, this will not affect your right to take part in other activities now or in the future. The advantages of taking part are that you will assist the project in understanding how to improve the wellbeing of mothers and babies. Results from this research will be shared with communities and district partners in Mchinji as well as with the government of Malawi and we hope that other communities and countries can learn from us.

I will answer any questions you may have about the study but should you have any further questions or points of clarification you should call Mrs Julia Greco at the MaiMwana office on 0999 086 770. If you have any questions or concerns about your rights in taking part in this research study, you may contact the vice chairperson of the National Health sciences Research Committee who reviewed and approved this study, Professor Elizabeth Molyneux on 08844517.

Now I will ask your consent for to participate in the discussion: *Please indicate whether you agree or not and then put your signature or thumbprint in the space below*

I confirm that I have read the above information for the study on wellbeing dated October 2009. I have understood the content of this said information sheet and I have had the opportunity to ask questions	Yes ☐ No ☐
I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason	Yes ☐ No ☐
I consent to this interaction to being recorded and that written notes of my comments may also be recorded	Yes ☐ No ☐
I understand that all information will be kept anonymous and confidential by the researcher.	Yes ☐ No ☐
I agree to photographs being used in this study as long as the identity remains anonymous	Yes ☐ No ☐
I agree to quotes or other results arising from my participation in the study being included, even anonymously in any reports about the study	Yes ☐ No ☐
I agree to take part in this study	Yes ☐ No ☐

Respondent's name	Signature (or thumb print)	Date
Researcher's name	Signature	Date

Appendix I: Consent form FGD (Chichewa)

Consent form: focus group discussion (ChiChewa)

Zikomo nonse mwabwera choyamba ndikulandireni komanso kukuthokozani chifukwa chakubwera kwanu.
Dzina langa ndine _____. Ndimagwira ntchito ku bungwe la MaiMwana. Ndipo ndikupempha chilolezo kwa inu ngati mungatengepo mbali mu kafukufuku. Kafukufukuyu ndi obvomerezeka ndi likulu la kafukufuku ndziko muno.

Tikufuna tiphunzire kuchokera kwa inu, ndi kuona ngati zomwe MaiMwana ikuchita zingabweretse kusiyana pa umoyo wanu. Tikuchita izi kuti tiwone ngati bungwe la Maimwana likuthandiza kuchepetsa umphawi pa moyo wanu. Ndizakufunsani mafunso pang'ono okhudzana ndi umoyo wanu.
Ndikufunsani zokhuzana ndi zinthu zomwe zili zofunikira komanso mumachita pamoyo wanu. Ndizafuna nonse mwa inu kulemba ndandanda wa zinthu zomwe mumachitazo kuyambira zomwe zili zofunikira kwambiri. Alangizi azakufotokozerani mwatsatanetsatane ndikuunikira mmene mungachitire. Kukambirana kwanuku kuzajambiridwa ndi wakafukufuku. Zokambirana zonse zikhala pakati pa inu ndi ine ndipo palibe wina adzadziwe zotsatirazo komanso zizasungidwa bwino ku ofesi kwathu. Ngati pali mafunso ena amene simukufuna kuyankha simukuumirizidwe kutero. Palibe mayankho olakwika kumafunsowa. Ngati simunamvetsetse funso, ndiuzeni kuti ndikufotokozereni bwino.

Monga ndanena kale, zonse zimene tikambirane pano ziri pakati pa inu ndi ine. Ndipo zidzagwiritsidwa ntchito pa kafukufuku. Ngati simukufuna kutengapo mbali, simuli okakamizidwa, komanso muli ndi ufulu kusiya kukambiranaku (interviyu) nthawi yina iliyonse, ngakhale kuti tinayamba kale. Kusiya kwanu kutengapo mbali pakafukufukuyu sikungalepheretse kuti musatenge mbali mu zina zomwe bungwe la Maimwana likuchita panthawi ino ngakhalenso mtsogolomu. Ubwino wakutenganawo mbali kwanu, kuthandiza bungweli kuti limvetse bwino m'mene lingapititsire mtsogolo ntchito zaumoyo ndikuchepetsa imfa za amai ndi ana.
Ndiri okonzeka kuyankha mafunso aliwonse mungakhale nawo okhudza kafukufukuyu. Ngati muli ndi mafunso ena kapena ngati simunamvetse bwino malo ena, mutha kuyimbira foni Mai Giulia Greco (0999277303).

Ngati muli ndi mafunso kapena madandaulo okhudzana ndi ufulu wanu ngati otenga mbali mu kafukufuku, mutha kuyimbira foni wachiwiri kwa wa pampando wa bungwe lomwe lidabvomereza litaunika kafukufukuyu (National Health Sciences Research Committee) Professor Elizabeth Molyneux pa 0888844517.

Ndikupempha chilolezo popanga interviyu:

Ndawerenga ndi kumvetsetsa zomwe zalembedwazi zokhuza kafukufuku uyu wa mwezi wa June 2009 ndipo ndinali ndi mwayi wofunsa mafunso.	Yes ☐ No ☐
Ndamvesetsa ndi kudziwa kuti kutengapo mbali pa kafukufukuyu sikokakamizidwa ndipo ndili ndi ufulu wosiya kutengapo mbali nthawi ina iliyonse popanda kupereka chifukwa china chilichonse.	Yes ☐ No ☐
Ndikuvomereza kuti zokambirana zathu zilizonse zitha kujambulidwa komanso kulembedwa	Yes ☐ No ☐
Ndamvetsa kuti zokambirana zathu zonse zizasungidwa bwino komanso mwachinsisi.	Yes ☐ No ☐
I agree to photographs being used in this study as long as the identity remains anonymous	Yes ☐ No ☐
I agree to quotes or other results arising from my participation in the study being included, even anonymously in any reports about the study	Yes ☐ No ☐
Ndagwirizana nazo zoti tikambirane komanso kujambulidwa ngati zinthu izi zizasungidwa mwachinsisi.	Yes ☐ No ☐
Ndavomera kutengapo mbali mukafukufukuyu.	Yes ☐ No ☐

Respondent's name	Signature (or thumb print)	Date
Researcher's name	Signature	Date

Appendix J: MaiMwana Project Action Cycle

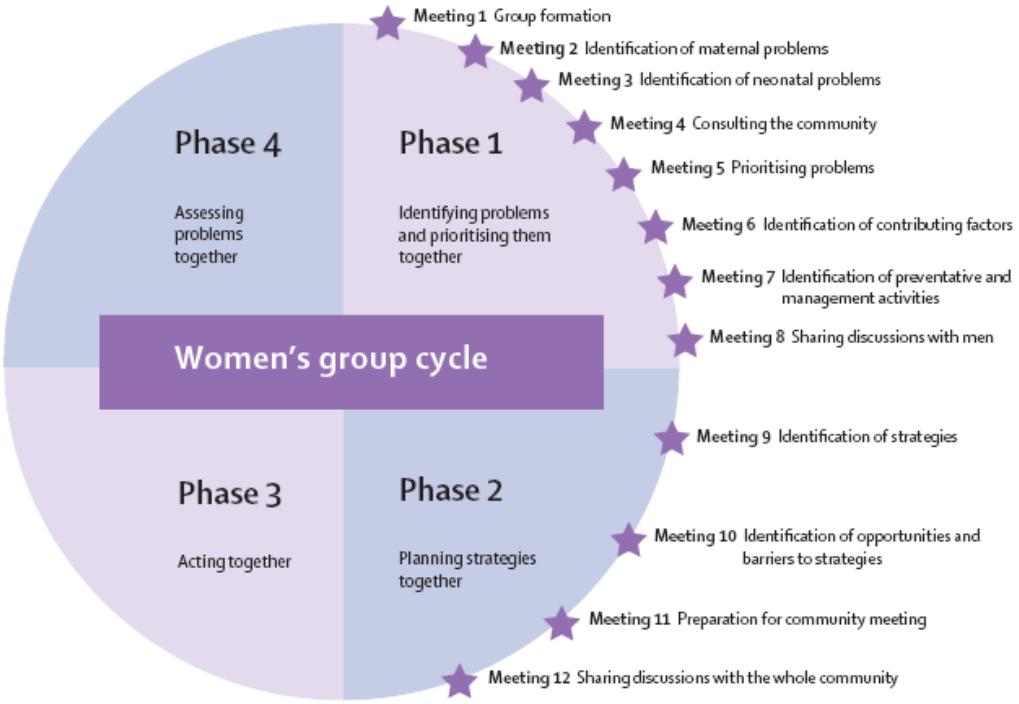

Figure J.1 The action cycle of the women's group community. *Source*: Rosato (2006)

Appendix K: PCA results for data-driven index

Table K.1 PCA for the data-driven index

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	8.26834	3.19664	0.0827	0.0827
Comp2	5.0717	1.37329	0.0507	0.1334
Comp3	3.69841	0.340325	0.037	0.1704
Comp4	3.35808	0.286159	0.0336	0.204
Comp5	3.07193	0.157743	0.0307	0.2347
Comp6	2.91418	0.220427	0.0291	0.2638
Comp7	2.69376	0.189089	0.0269	0.2908
Comp8	2.50467	0.081376	0.025	0.3158
Comp9	2.42329	0.154932	0.0242	0.34
Comp10	2.26836	0.127998	0.0227	0.3627

Table K.2 Scores for components 1 and 2

Dimensions	Sub-dimension	Variable	Scores for component 1	Scores for component 2
PHYSICAL STRENGTH	being able to do physical work	Physical health	0.0863	0.1296
		Energy	0.068	0.2612
	having enough food	Veggie eaten	0.0393	0.2781
		Fruit eaten	0.1301	-0.1535
		Pulses eaten	0.097	-0.1202
		Eggs eaten	0.1403	-0.0687
		Fish/meat eaten	0.1284	-0.0568
		Starch eaten	0.1105	-0.1732
		Nuts/soya eaten	0.0888	0.1466
	being able to avoid diseases	Body care and hygiene	0.1423	-0.0576
		HIV aware	0.0196	0.0764
		HIV able to protect	0.0702	0.0437
		Mosquito net	0.1489	-0.087
	being able to space births	FP available	-0.0266	0.079
		FP practice	0.0768	-0.1071
INNER WELLBEING	control over personal matters	control over daily activities	0.0544	0.2819
		Permission to go to funeral	-0.0542	0.1485
		Permission to go to clinic	-0.0776	0.0645
	peace of mind	Emotional worries	0.0767	0.0941
		Sleep lost	0.0557	0.0874
		Relax time	0.0667	0.0446
	free from oppression	Freedom expression	0.1335	0.2196
		Oppression	0.1345	0.1522
	living without	Shame	0.1573	0.123

	shame			
	Knowledge	Read	0.1305	-0.0162
		Write	0.1332	-0.0152
HOUSEHOLD WELLBEING	free from domestic violence	Domestic violence	0.1085	-0.0228
		Domestic violence future	0.0365	0.0292
	control over money	Access HH money	-0.0206	0.0654
		Control min HH exp	-0.0254	-0.0485
		Control max HH exp	-0.0449	0.0324
	living in a decent house	toilet	0.1518	0.0309
		water	-0.0008	0.0925
		house tenure	0.0727	0.0309
		House fear forced to move	0.0564	0.0797
		House adequate	0.146	-0.0939
		House adequate in 6 months	0.164	-0.1038
	Children education	children education	0.1116	0.0387
	family care	Care HH	0.1927	-0.0745
COMMUNITY RELATIONS	access services	Reach health centre	0.0884	-0.1888
		Reach U5 clinic	0.014	-0.0114
		Reach school	0.0293	0.0026
		Reach market	0.0876	-0.1597
		Reach water	-0.0034	0.0997
		Reach church	0.0387	0.0076
	feeling safe and comfortable in the village	Witchcraft scared	0.0123	-0.0853
		Thought move village	0.0097	0.016
		Safe walk dark	0.0665	0.0893
		Violence	0.0585	0.0142
		Violence future	0.0739	-0.1053
		Theft	0.0177	-0.0258
		Theft future	0.0457	-0.1143
	being able to join community groups	Group church	0.0202	0.0959
		Group microcredit	0.0768	0.1045
		Group women	-0.0092	-0.0108
		Group farmer	-0.0049	0.1114
		Group other	0.0828	-0.0976
		Group church	0.0523	-0.021
		Group microcredit	0.0403	0.0343
		Group women	0.0045	-0.0207
		Group farmer	0.0124	0.0381
		Group other	0.0635	-0.0902
		Group church role	0.0946	0.0296
		Group microcredit role	0.0169	0.0376
		Group women role	0.0694	-0.0344
		Group farmer role	0.0072	0.0165
		Group other role	0.0577	-0.042

	social exclusion and discrimination	Group church not allowed	0.056	0.0161
		Group microcredit not allowed	0.037	-0.032
		Group women not allowed	0.0636	-0.0168
		Discrimination women health	0.0068	0.0926
		Discrimination women business	0.1201	-0.0747
		Discrimination women education	0.1066	-0.2072
		Discrimination women authority	0.0478	-0.0831
		Discrimination women community	0.0074	-0.0035
		Discrimination poor health	0.0696	0.006
		Discrimination poor business	0.0761	-0.2422
		Discrimination poor education	0.0509	-0.2494
		Discrimination poor authority	0.0662	-0.0961
		Discrimination poor community	0.0386	0.048
	being respected	respect	0.1776	0.0233
		admire	0.1888	-0.0215
ECONOMIC SECURITY	safety net	Help asked you	0.1516	0.0044
		Help you asked	0.1054	-0.0636
	land	land ownership	0.0446	0.024
		Land fear eviction	0.1156	0.0449
	Asset	Bike	0.173	-0.0018
		Oxcart	0.0928	0.0755
		Ox	0.0907	0.0832
		Chicken	0.152	0.0694
		Pig	0.089	0.0191
		Goat	0.1294	-0.0016
		Cow	0.087	0.061
		Radio	0.1614	0.0465
		Mobile	0.1436	0.0103
		Bed net	0.1813	0.0252
	Business opportunities	Access business	0.174	0.0356
	Copying with shock	Crisis confident	0.2418	0.0213
HAPPINESS	Satisfaction	satisfied	0.1757	0.1518
	Happiness	happy	0.1903	0.1188

Appendix L: WHOQOL-Bref (English)

The WHOQoL-BREF

ABOUT YOU I.D. number ☐☐☐☐

Before you begin we would like to ask you to answer a few general questions about yourself: by circling the correct answer or by filling in the space provided.

What is your **gender**? Male Female

What is your **date of birth**? _____ / _____ / _____
Day / Month / Year

What is the highest **education** you received?
None at all
Primary school
Secondary school
Tertiary

What is your **marital status**?
Single Separated
Married Divorced
Living as married Widowed

Are you currently **ill**? Yes No

If something is wrong with your health what do you think it is?_____

Instructions

This assessment asks how you feel about your quality of life, health, or other areas of your life. **Please answer all the questions.** If you are unsure about which response to give to a question, **please choose the one** that appears most appropriate. This can often be your first response.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life **in the last two weeks.** For example, thinking about the last two weeks, a question might ask:

		Not at all	Not much	Moderately	A great deal	Completely
	Do you get the kind of support from others that you need?	1	2	3	4	5

You should circle the number that best fits how much support you got from others over the last two weeks. So you would circle the number 4 if you got a great deal of support from others as follows.

		Not at all	Not much	Moderately	A great deal	Completely
	Do you get the kind of support from others that you need?	1	2	3	4	5

You would circle number 1 if you did not get any of the support that you needed from others in the last two weeks. Please read each question, assess your feelings, and circle the number on the scale for each question that gives the best answer for you.

THE WHOQOL-BREF

		Very poor	Poor	Neither poor nor good	Good	Very good
1 (G1)	How would you rate your quality of life?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2 (G4)	How satisfied are you with your health?	1	2	3	4	5

The following questions ask about **how much** you have experienced certain things in the last two weeks.

		Not at all	A little	A moderate amount	Very much	An extreme amount
3 (F1.4)	To what extent do you feel that (physical) pain prevents you from doing what you need to do?	1	2	3	4	5
4 (F11.3)	How much do you need any medical treatment to function in your daily	1	2	3	4	5

	life?					
5 (F4.1)	How much do you enjoy life?	1	2	3	4	5
6 (F24.2)	To what extent do you feel your life to be meaningful?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	Extremely
7 (F5.3)	How well are you able to concentrate?	1	2	3	4	5
8 (F16.1)	How safe do you feel in your daily life?	1	2	3	4	5
9 (F22.1)	How healthy is your physical environment?	1	2	3	4	5

The following questions ask about **how completely** you experience or were able to do certain things in the last two weeks.

		Not at all	A little	Moderately	Mostly	Completely
10 (F2.1)	Do you have enough energy for everyday life?	1	2	3	4	5
11 (F7.1)	Are you able to accept your bodily appearance?	1	2	3	4	5
12 (F18.1)	Have you enough money to meet your needs?	1	2	3	4	5
13 (F20.1)	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14 (F21.1)	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

		Very poor	Poor	Neither poor nor good	Good	Very good
15 (F9.1)	How well are you able to get around?	1	2	3	4	5

The following questions ask you to say how **good or satisfied** you have felt about various aspects of your life over the last two weeks.

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16 (F3.3)	How satisfied are you with your sleep?	1	2	3	4	5
17 (F10.3)	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18 (F12.4)	How satisfied are you with your capacity for work?	1	2	3	4	5
19 (F6.3)	How satisfied are you with yourself?	1	2	3	4	5
20 (F13.3)	How satisfied are you with your personal relationships?	1	2	3	4	5
21 (F15.3)	How satisfied are you with your sex life?	1	2	3	4	5
22 (F14.4)	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23 (F17.3)	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24 (F19.3)	How satisfied are you with your access to health services?	1	2	3	4	5
25 (F23.3)	How satisfied are you with your transport?	1	2	3	4	5

The following question refers to **how often** you have felt or experienced certain things in the last two weeks.

		Never	Seldom	Quite often	Very often	Always
26 (F8.1)	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	1	2	3	4	5

Did someone help you to fill out this form?.....

How long did it take to fill this form out?.....

Do you have any comments about the assessment?

.....

.....

.....

.....

THANK YOU FOR YOUR HELP

Appendix M: WHOQOL-Bref (Chichewa)

The WHOQoL-BREF I.D. number ☐☐☐☐

Tikudziweni

Musanayambe, tikadakonda mutayankha mafunso pang'ono okhudzana ndi inu: pozunguliza yankho lolondola kapena polemba yankholo m'mizere yotsatilayi.

Kodi ndinu amuna kapena akazi? Amuna Akazi

Kodi tsiku lanu lakubadwa ndiliti? _____/_____/_____
Tsiku Mwezi Chaka

Kodi munafika pati ndi maphunziro anu?
- sindinapitepo ku sukulu
- pulayimale sukulu
- sekondale sukulu
- maphunziro opitilira sekondale sukulu

Kodi muli pabanja?
- sindinakwatirepo
- okwatira
- timakhala limodzi koma tilibe setifiketi ya kutchalitchi kapena kwa DC
- tinasiyana koma banja silinathe
- banja linatha
- namfedwa

Kodi panopa mukudwala?
- eya
- ayi

Ngati muli ndi vuto la umoyo mukuganiza kuti ndichani?
_____

Malangizo
Mafunso otsatilawa akufuna kudziwa za zomwe mukumvera zokhudzana ndi kupambana kwa moyo wanu, umoyo kapena zinthu zina zokhudza moyo wanu. **Chonde yankhani mafunso** onse. Ngati mukukayikira yankho limene mukufuna mupereke, chonde sankhani lomwe likuwoneka ngati lokhonza. Nthawi zambiri yankholi limakhala lomwe munaliganizila poyamba.

Chonde kumbukirani mulingo omwe mumadziyika, ziyembekezo zanu, zomwe zimakusanagalatsani, ndi nkhawa zanu. Tikufunsani kuti muganizire za moyo wanu **m'sabata ziwiri zapitazi**. Mwachitsanzo, poganizira masabata awiri apitawa, mukhonza kufunsidwa:

	Kodi mumalandira chinthandizo choyenera chimene mumafuna kuchokera kwa anthu ena?	Ayi 1	Pang'ono 2	Pakatikati 3	Kwambiri 4	Chonse 5

Muzungulize nambala yomwe ikulongosola bwino kuchuluka kwa chithandizo chomwe munalandira kuchokera kwa anthu ena m'sabata ziwiri zapitazi. Choncho munakazungi nambala 4 ngati munalandira chithandizo kwambiri kuchokera kwa anzanu ena motere.

	Kodi mumalandira chinthandizo choyenerera chimene mumafuna kuchokera kwa anthu ena?	Ayi 1	Pang'ono 2	Pakatikati 3	Kwambiri 4	Chonse 5

Munakazunguliza nambala 1 ngati simunalandire chithandizo chilichonse chomwe munafuna kuchokera kwa anthu ena m'sabata ziwiri zapitazi. Chonde werengani funso lililonse, ganizilani za malingaliro anu ndipo zungulizani namabala pa mulingo omwe yankho lolondola kwa inuyo layikidwa pa funso lililonse.

THE WHOQOL-BREF

		Sulibwino kwambiri	Sulibwino	Uli pakatikati	Ulibwino	Ulibwino kwambiri
1 (G1)	Mukaziona, moyo wanu ndiwapambana bwanji?	1	2	3	4	5

		Osakhutitsidwa kwambiri	Osakhutitsidwa	Pakatikati	Okhutitsidwa	Okhutitsdwa kwambiri
2 (G4)	Kodi ndinu okhutira bwanji ndi umoyo wanu?	1	2	3	4	5

Mafunso otsatilawa akufunsa za mulingo wa zina zomwe mwakumana nazo m'sabata ziwiri zapitazi.

		Palibe/ayi	Pang'ono	Pakatikati	Kwambiri	Kwambiri zedi
3 (F1.4)	Mukuona ngati kuwawa kwa mthupi kwanu kwakulepheretsani bwanji kuchita zomwe mumafuna kuchita?	1	2	3	4	5
4 (11.3)	Kodi mumafuna chithandizo cha chipatala chochuluka bwanji kuti muchite zofunika kuchita tsiku ndi tsiku?	1	2	3	4	5
5 (F4.1)	Kodi mumasangalala kwambiri bwanji ndi moyo?	1	2	3	4	5
6 (F24.2)	Kodi mukuganiza kuti moyo wanu ndi watanthauzo motani?	1	2	3	4	5

		Ayi/Palibe	Pang'ono	Pakatikati	Kwambiri	Kwambiri zedi
7 (F5.3)	M'makhala ndi chidwi (chomvetsera) choyenera bwanji pakuchita zinthu?	1	2	3	4	5
8 (F16.1)	Kodi mumaona kuti ndinu otetezedwa bwanji pa moyo wanu wa tsiku ndi tsiku?	1	2	3	4	5

		Ayi/Palibe	Pang'ono	Pakatikati	Kwambiri	Kwambiri zedi
9 (F22.1)	Kodi malo amene mumapezeka kapena kukhala kawirikawiri ndi abwino bwanji ku umoyo wanu?	1	2	3	4	5

Mafunso otsatilawa akufuna kudziwa kuti mwakwanitsa bwanji komanso munatha bwanji kuchita zina ndi zina m'sabata ziwiri zapitazi.

		Tilibe/Ayi	Pang'ono	Pakatikati	Kwambiri	Kwambiri zedi
10 (F2.1)	Kodi muli ndi mphamvu zokwanira zochitila zinthu tsiku ndi tsiku?	1	2	3	4	5
11 (F7.1)	Kodi mutha kuvomereza m'mene maonekedwe anu alili?	1	2	3	4	5
12 F(18.1)	Kodi mumakhala ndi ndalama zokwanira kuti mukwanitse zofunikira?	1	2	3	4	5
13 (F20.1)	Kodi muli ndi mwayi otani wotha kupeza zinthu zokuphunzitsani zimene mumafuna pa moyo wanu	1	2	3	4	5
14 (F21.1)	Kodi muli ndi mwayi wotani wochita zinthu za nsangulutso?	1	2	3	4	5
27	Kodi mumakhala ndi chakudya chokwanira kudyetsa banaja lanu?	1	2	3	4	5

		Ndikovuta kwambiri	ndikovuta	pakatikati	Ndikophweka	Ndikophweka kwambiri
15 (F9.1)	Kodi ndikophweka bwanji kwa inuyo kutha kuyendayenda?	1	2	3	4	5

Mafunso otsatiliwa akufuna kudziwa m'mene mwamvera ubwino kapena m'mene mwakhutitsidwira ndizochitika zosiyanasiyana za moyo wanu m'sabata ziwiri zapitazi

		Osakhutitsi -dwa kwambiri	Osakhutit -sidwa	Pakatikati	Okhutitsidwa	Okhutitsidwa kwambiri
16 (F3.3)	Kodi ndinu okhutitsidwa bwanji ndi tulo timene mumapeza mukagona?	1	2	3	4	5
17 F(10.3)	Ndinu okhutitsidwa bwanji ndi m'mene mungakwanilitsire kugwira ntchito zanu za tsiku ndi tsiku?	1	2	3	4	5
18 (F12.4)	Kodi mumakhutitsidwa bwanji ndi m'mene mumangakwanilitsire kugwira ntchito?	1	2	3	4	5
19 (F6.3)	Kodi ndinu okhutitsidwa bwanji ndinu mwini?	1	2	3	4	5
20 (F13.3)	Ndinu okhutitsidwa bwanji ndi m'mene ubale wanu ulili ndi anthu ena?	1	2	3	4	5

		Osakhutitsi-dwa kwambiri	Osakhutit-sidwa	Pakatikati	Okhutitsidwa	Okhutitsidwa kwambiri
21 (F15.3)	Ndinu okhutitsidwa bwanji ndi moyo wanu ogonana ndi achikondi anu?	1	2	3	4	5
22 (F14.4)	Ndinu okhutitsidwa bwanji ndi chithandizo chomwe mumalandira kuchokera kwa anzanu?	1	2	3	4	5
23 (F17.3)	Ndinu okhutitsidwa bwanji ndi m'mene malo anu mumakhala alili?	1	2	3	4	5
24 (F19.3)	Muli okhutira bwanji ndi kupezeka kwa chithandizo cha za umoyo?	1	2	3	4	5
25 (F23.3)	Muli okhutitsidwa bwanji ndi zokhudza ndi mayendedwe (tharasipoti)?	1	2	3	4	5

Funso lotsatilalri likukhudzana ndi m'mene mwamvera kapena kudutsana ndi zinthu zina kawirikawiri bwanji m'sabata ziwiri zapitazi.

		Sizinachiti-kepo	Mwapatali-patali	Kawirikawiri	Kawirikawiri kwambiri	Nthawi zonse
26 (F8.1)	Kodi ndi kawirikawiri bwanji pomwe mumakhala osakondwa monga kukhala a chisoni, otaya mtima, odandauladandaula, kapena okhumudwa?	1	2	3	4	5

Kodi alipo anakuthandizani kuyankha mafunsowa?

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Zinakutengerani nthawi yayitali bwanji kuti mumalize kuyankha mafunsowa?

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Kodi muli ndi ndemanga iliyonse yokhudzana ndi mafunsowa?

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Zikomo kwambiri pakutenga mbali kwanu