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**Social determinants of health care use for Ugandan children:
does social capital matter?**

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Cover illustration: Graphic illustration of social capital

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To my mother for her unconditional love and whose devotion to the vulnerable and hurting has enhanced my passion to search for ways of contributing towards an enabling social environment; and for Papa, who would have been proud to see this all.

ABSTRACT

Background: Social determinants of health care use individually and synergistically contribute to substantial disparities that exist among children. Whilst many of the determinants that influence children's effective health care use are well defined, social capital as a potential enabling factor is less well evidenced, particularly in low income countries.

Aim: To study socioeconomic determinants in utilization of health care services for children in Uganda aged less than five years and the role of social capital in modifying these differences.

Methods: The thesis includes four studies (I-IV). Study I used qualitative research methods. Initially, three community meetings were held to identify wealth ranking categories. Subsequently 9 focus group discussions categorised by wealth category, were held to explore what the community perceptions were on barriers and facilitating factors for health care use in general. Studies II, III and IV used both qualitative and quantitative data from the Iganga-Mayuge Health and Demographic Surveillance Site collected between 2006-2008. Statistical analyses in studies II, III and IV used logistic regression analyses. Study II compared how a comprehensive relative poverty ranking index based on information from the community consultation estimated differences in use of a public health facility by febrile children less than five years (n=936). In study III, the socio-demographic distribution of social capital among caregivers who had taken their children to a public health facility is established (n=2,582). Sub-study IV assessed the magnitude and direction of association for each of the social capital dimensions with health care use among the same sample of febrile children in study II.

Results: Three broad wealth categories: '*abaavu*' (poorest); '*abafuni*' (low income earners) and '*abagaiga*' (least poor) were identified in study I. Barriers to health care utilization existed during the health seeking process, within the health service delivery and by virtue of the ownership status of livelihood assets. Amongst other factors, social resources were important in enabling the use of health services but perceived utility varied by wealth category, increasing for the least poor (I). A comprehensive wealth ranking index that captured a wider poverty construct that included social capital was more sensitive (OR 0.57; 0.37-0.89) than a conventional material capital asset-based index (OR 1.00; 0.66-1.50) in discriminating differences in use of a public health facility (II). Female caregivers, living in higher quintile households were less likely to perceive high levels of social capital for three dimensions – trust (OR 0.67, 0.46-0.97); instrumental support (OR 0.74, 0.58-0.94); informational support (OR 0.57 0.43-0.75) compared to those living in lower quintile ones. Male caregivers, living in a higher quintile household were less likely to perceive high levels of reciprocity (OR 0.64, 0.44-0.92) compared to those in low quintile ones. Being older than 30 years old – (OR 1.94, 1.01-3.72) and having attained more than primary five school level (OR 1.94, 1.18-3.19) were both associated with a higher likelihood of perceiving high levels of informational support among male caregivers (III). Children's use of a public health facility was independently associated with social capital. Children living in villages with perceived high trust (OR 2.75, 1.50 to 5.02) and medium levels of informational support (OR 1.68, 1.12 to 2.50) had a higher likelihood of using a public health facility. In direct contrast, children living in villages with high levels of perceived reciprocity (OR 0.69, 0.49 to 0.97) had a lower likelihood of using a public health facility than those who lived in villages with perceived low reciprocity (IV).

Conclusion: Universal access to essential health care in Uganda continues to be constrained by multiple barriers that occur during the health seeking process, within the health service and by virtue of an individual's ownership status of livelihood assets. The distinction of these disparities in health care use is improved when a wider poverty construct that includes social capital is used. Disparities in health care use amongst Ugandan children can be independently explained by their caregivers' community level stocks and distribution of social capital. **Key words:** Social determinants; social capital; children; Uganda; health care use

LIST OF PUBLICATIONS

- I. **Solome K Bakeera**, Sarah P Wamala, Sandro Galea, Andrew State, Stefan Peterson and George W Pariyo, Community perceptions about barriers and facilitating factors influencing healthcare utilization in Uganda, *International Journal for Equity in Health* 2009, 8:25.
- II. **Bakeera SK**, Wamala S, Galea S, Rutebemberwa E, Peterson S, Tumwesigye MN, Pariyo GW; Comparison of a community-informed and a conventional asset-based index in Uganda (**Submitted**)
- III. **Bakeera SK**, Pariyo G, Petzold M, Galea S, Tomson G, Wamala SP; The socio-demographic variation of social capital amongst child caregivers in the Iganga-Mayuge Demographic Surveillance Site in Eastern Uganda (**Submitted**)
- IV. **Bakeera SK**, Petzold M, Pariyo GW, Galea S, Tomson G, Wamala S; Community social capital and the use of health care services in Uganda, *Journal of Public Health and Epidemiology* 2010, Vol. 2(8), pp. 189-198

The papers will be referred to by their Roman numerals I-IV.

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LIST OF ABBREVIATIONS

CQ/SP	Chloroquine/Sulphadoxine-Pyrimethamine
FGD	Focus Group Discussion
GIS	Geographic Information System
GoU	Government of Uganda
HDSS	Health and Demographic Surveillance Site
HSD	Health Sub-District
HIV	Human Immuno-deficiency Virus
HSSP	Health Sector Strategic Plan
LLAI	Livelihood Asset Index
MCAI	Material Capital Index
MDG	Millennium Development Goal
MHCP	Minimum Health Care Package
OR	Odds Ratio
PNFP	Private-Not-For-Profit
SES	Socioeconomic Status
TB	Tuberculosis
UBOS	Uganda Bureau of Statistics
UDHS	Uganda Demographic and Health Survey
WHO	World Health Organization

PREFACE

Social connectedness matters. Though as a child I did not belong to a wealthy family, I grew up in the privileged settings of a very well socially organized multi-racial and multi-ethnic copper mining community. Through the years, I observed the positive benefits of living in the ‘right area’. These benefits were crucial in shielding my siblings and I from hazardous social circumstances especially during various civil conflicts. I still went to the best schools, attended the best health care and later on had no problems seeking and finding well paying vacation work opportunities.

When I left the comfort zone of my childhood abode for a boarding secondary school, I observed a bit of the negative side of social connectedness in the form of exclusive cliques based on ‘faith’, ‘wealth’, ‘looks’, ‘perceived IQ’ etc. I however believe that the crucial turning point that strengthened my belief in the public health importance of social connectedness came during my working career as a civil servant of the Ugandan government.

As a newly graduated medical officer working in a rural district, I had taken on the leadership mantle almost immediately. Soon after, the hospital was categorized as one of the best performing and most cost-efficient district hospitals in the country. This achievement actually merited me a World Bank scholarship from the Uganda Ministry of Health to study health management, planning and policy (MA HMPP), at Nuffield Institute in Leeds, United Kingdom. Before that, doing my evening walk in the small town of Marembo, I had come across an ill child, lying on a mat who had not come to the hospital and stopped to ask how the child was doing, whether he had received treatment, and how long he had been ill, why they had not come to hospital? I received some vague response and was left wondering why this child did not use health services that were so close, and of reasonably good quality.

This incident fueled my curiosity and conviction that even when health services were improved, some people will still not use them. Working as a senior health planner at the MoH, gave me time to think about possible reasons for non-use particularly among children. Tasked to ensure that the out-patient department attendance target was met, as part of a team of health planners, we gender stratified, gender mainstreamed, age categorized, etc. But often using routine records, our findings tended to be unremarkable. On leaving the Ministry of Health to

work with a non-governmental organisation and looking in at health care as an ‘outsider’, I quickly realised that with weak health systems, ‘who you know’ can determine a health outcome. I also appreciated more that addressing health care use barriers calls for an understanding of factors outside the health system – inside homes and their communities.

For my part, elucidating what exactly these external factors were required more skills than I had at the time. I subsequently enrolled for and completed a largely self-taught epidemiology course at the University of London (MSc Epidemiology). However, this Ph. D. has provided me with an opportunity to search further.

1 Introduction

Social determinants of health care use are both individually and synergistically responsible for substantial disparities that exist amongst children (1-3). These disparities are more marked in low income countries (4-6). Moreover, these gaps in children's health care use have major public health implications since they continue to impact well-being throughout the life course (3, 7-9). Empirical evidence unequivocally demonstrates that wealth (1, 6, 10-14), mother's level of education (3, 4, 15), geographical location (16-20), mother's age (11) and gender (3) are all important underlying social determinants for effective health care use among children. These disparities pose a serious challenge to the reduction of child morbidity and mortality (21, 22). For instance, the failure of low income countries to meet the fourth Millennium Development Goal (MDG) related to child mortality reduction and MDG 6 which intends to halt and reverse the trend for HIV, malaria, TB and other diseases is to a large extent attributed to inequities in the use of essential health care (3, 21, 23).

Thus the call to attain the MDGs is largely about reducing inequalities amongst children who are by default unable to influence their vulnerable circumstances (3). The final report of the Commission on Social Determinants of Health, reiterates the need to marshal evidence that can be used to eliminate these health inequalities. The growing interest in how social capital might influence disparities in health care use is an opportunity to expand the knowledge base on this aspect (2, 24, 25).

Current evidence mainly from high income countries demonstrates the association between improved access to health care and social capital (9, 24-29). However, the utility of social capital for public health policy lies in elucidating potential pathways through which it acts to improve the use of health services (26, 30, 31). Thus, an improved understanding of how social capital influences health care use can inform public health policy on how such disparities might be addressed (2). This thesis examines the role of social capital as an underlying determinant of health care use for young febrile children in Uganda, a low income country. A conceptual framework that summarizes the different relationships is described in the next section.

2 Background

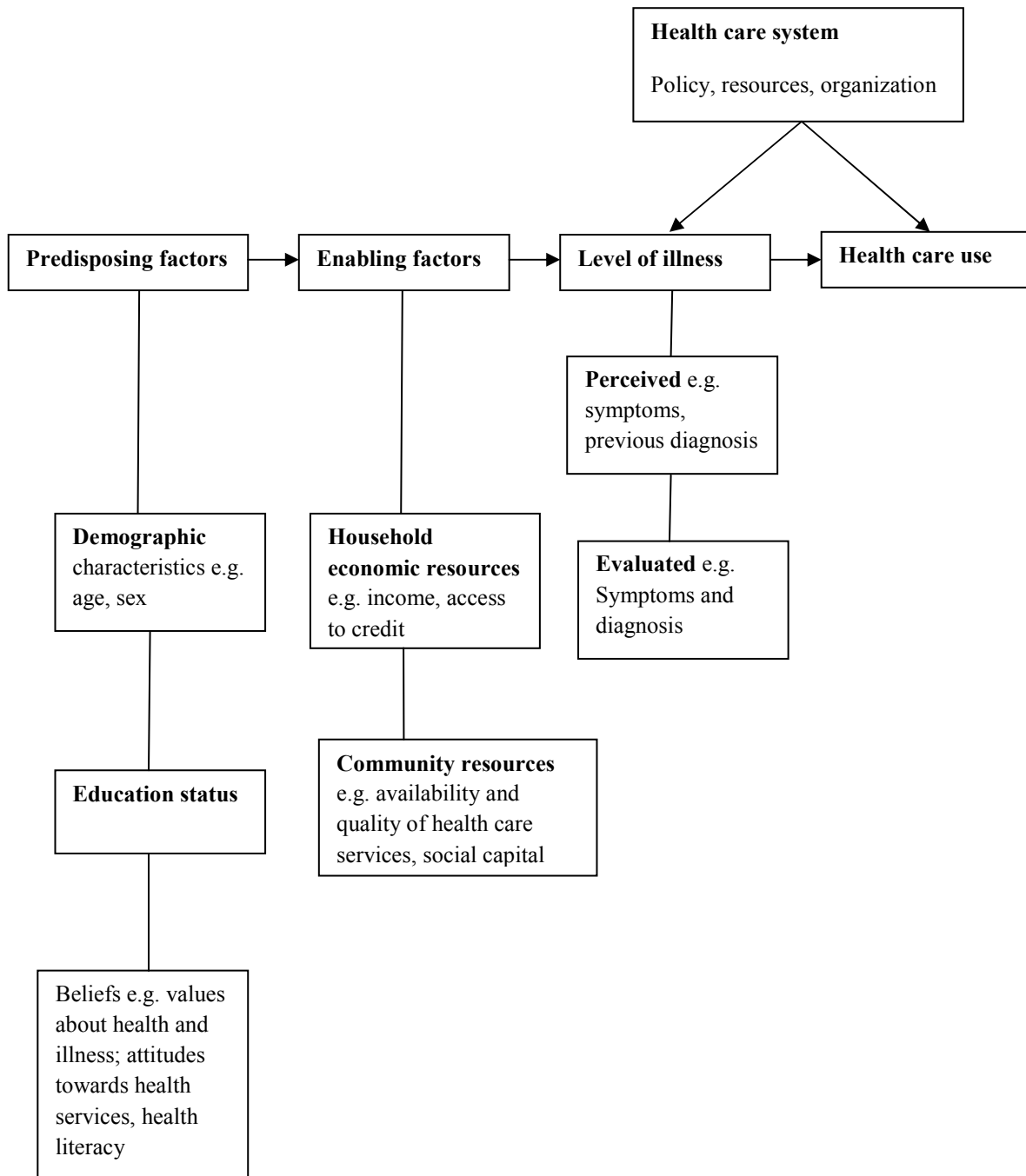
2.1 Conceptual framework for determinants of health care use

The influence of determinants on health care use is multi-layered and iterative (32, 33). Social determinants only form part of this complex array (9). Andersen's behavioural model usefully categorizes health care use determinant factors into three sequential but interrelated levels (34, 35) which can serve as entry points for public health policy:

- 1) Level of illness
- 2) Predisposition to use services;
- 3) Enabling factors for use

The Health Access Livelihood Framework amplifies enabling factors to include a range of other resources. The framework was developed within a programme focused on understanding and improving access to prompt and effective malaria treatment and care in rural Tanzania (36). Since social determinants are those daily livelihood conditions as well as the existing health systems, they may also be categorized as those factors that predispose to and enable use of health care (31). The diagram (Figure 1) below draws from the Health Access Livelihood Framework as well as the Andersen's behavioural model. The text that follows, presents the evidence for the Ugandan and/or regional context.

Figure 1: Conceptual framework for determinants of health care use ⁽³⁴⁻³⁶⁾



2.2 Factors influencing health care use among febrile children less than five years in Uganda

2.2.1 Level of illness – the individual child

For an individual child, perceived or evaluated severity of illness is expected to be the most immediate determinant of healthcare use (34, 35). However, Ugandan children's caregivers understanding of febrile illness partially overlaps the biomedical concept (37) and therefore, presence of fever may not always result in a timely choice of conventional medical treatment. With respect to influencing a decision to use health care, the important areas of disparity and overlap between the two perspectives are those that affect an appreciation of whether the illness necessitated medical treatment. This non-overlap contributes to inappropriate avoidance and delay of medical treatment for febrile illness in children (37). For instance, alternative complementary therapy and home remedies are perceived as viable options for treatment of fever in children (37).

2.2.2 Level of illness – population and policy

In Uganda, children experience several episodes of fever annually, with those less than five years being more vulnerable (38, 39). Unsurprisingly, fever is a common symptom for children presented to outpatient clinics in Uganda (38). WHO and national guidelines in operation during 2006 recommended that fever be presumptively treated as malaria for children under five, because untreated it quickly progresses into a severe form with a high case fatality (40, 41). This presumptive diagnosis has frequently resulted in over-diagnosis of malaria (39) and partially contributes to its high rank among conditions presented at outpatient clinics in Uganda (38, 42).

Prior to 2006, chloroquine/sulphadoxine pyrimethamine (CQ/SP) was the first line of treatment for the management of malaria. CQ/SP was also relatively cheap and widely available from the public, formal and informal private providers (43). Furthermore, in order to enhance rapid access to effective therapy among children, CQ/SP was made widely available in the home setting (37). With increasing resistance to CQ/SP, the first line of treatment was changed to Coartem® to ensure that malaria treatment provided as part of an essential care package of health care services remained effective (43). However, at the initiation of the new malaria treatment

policy, Coartem® was largely available in the formal sector (public and selected private-not-for-profit) (44). From a purely biomedical perspective, the malaria treatment policy change from CQ/SP to Coartem® in 2006 also presented a shift in the expectation of formalized health care use by febrile children. Since the diagnostic criteria remained largely unchanged (45), the expectation was that all febrile children would need to use formal health facilities in order to access effective treatment.

2.2.3 Predisposition to use formal health care services

Predisposition refers to an inclination to undertake a particular action. Many studies document the positive association between mother's level of education and use of a knowledgeable provider (3, 4, 15). In Uganda, caregivers who have attained secondary education are more likely to use formal health care services compared to those without it (46, 47). This suggests that length of education influences appropriate choices for health care. Recent studies in Uganda are illustrative that prevailing beliefs and attitudes in different locales may have a strong influence on the nature of information received through community networks (37, 48). Therefore, informal means of informational exchange may have an important role in the health care decisions made by child caregivers.

Nonetheless, illness and predisposition are insufficient to influence use of medical treatment without the means to do so. Important enabling factors include income available at the household level and community structural factors such as the presence and quality of health services. This is presented in the next section.

2.2.4 Enabling factors

2.2.4.1 Availability and quality of health care services in Uganda

Uganda as a nation that subscribes to the principle of 'health care as a right' is mandated to ensure that essential care is provided equitably (2, 49). In addition, as a low income country, state-provided free formal health care constitutes an important safety net for the poor and vulnerable, without which access to essential services would exhibit enormous inequities (3, 50, 51). The Government of Uganda (GoU) supports the provision of a minimum health care package (MHCP) within both public and private health facilities. The MHCP is ideally provided free at the point of use at public health facilities and subsidized at Private-Not-for Profit

Facilities (PNFP) in line with this principle of an affordable safety net (2, 52, 53). See box 1 for an overview of health service delivery structure in Uganda (53, 54).

Box 1: Structure of health care delivery services in Uganda

- Service areas are designated along administrative boundaries and population. A Health Centre (HC) I at village level is expected to serve a population of 1,000 people. The HC II is at parish level with service area population of 5,000. The HC III is at sub-county level and serves a population of 25,000 whilst the HC IV is usually at a county level/health sub-district (HSD) and is expected to serve a population of at least 100,000. Ideally the HSD is the organizational structure at which sub-national planning, budgeting and management occurs. HSDs have an oversight function for all curative, preventive, promotive and rehabilitative services within the service area. Hospitals are of 3 categories: general hospitals that are usually at district level with a service population of 500,000 people; regional hospitals at selected geographical regions each serving a population of 2 million; and national referral/specialist hospitals serving a population of 30 million.
- Health services are delivered by both the public and private sectors. The private sector is diverse and includes the private-not-for-profit; the private health practitioners; and the traditional and complementary medicine practitioners.
- Health facilities offer services with increasing scope of complexity. The HC I is a virtual level of service delivery, supported by a village health team without a physical facility. The HC II is managed by nursing officers and provides services for non-complicated illnesses as well as preventive services. The HC III is managed by a multi-disciplinary team usually headed by a clinical officer and has provision for a few in-patient beds, maternal health care and non-complicated surgery. The HCIV is headed by a medical officer and offers general health care services, Caesarian Section and other surgery. Hospitals have larger multi-disciplinary teams and provide a wider range of complex medical and surgical services.
- The health services within the MHCP are organized into four clusters: i) Health Promotion, Disease Prevention and Community Health Initiatives ii) Maternal and Child health ii) Prevention and Control of Communicable diseases Prevention including malaria and iv) Control of Non-communicable diseases

The principle of a basic package of health services such as the MHCP is that it fits into resources that are predictably available (55, 56). In 2005, social survey methods estimated that on average 69.6% of Uganda's rural population and 95.8% of the urban population lived within a

5km radius of a health facility network where the MHCP could be provided (57). However, a geographical information system (GIS) based analysis indicated that the actual proportion of people within a 5km radius is much smaller at only 27.3% in 2006, with a wide variation in different geographical regions. Since optimum financing of the basic package has never been realized, service availability at a functional level is even much less than the structural one (58-60). For example, the sector budget for medicines provided for barely one third of what was required to avail basic medicines (61, 62). Availability of medicines at public health facilities is a key driver for OPD use in public health facilities (47, 63). Anecdotal evidence suggests that the fluctuation in OPD use patterns is closely related to diffusion of information on whether medicines have been delivered to a facility. Additionally, low health worker availability and organizational efficacy were all significant contributors to the perceived and technical poor quality of services (59, 60, 64, 65). Furthermore, distance and transport costs remain important barriers to the use of public health care in this setting (20).

2.2.4.2 Material capital at the household level

Material capital is a term that broadly refers to financial, physical and natural capital. Financial capital includes cash and access to credit whilst physical capital refers to hard assets such as housing or transport vehicles. Natural capital includes naturally occurring resources such as land or livestock (36).

The decision to take an ill child to a knowledgeable provider is strongly associated with socioeconomic status (SES) (10, 66, 67). This association is present even when health services are free at point of use (6). The Ugandan Presidential decree for the removal of user fees at public health facilities in 2003 was in response to the realization that it created an insurmountable barrier for the poor in accessing health services. However, even with the assumption of free services at the point of use, caregivers in Uganda would still need to spend in order to make up for the shortcomings in service provision as well as meet the other related costs such as transport (65). Therefore, a utilization gradient still exists between different wealth categories even though the abolition of user fees led to an upsurge in use by the poor (47). Out of pocket expenditures for health care are not infrequently supported by the sale of natural and

physical capital to raise finances or in exchange for credit. An extreme illustration is the impoverishment that is often associated with health related expenditure (47).

2.2.4.3 Social capital

Both the definition and measurement of social capital are still evolving (25). However social capital is broadly referred to the resources and benefits resulting from social ties or social cohesion enabling collective action for mutual benefit (27, 68, 69). Social capital is hypothesized to be shaped by macro social structural conditions such as culture norms and values, social cohesion as well as socioeconomic factors that include inequality, discrimination and poverty. In particular, trustworthiness of the social environment is critical to the proper functioning and obligations and expectations (69). These factors are believed to condition the nature of social networks and provide opportunities for micro psychosocial mechanisms such as social support (2, 70, 71) as well as enabling influences on social behaviour (9). Social support encompasses different components including informational and instrumental aspects. Instrumental support refers to help with tangible needs such as getting to a health service point and could be in kind or cash. Informational support refers to provision of advice or information of a specific nature (9, 25, 27, 69).

The structure of social capital is multi-dimensional, and incorporates different levels and units of analysis (72-74). Because social capital inheres in relationships, it is an ecological concept (25, 69). Social capital is also a public good which means it operates on the principle of non-excludability (69). This implies that the benefits or disadvantages apply within a given network.

2.5 Rationale for the studies

Non-use of essential health care by children depends on their caregivers' circumstances and decisions (31). Exclusion from essential health care during childhood is of major public health significance because it not only contributes to an individual's vulnerability during the whole life course, but also has a negative impact on a nation's productivity (2, 3).

The absence of comprehensive evidence on how social capital interacts with other determinants of health care use constrains an understanding on its contribution to existing

inequalities among children. This makes it difficult to define and design relevant policy actions to redress resultant inequalities related to social capital.

An understanding of community perspectives contributes to an empirical evidence base on the role of social capital in the use of health care services. Quantitative evaluation of such community perceptions supports triangulation and strengthens the evidence base of empirical findings (75).

Exclusion from potential benefits that determine health outcomes is linked to their unequal distribution (76). Therefore, identifying the factors that influence the distribution of social capital can help to determine characteristics of communities that are prone to exclusion. Further the magnitude and direction of association of health care use with social capital can provide further evidence on its utility among other social determinants.

3 Aim and objectives

3.1 General Aim

To study socioeconomic determinants in utilization of health care services for children in Uganda aged less than five years and the role of social capital in modifying these differences.

Specific Objectives

1. To explore community perceptions among three different wealth categories on factors influencing health care utilization in Uganda (I)
2. To construct a comprehensive relative poverty ranking index based on information from community consultation and to assess how it estimated differences in healthcare use in comparison to the conventional asset-based index (II)
3. To assess the socioeconomic and demographic determinants of social capital amongst child caregivers in Eastern Uganda (III)
4. To assess the role of social capital in the use of health care services in Uganda (IV)

4 Methodology

4.1 Overview

This thesis is based on four studies profiling the – utility, distribution, magnitude and direction of association of social capital with health care use by febrile children under five years of age. The first study which was qualitative focused on what the barriers and facilitating factors were for use of health care services among the general population. It also explored the influence of wider poverty attributes including social capital on health care use in general. Study II quantitatively examines the validity of these community perceptions of social resource factors and their association with health care use. In essence, study II examined how an index composed of these social and economic factors that are identified in the first study compared to a conventional material asset-based index in estimating differences in use of a public health facility by febrile children less than five years. In study III, the socioeconomic and demographic distribution of community level social capital among child caregivers who had used a public health facility was established. Study IV assessed the magnitude and direction of association for each of the social capital dimensions with health care use. Study IV is also an assessment of the factors identified in study I as independent variables in statistical regression models.

Table 1: Overview of the research framework

Overview of research context			
Domains	Research questions	Articles	Data Source and timing
Social determinants of health care use	1. What are the community perspectives on socioeconomic characteristics in relation to utilization of health care services?	I	1 & 2
	2. Do differences between a community-informed and the standard based-asset index influence measured inequalities in the use of health care services?	II	1, 2
Sociodemographic patterning of social capital	3. What are the socio-demographic predictors of social capital?	III	3 & 4
Social capital as a social determinant of health care use in a low income setting	4. What is the role of social capital in facilitating use of health care services amongst children aged less than five years?	IV	3 & 4

Data Source 1: Community meetings in three villages (January- March 2008)

Data Source 2: Focus Group Discussion - Men and women in three different wealth categories (January - March 2008)

Data source 3: Iganga-Mayuge Demographic Surveillance Site Socio-economic Status (2nd Update round - September - December 2006)

Data source 4: Iganga-Mayuge Demographic Surveillance Site Socio-economic Status - Social capital Pilot (January - March 2008)

4.2 Study setting and data sources

Developmental background of the Iganga and Mayuge Health and Demographic Site

The analyses in all the four studies (paper I-IV) of this thesis are based on qualitative and quantitative data collected from the Iganga-Mayuge Health and Demographic Surveillance Site (HDSS) during 2006-2008. The HDSS is community-based and was set up in 2004 for the purpose of generating and providing valid population data as well as creating a platform to test and/or measure the impact of interventions in a population (77). By having current reliable population based data, the HDSS is uniquely placed to supplement national censuses and other surveys that are the mainstay of information for planning and decision making in Uganda.

Data base profile

The HDSS is the second of two large community based data collection sites in Uganda and only one of thirty seven such sites in Africa (77). The INDEPTH Network links these and other DSS sites around the world through regular meetings and information sharing in an effort to standardize indicators and synchronize recommendations for adapting international recommendations (78). For instance, plans to explore the role of social capital as a determinant of health equity were presented by the Health and Equity Working Group during the 2nd annual general and scientific meeting of INDEPTH (79). Generally information from the HDSS includes core demographic events such as migrations, births, deaths and verbal autopsies. Other modules collected are pregnancy, education and socio-economic status (77). The HDSS is also a research and training centre for graduate students, and there is a provision to accommodate academic data requirement needs in the routine update rounds. For example, use of health care services by febrile children under five years which is an outcome variable in studies II and IV was incorporated during one of the update rounds of October – December 2006 (80).

Database information validity and use

The data base has been used in research leading to several articles in international and regional peer-reviewed journals covering the areas of newborn health; malaria; TB. Development of policy briefs on published articles is intended to ensure that policy makers are informed of the scientific findings.

The HDSS uses standardized questionnaires comparable to those used by the Uganda Bureau of Statistics (UBOS) for data collection on household assets and demographic information. UBOS is the national body responsible for conducting national censuses, five year national demographic and the biennial national housing surveys and therefore this information should be comparable to national level asset information. SES (household assets) and demographic household data is updated bi-annually. Non-routine variables are integrated during these update rounds for the socioeconomic and

demographic information. The social capital questionnaire and relevant health outcome questions (in both English and Lusoga) used in this study are included in the annex.

Rationale for using HDSS data base in lieu of other data sources

The reliability of reported usage of a public health facility or otherwise could have been assessed using individual or facility based treatment records but such information is problematic in terms of availability and/or accuracy in this setting. Additionally, since the general utilization rates do not reflect the actual burden on illness, facility based records would have introduced a selection bias unrepresentative of the general population. An alternative to using locally collected household asset data would have been to use the already existing information from the 2002 population and housing census. However, the economic growth rate has fluctuated widely since 2002 and it is unlikely that the census information would have been representative in 2006 (81). Another option could have been the Uganda Demographic and Health Survey (UDHS) of 2006 which was closer in time. However, the UDHS is based on nationally representative data which although it included one of the HDSS districts was limited to a small sample which did not cover all households. The World Values Survey of 2001 has some questions on social capital that included 84 persons from Iganga district (82). So similarly for the social capital variables, we could not have used these studies since it is far removed in time in relation to our study as well as having a small coverage of households in the HDSS.

Bias

The inability of child caregivers to differentiate between types of providers was limited to the private and not the public sector (80). Therefore, misclassification bias could not have arisen with regard to classifying the outcome of interest. Additionally, the potential for recall bias during the survey was carefully circumvented by choosing a reasonably short recall time of two weeks, interviewing the actual mother of the child who had participated in the illness treatment, and having the child present (80).

4.2.1 Qualitative approach (I)

Study I: Community perceptions and factors influencing utilization of health services and along three different wealth categories (I).

Design

Exploratory studies using qualitative data collection methods, namely poverty ranking meetings and focus group discussions, were employed.

Participants and procedure

Initially, community meetings to assign wealth categories were held in each of the three villages with a total of 30 men and 38 women. Participants were adults in the community who responded to the village chairperson's call for a meeting. The main topics for discussion were the livelihood categories of village members and their differentiating characteristics. At the start of each meeting, the purpose of the inquiry was explained to participants in order to allay any fears that this might be associated with tax collection or to minimize false expectations that we would make provisions for those in need. These categorizations were further validated during the FGDs during study I.

Three focus group discussions were held with each of three wealth categories, namely, *Abagaiga* (literal translation – 'the rich'); *Abafuni* (colloquial meaning – the low income earners); and *Abaavu* (literal translation – the poor) from three villages (Nawangisa, Bukona-Kakongoka and Namundudi) of Kigulu South Health Sub-District (HSD) designated for exploratory research, leading up to further studies in the HDSS¹. The total number of participants for the FGDs was 88. The issues discussed were related to types of illnesses and services sought; knowledge, attitudes and practices influencing use or non-use; barriers to healthcare access and utilization. Before each FGD started, participants were required to confirm that they fitted the categorization of the rank they had been placed in. The FGD participants were selected from the community.

Methods

Poverty ranking meetings

Wealth ranking is used to identify and discuss community perceptions of wellbeing and poverty, and classify households in relation to degrees of wellbeing. The study used the poverty ranking tool by Theis and Grady to identify different wealth categories including the most poor in the village (83). Another aspect that was explored was the local wealth ranking perceptions. On average, each meeting took 2-3 hours.

Sequence of steps to identify the different wealth categories during the poverty ranking meetings

One poverty ranking meeting was held in each of the three villages. At the start of each meeting, the team leader made opening remarks, introducing the facilitating group members as well as the purpose of the exercise. Village members were asked how many wealth categories existed and what the criteria were for belonging to each of them. Community members then summarised the characteristics of each category and estimated the proportion in each category. The facilitators then summarised the criteria and indicators derived from the ranking discussion

Focus group discussions

Focus group discussions are a qualitative method where individuals with similar characteristics or experiences relevant for the study subject are brought together to discuss a topical issue of importance to the researcher (84). Full participation of each member is ensured by limiting numbers to between 8-12 persons (85). As much free discussion as possible is encouraged with the guidance of a moderator and a discussion guide (86). Homogeneity within each group was obtained by ensuring that each participant belonged to the same wealth category.

Participants were selected by the Village Chairperson and mobiliser usually on the previous evening and invited to the FGD meeting the next day. Emphasis during selection was biased towards those with capacity to express themselves openly. In the

selection, consideration was made to include both men and women; young and old; and disability status. Only those who expressed availability were selected, and meetings were held at a convenient place for participants. On average the groups consisted of 9 members. Probing along the sub-thematic areas explored for shared and conflicting ideas. The guide which was originally written in English was translated into the local language (Lusoga) by the Social Scientist on the research team who was proficient in both English and Lusoga. The research assistant was trained on the FGD guide. Focus group discussions were pre-tested during one FGD, and thereafter adjusted for the main field work. The research assistant and I (SKB) both tape-recorded and took hand-written field notes. Discussions lasted for about one and a half hours/45 minutes. The moderator encouraged each person to express themselves during each of the sub-topics whilst allowing a natural flow of conversation. Participants were served a soft drink after the session. At the end of each meeting, debriefing meetings were held to review data quality and to discuss emerging issues.

Analysis

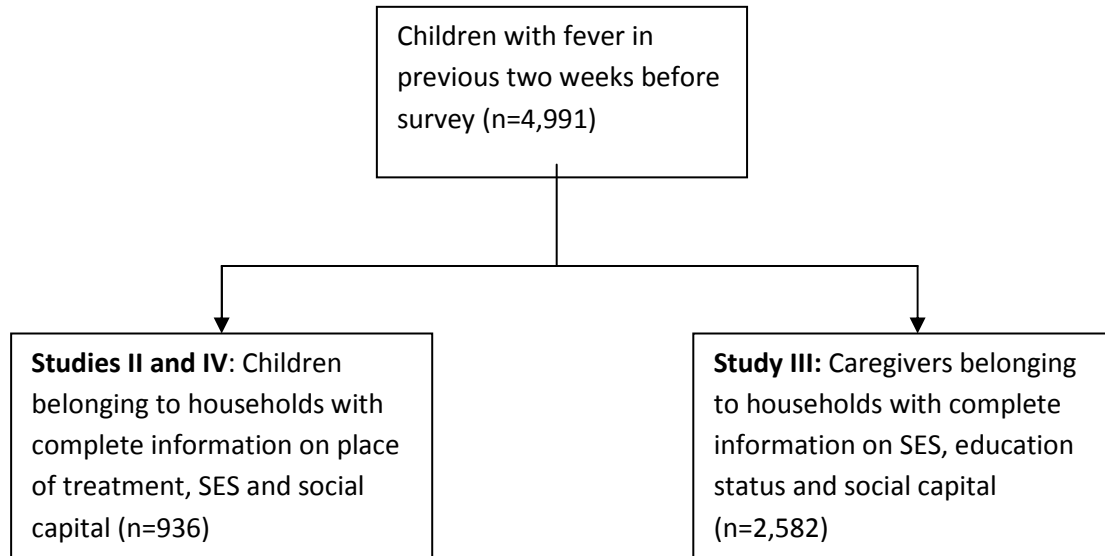
Latent content analysis was conducted with an oscillation between deductive and inductive components.

4.2.2 Quantitative approach

Study subjects

Subjects for studies II and IV were drawn from the sample of febrile children who participated in cross sectional analytical survey - ‘Determinants of delay in care-seeking for febrile children in eastern Uganda’ in 2006. Those included in the analysis had complete information on place of treatment, SES and social capital variables. Subjects for study III are the caregivers of the same sample of children with complete information on social capital, education status and SES. Figure 1 summarizes this information.

Figure 2: Study subjects



Adequacy of sample size for quantitative studies (II, III, IV)

Studies II and IV use a sample of 936 households with complete information on treatment place, household head socioeconomic status and child caregiver social capital variables. Study III uses 2,582 child caregivers. The main exposure variable in study II is socioeconomic status. An assumption is made that differences in use between the least poor (highest wealth quintile) and the most poor (lowest wealth quintile) are comparable to the national average of 22% in 2004. In 2006, the average utilization per capita of outpatient services was 0.90. Calculation of sample size assumed that this average mainly represented the rich and that therefore the value for the most poor was 0.68 (22% less than the ‘least poor’). Using these statistics, it was calculated that a minimum sample size that would allow for 5% level of significance and 90% power to detect a difference of at least 22% between the highest and lowest quintiles is 80 for each quintile (Spplus software). Since 5 quintiles were required, the smallest sample required was 400. With that argument, the available data was adequate to detect statistically significant differences at the 5% level for study II. Study III had several exposure variables of interest whilst for study IV, the main exposure variable of interest was community level social capital. In the absence of previous information on the magnitude of variation in

health care use by social capital, the adequacy of the sample size for studies III and IV is based on variation by socioeconomic status, as for study II.

Indicators

Outcome variables

The outcome variable for the 2nd and 4th study was use of a public health facility by children less than five years. Social capital is the main exposure variable for this study and the analysis of it as an outcome variable in the 3rd study was for the purpose of throwing more light on its socio-demographic distribution among child care-givers who had taken their children to a public health facility.

Rationale for a focus on public health care use by children under five years

In and out-patient use at public health facilities is one of the main indicators for assessing progress of the Health Sector Strategic Plan objectives (53, 54). Tracking the use of health services by febrile children is particularly useful for monitoring access in general for two reasons. First of all, children less than five years are vulnerable to febrile illness and constitute a considerable portion of public health care users (38, 42). Secondly, use of these services by children is also a good reflection of the use versus the morbidity profile (87).

Exposure variables

Social capital

The study uses a measure of social capital defined by four separate dimensions namely: ‘civic trust’, ‘reciprocity’, ‘informational’ and ‘instrumental’ support at the community level. Community level estimates for each dimension of social capital were created by aggregating the individual responses at the village level (88, 89) The mean was used as the cut-off point between low and high to create the dichotomous group variables (90). Caregivers were assigned to a social capital category on the basis of their caregiver’s village of residence level of each aggregated social capital dimension. The analysis in this study is based on six questions, selected on the basis of the pre-test and previous use in

other settings (91-98). Modification of the questions was made after a pre-test in adjacent villages to the HDSS to ensure cultural appropriateness and universal interpretation by the research assistants.

- i) Civic trust was assessed by responses to the following survey item: “Do you think that generally other people can be trusted” (92, 93, 99, 100). The caregiver’s individual level score for civic trust was as follows: (low=care giver answered ‘no’ to whether they thought other people could be trusted and high=care giver answered ‘yes’):
- ii) Caregivers were also asked about instrumental support: “When you think about your life, are there people around you that you can ask for help?” (97). Additionally, they were asked “How many such people give you help?” The individual caregivers score for instrumental support was as follows: high =yes with >5 persons who could provide advice when required; medium=yes and 1-5 person who could provide advice when required; low=no persons who could provide advice when required.
- iii) Caregivers were also asked about informational support: “When you think about your life, are there people that you can trust to give you good advice when you need it?” (97). The literal translation for advice (*‘amagezi’*) and help (*‘obuyambi’*) are sometimes used interchangeably. Additionally, they were asked “How many such people give you advice?” The individual caregivers score for informational support was as follows: high =yes with >5 persons who could provide advice when required; medium=yes and 1-5 person who could provide advice when required; low=no persons who could provide advice when required.

- iv) Reciprocity was assessed by responses to “Do you think that people around here are generally willing to help each other out” and scored as: (high = yes and low=no) (92, 93, 101).

Socioeconomic characteristics

i) Wealth index

Only components of material capital are used in the construction of the asset-based index which is used as a measurement proxy for socioeconomic status in low income countries such as Uganda (102).

In this thesis, wealth was estimated using two variations of an asset-based index. The asset-based index is a widely used proxy for wealth/poverty status in low income nations in lieu of income or consumption (ref). For the first index that was composed of material capital assets (MCAI) a list of household assets comparable to that used by the Uganda Bureau of Statistics (UBOS) was tested for reliability using Cronbach’s alpha. Subsequently, twenty household assets relating to housing structure (toilet, floor material, roof material, wall material); living standards (cooking fuel) and possession of household durable items (electric cooker, refrigerator, radio, electric iron, charcoal iron, bed net, kerosene lamp, kerosene stove, car, tea table, camera, television, stereo, wheel barrow, mobile phone) were used to generate a wealth ranking index, applying principal components analysis. The second index used a wide range of livelihood assets (LLAI) including: material capital (household structure, consumer durable); natural capital (land ownership and size, livestock); human capital (household head education status); and social capital (informational and instrumental support, reciprocity).

Factor loadings for each asset from the first principal component were used together with the variable values to sum the index. Each index was stratified into quintiles to reflect different levels of wealth. The indices were dichotomized and categorized as ‘Most poor’ (Lowest 3 quintiles 1-3) and ‘Least poor’ (Highest 2 quintiles 4-5).

ii) Education status was measured on the basis of completed classes of the child caregiver. The categories of - None/Primary 1-4/Primary 5-7/Secondary 1-4/ Secondary 5-6 were dichotomized to reflect caregivers with and without secondary education.

Demographic characteristics

Exposures that were assessed included: i) Sex of the child, categorized as male or female ii) sex of the caregiver, categorized as male or female iii) Caregiver age categorized as: ≤ 20 years; 20-29 years; 30-39 years; 40 years and older.

Contextual units

Community can be defined as spatial factor but can also be defined on the basis of geographical neighbourhood, kinships, friendships or other characteristics (9). The role of social capital is most meaningful when assessed with a neighbourhood defined on the basis of relationships (9) The community in these studies was operationalized at the village level, which is a neighbourhood defined by spatial boundaries. However, from our interaction with community members especially during study (I), we had reason to believe that relationship networks within a village would be strong and that therefore were appropriate as contextual units.

Data analysis

In study II, statistical analysis aimed to establish and compare the reliability of two wealth ranking indices. Reliability was assessed on the basis of internal coherence and robustness. Internal coherence was assessed on the basis of proportions of each asset within each wealth quintile. The conventional material capital asset index was used as the base case in assessing robustness of the livelihood asset index.

Statistical analysis to identify explanatory variables for the outcomes of interest in studies II, III, and IV followed the same steps. First the univariate analysis established the basic characteristics of the study population. Next, bivariate analyses were done to establish associations between the outcome of interest and each of the potential explanatory variables. Finally, multivariable analyses were conducted to establish the statistically

significant explanatory factors for the outcome of interest. Logistic regression was used for both bivariate and multivariable analyses in studies II, III and IV. Table 2 summarises the logistic regression analyses that were conducted.

Table 2: Summary of statistical analyses for studies II, III and IV

Study	Outcome of interest	Main exposures	Other explanatory variables	Statistical analyses
II	Use of a public health facility	Two wealth ranking indices	Child age and sex; caregiver age, sex, educational status	Logistic regression
III	Four dimensions of social capital	Caregiver age, sex and education status, household head socioeconomic status	–	Logistic regression
IV	Use of a public health facility	Four dimensions of social capital	Child age and sex; caregiver age, sex and education status, household head socioeconomic status	Logistic regression

4.2.3 Ethical considerations

Papers II, III and IV are based on analysis of secondary data, for which permission was obtained from the Health and Demographic Surveillance Site. Furthermore, the thesis proposal was approved by the Higher Degrees Research and Ethics Committee, of Makerere University School of Public Health.

5 Results

5.1 Predisposing factors for health care use (I)

Health care seeking process

Among the general population, the prevailing attitudes and beliefs about existing health care services were a deterrent to use. Local beliefs about illness categorizations and treatment options as a deterrent to health care use were independent of any wealth category. The perception that western conventional care was ineffective seems to be driven by the non-overlap of the local beliefs with the biomedical disease/illness classifications and treatments as illustrated by the following quote:

“Artificial medicine” [western conventional treatment medication], for “nawawa” [condition where child presents with chills and cold spells], “eyabwe” [convulsions], “syphilis” [term loosely used to refer to a broad range of conditions] and sexually transmitted diseases is inferior to local medicines.’ (FGD Least poor, Kakongoka).

The level of education was perceived to influence health literacy which in turn could determine the potential benefit from the use of health care services. The following quote is illustrative.

‘Uneducated people can't read instructions, prescriptions or have a better understanding of health related issues. Those who are more educated are more confident, they also follow prescriptions and know why and what to do. Those of us who never went to school sometimes fail to explain our illness to the doctors because we do not know English’ (FGD Poorest, Namundudi).

5.2 Enabling factors for health care use (I, II, IV)

Health service delivery factors (I, II)

In the general population, proximity of a health care provider was perceived to be an important enabling factor for health care use particularly for the 'abaavu' (poorest) and the 'abafuni' (low income earners). This was in spite of the many service delivery gaps that were identified. On the whole, it was the 'abaavu' (poorest) and the 'abafuni' (low income earners) who identified most of the barriers that were perceived to exist within the healthcare seeking process. These service delivery gaps were perceived to deter health care use by all wealth categories and included: i) inadequacy of local services to meet existing preventive and curative health care needs; ii) high cost in accessing preventive; iii) acute and chronic curative care even when this was at publicly provided facilities; iv) poor staff qualifications at private clinics; v) short opening times of government health facilities. An illustration of the concerns about poor quality of local services is reflected in the quote below:

In our (private) clinics, we do not know the qualifications of our health workers. You can't ask them where they obtained their qualifications from, so long as they give you some treatment. For some conditions like severe anaemia – these local health services cannot be useful yet you cannot afford referral. When you have fever you go and pay 200/- shillings worth of medication whatever it is. It could be chloroquine mixed with Aspirin® we are never sure, whether it helps or not is another matter. You can't be sure that what you are getting is effective but we have no other option' (FGD Poorest, Nawangisa).

The role of individual socioeconomic resources (I, II)

The 'abagaiga' (the rich) seemed to benefit the most from ownership of material capital assets in terms of enabling health care use. In particular, having money and means of transport enabled the 'abagaiga' to access a wide range of service providers as illustrated in the following quote:

'For us when you feel ill, you go to the drug shop and explain your pains to the attendant, who chooses the drugs. When things do not work out, you go to the private clinic. The clinic nurse is more technical than the drug shop attendant who when defeated may refer you to a health centre and in case the condition is worse you are taken to Nakavule Iganga Hospital' (FGD Least Poor, Kakongoka).

Having access to a wide range of providers seemed to support lower use of a public health facility among children of the 'abagaiga' in comparison to those of the 'abafuni' and 'abaavu' (see table 1).

Table 3: Comparison of two wealth ranking indices

Exposure	Outcome	Main results
Livelihood Asset Index (LLAI)* Most poor (quintiles 3, 4, 5) Least poor (quintiles 1 & 2)	Use of a public health facility Reference group OR 0.57; 0.37-0.89	Children from homes categorized as least poor had less use of a public health facility. This effect was statistically significant with the LLAI
Material Capital Asset Index (MCAI)* Most poor (quintiles 3, 4, 5) Least poor (quintiles 1 & 2)	Use of a public health facility Reference group OR 1.00; 0.66-1.50	

*Adjustment for child age and sex; caregiver age, sex, educational status

The role of social capital resources (I, IV)

In the general population, social resources were important in enabling the use of health services but their usefulness varied by wealth category. For the poorest and middle wealth categories, the utility of social capital was limited to informational support. The poorest perceived that instrumental support from network contacts was available only in an acute situation. The least poor on the other hand perceived more abundant instrumental support through relatives and friends as illustrated in the quote below:

'If friends and relatives hear of your calamity they come and fetch you and take you to hospital' (Least Poor, Kakongoka)

Among children, the caregiver's level of informational support had significant association with health care use. Children's use of a public health facility was also significantly associated with their caregiver's community level of civic trust. However, a caregiver's community level of instrumental support did not have a statistically significant association with children's use of a public health facility (see Table 2).

Table 4: Multivariable regression analysis for association between social capital and children's use of a public health facility

Main Exposures*	Outcome	Main results
Social Capital dimensions	Use of a public health facility	
Reciprocity		
Low	Reference group	Children with caregivers living in villages with high reciprocity were less likely to use a public health facility
High	OR 0.67; 0.51-0.87	
Trust		
Low	Reference group	Children with caregivers living in villages with high trust were almost three times as likely to use a public health facility as those in villages with low trust
High	OR 2.75; 1.50-5.02	
Informational support		
Low	Reference group	Children with caregivers living in villages with medium informational support were almost twice as likely to use a public health facility compared to those in villages with low informational support.
Medium	OR 1.68; 1.12-2.50	
High	OR 0.89; 0.49-1.69	
Instrumental support		
Low	Reference group	Level of instrumental support did not have a statistically significant association with children's use of a public health facility
Medium	OR 1.16; 0.93-1.76	
High	OR 0.83; 0.66-1.03	

*Adjusted for child age and sex, caregiver age, sex and education status, household head socioeconomic status

In the general population, the utility of instrumental support was perceived to depend on the capacity to reciprocate as shown in the quote below:

'No we do not have friends who help us to access health care. Maybe our MPs could have helped but they are not useful in this matter. People know that if they help you, you may not pay back' (Poorest Category, Nawangisa).

In direct contrast, children with caregivers living in villages with perceived high reciprocity had a lower likelihood of using a public health facility compared to those who lived in villages with perceived low reciprocity (see table 2).

5.3 Sensitivity of wealth ranking indices to detect differences in health care use (I, II)

Community poverty ranking meetings identified three broad wealth categories based on characteristics including – material, natural, human and social capital assets. The community informed index was comparable to a conventional wealth ranking asset-based index in terms of internal coherence, and in identifying the poorest households in the community. However, it was the community informed index that had a statistically significant association with use of a public health facility (see table 3).

5.4 Predictors of social capital (III, IV)

The predictors of social capital were gender-specific. Amongst female caregivers, only socioeconomic status of the household had a significant association with the perceived level of social capital (see table 3). Female caregivers living in higher wealth category households were less likely to perceive high trust, informational and instrumental support compared to those living in lower wealth category households. The level of perceived reciprocity amongst female caregivers did not have any significant association with education status, age or wealth.

Amongst male caregivers, the level of social capital had significant associations with wealth status of the household head, education and age of the care giver. Male caregivers who lived in higher wealth category households were less likely to perceive high reciprocity when compared to those living in lower wealth category households. In contrast, male caregivers who had a higher education status or were older than 30 years were likely to perceive high informational support compared to those with lower education or were younger than 30 years old

respectively. The level of instrumental support did not have a significant association with age, education or wealth status of male care givers.

The magnitude but not the statistical significance of association between use of a public health facility and social capital was altered when these socioeconomic and demographic variables were controlled for in a multivariable regression analysis (see table 2). This suggested that the strength of association between use of health care services and social capital depended on the demographic, social and economic composition of communities.

Table 5: Multivariable analysis - socio-demographic determinants of social capital

	OUTCOMES*			
	Reciprocity	Trust	Instrumental support	Informational Support
Women				
Socio-demographic variables (determinants)				
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Age				
<30 years	1.00	1.00	1.00	1.00
> 30 years	0.77-1.12	0.83 (0.57-1.20)	0.93 (0.74-1.18)	0.96 (0.74-1.23)
Household head SES quintile				
Low (Quintiles 1-3)	1.00	1.00	1.00	1.00
High (Quintiles 4-5)	0.89 (0.74-1.09)	0.67 (0.46-0.97)* <i>p =0.035</i>	0.74 (0.58-0.94)* <i>p =0.014</i>	0.57 (0.43-0.75)
Caregiver education status				
None – P5	1.00	1.00	1.00	1.00
P6-S6	1.01 (0.83-1.23)	0.73 (0.49-1.10)	1.01 (0.87-1.40)	0.96 (0.74-1.23)
Men				
Socio-demographic variables (determinants)				
	(95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Age				
<30 years	1.00	1.00	1.00	1.00
> 30 years	0.96 (0.60-1.51)	2.56 (0.75-8.6)	1.01 (0.56-1.80)	1.94 (1.01-3.72)* <i>p =0.05</i>
Household head SES quintile				
Low (Quintiles 1-3)	1.00	1.00	1.00	1.00
High (Quintiles 4-5)	0.64 (0.44-0.92)* <i>p =0.017</i>	0.47 (0.16-1.41)	0.89 (0.56-1.43)	0.74 (0.47-1.18)
Caregiver education status				
None – P5	1.00	1.00	1.00	1.00
P6-S6	0.90 (0.62-1.30)	0.20 (0.03-1.58)	1.40 (0.86-2.27)	1.94 (1.18-3.19)* <i>p =0.009</i>

**p* values included for statistically significant values

6.0 Discussion

In this thesis I highlight health care use barriers related to the health seeking process, the nature of health service delivery, ownership status of material capital assets and social resources among different wealth categories in the general population with emphasis on young children with febrile illness. This thesis makes contributions to the epidemiology of social determinants of health care use among young children in three ways:

1. The multiple barriers related to enabling and predisposing factors for health care use necessitate a comprehensive index in order to detect differences in use among children.
2. Caregiver's level of social capital is gender specific which contributes to inequity in health care use among children
3. Informational support, trust and reciprocity offer insight into how social capital influences health care use among children

6.1 Equity sensitive monitoring

The existence of multiple barriers to health care use and status is a strong indication for the need to use more comprehensive stratifiers in equity analyses (32). Studies II and IV show that including a wider range of social status assets (material, natural, human and social capital assets) either as part of a comprehensive index or separately as an explanatory variables highlighted differences in health care use among children (103).

These findings are also consistent with a comprehensive poverty construct and that therefore capturing more of these perspectives inevitably improves the sensitivity of a wealth ranking index to discriminate differences in use of health services (104). The next section attempts to unpack the causes of the differences observed in this thesis.

6.2 Gender, social capital and children's vulnerability

The presence of publicly provided health care was perceived as essential to meeting the needs of the poorer households in spite of concerns about quality (105). On the other hand, perceptions of poor quality in publicly provided facilities and the wide choices available to richer

households also led them not to use a public health facility (I, IV). This probably explains why the observation contrasts with findings elsewhere that the better-off tend to benefit more than the worse-off from publicly provided health care (12, 13, 106). These observations are also an indication of the success for publicly provided health care as a strategy to counter vulnerability for the poorer community members. However, each child regardless of the social status of their caregiver ought to have equal opportunity to access effective care for febrile illness particularly given the poor clinical prognosis without it (45). Since use of a public health facility potentially exposed febrile children to technologically appropriate care, non-use enhanced the vulnerability of children in the relatively richer households. These disparities were contributed to by both gender and wealth related factors.

First of all there were gender differences in the predictors of social capital which in turn influenced use of a public health facility. Informational support was associated with use of a public health facility. An illustration of a gender contribution is that among male caregivers, education and age predicted the levels of informational support. However, female caregivers were younger and had lower levels of education. This probably explains the lack of association between informational support with either age or education among women caregivers. Study IV shows that informational trust was associated with increased use of a public health facility. It also implies that women, being younger and having less education miss out on the advantage that informational support had for influencing use of a public health facility. The association of lower education levels among women and insufficient resources to enable access to health care for their children is not an uncommon finding (3).

Secondly, among female caregivers, it was the level of the household head's level of SES which predicted the level of social capital. However, high wealth status was associated with less informational support, trust and instrumental support. This potentially reflects gender inequality in decision making at household level where women are apparently unable to access the resources that enable them to access health care for their children in spite of being in relatively wealthier households. Unequal decision making at household level for women has been demonstrated to heighten children's vulnerability in relation to health care use (3, 107).

Thirdly, disparities were also related to the nature of instrumental support among the different wealth categories. Instrumental support was not associated with health care use probably because it was mainly the least poor households who reportedly benefited and yet they already had resources to access health care. Among the poorer wealth categories, it was limited to herbal remedies but not money. Elsewhere, instrumental support has been shown to have an association with use of health care services (108). Study I showed that instrumental support was perceived to be different between wealth categories, with the poor receiving support that was insufficient to facilitate the use of a public facility.

A final point is associated with health beliefs. In section 6.3, I draw potential pathways showing that health beliefs could influence the nature of informational support which in turn influences decisions on which provider to choose for a child. Confirmation of these pathways requires further qualitative study. However in a setting that promotes universal health care; local beliefs should not determine the choice for a knowledgeable provider. If health beliefs determine health care use, and particularly if this is with deleterious outcomes, this also enhances children's vulnerability (34).

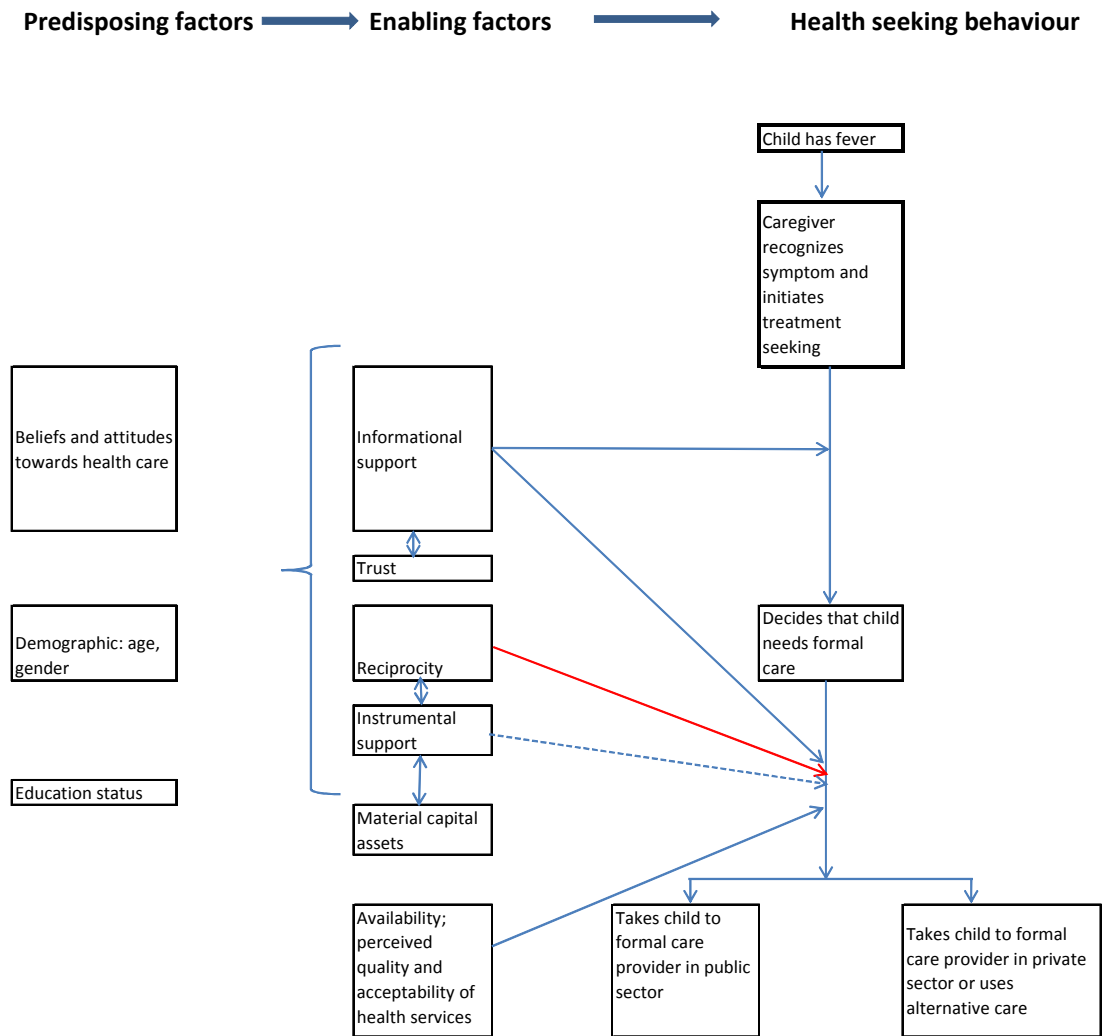
6.3 Potential pathways to health care use by social capital and other determinants

The potential mechanisms for the influence of social capital during health seeking are made in light of three assumptions/hypotheses. First of all, I assume that like in other African settings, collective action to promote wellbeing is enabled by high levels of trust and cohesiveness and is therefore ubiquitous in the study population (75, 109). If this is so, then communities with high reciprocity, trust, informational and instrumental support would enjoy a higher level of use since these are useful in overcoming perceived quality, cost and information barriers to accessing health care (27, 68, 70). A third assumption was that information diffusion on the policy change to improve effectiveness of the treatment of febrile illness would be rapid and therefore knowledge that the public health facility was a best care option would be common place.

Whilst cross sectional studies do not establish causality, they are able to suggest hypotheses that can be further explored in longitudinal studies. In figure 2 below, I lay out the

potential links that could be explored in qualitative and longitudinal studies. Overall, the links between the broad categories bear out Andersen’s health seeking behavioural model (34, 35).

Figure 3: Potential mechanisms through which social capital may influence health care use among children



Reciprocity and trust are recognized as facilitators of the resources that flow through networks (70). In this study, children who lived in villages with high trust were almost twice as likely to use a public health facility for febrile illness. This suggests that information on the presence of more effective malaria treatment diffused faster in these communities and led to higher care-seeking at public health facilities. The negative association of health care use with caregiver’s level of reciprocity could reflect the nature of the reciprocal exchanges in that

community. The qualitative findings indicate that the nature of reciprocal exchanges included money and transport, but was limited to advice and in kind support of either traditional or biomedical remedies, particularly for the poorer households. If reciprocity is perceived to be high but the nature of the exchanges are insufficient to encourage use of a public health facility rather than herbal medicines, then the negative association is expected (35). A caregiver's level of informational support seemed to influence health seeking behaviour at the point of symptom recognition and at the time of deciding whether a child needs formal treatment. This inference is supported from the prevailing attitudes and beliefs about illness and treatment options observed in study I. Unexpectedly, health care use did not have any association with instrumental support. Although instrumental support has been shown to positively influence health care use (108), this as for reciprocity depends on the nature and extent of the support. It is also worth noting that the nature of questions established perceived instrumental support. Perceived support does not always result in actual support.

6.4 Strengths, limitations and generalisability

One of the strengths of this thesis is the use of both qualitative and quantitative methods that enabled triangulation of findings from each of the four studies (I-IV). This strengthens the validity of the findings (75). However, like all cross-sectional studies, causality cannot be established. In other words, this thesis does not establish that presence of social capital led to use of a public health facility, but rather shows an association. Longitudinal studies will be required to establish the causal nature of social capital.

As a rule of thumb, it is recommended that findings from qualitative studies are only generalisable to the setting in which the research is conducted. In this thesis, findings from the qualitative study (I) conducted in three villages, are used in the wider HDSS population with 65 villages. An innovation was in adding a few questions to an existing data base which potentially uses less time and resources than if new data collection had been conducted for all study variables. Although these findings should not be generalisable to the rest of the country, the design of this thesis could be tested in wider national surveys with marginal additional costs.

In theory, the incomplete data overlap among the variables in studies II, III and IV may imply that those who were included were subject to selection bias. This low intersection between

the data sets was mostly driven by the lack of overlap between variables from the social capital questionnaire with those from the study that provided the outcome variable. Subjects questioned in both these processes were randomly selected. Therefore it is very likely that the resultant sample used in the analyses of studies II, III and IV was also random. This means that any factors with a potential to introduce a selection bias would apply across board and have a non-differential effect, with a tendency to underestimate the strength of the association.

Quality of care and distance to a health facility are central to whether or not a caregiver takes a child to a facility in this setting (20, 44). Since the data sets at our disposal lacked these variables, no inferences are made as to how the study findings could have been influenced by them.

7 Conclusions

This study has three main messages with policy implications:

- 1) Universal access to essential health care in Uganda continues to be constrained by multiple barriers that occur during the health seeking process, within the health service and by virtue of an individual's ownership status of livelihood assets
- 2) The distinction of these disparities in health care use is improved when a wider poverty construct that includes social capital is used
- 3) Disparities in health care use amongst Ugandan children can be independently explained by their caregivers' community level stocks and distribution of social capital

8 Policy implications and future research

The policy implications from these messages are:

- 1) Mitigation of barriers to health care use should adopt a multi-pronged approach that concurrently addresses issues related to the individual, the health service as well as community factors.
- 2) Specifically for young children, using interventions that modulate or work through their caregiver's community level stocks of social capital are likely to improve their uptake of effective health care services
- 3) Assessments that are geared at providing policy evidence on the status of inequities in health care use and possibly other health outcomes would do well to stratify on the basis of a wider poverty construct that includes social capital. This calls for the institution of population based data bases that routinely include information on social capital amongst other poverty parameters.

This study also raises a few issues and questions that remain unanswered by the findings, and would benefit from further research. The first of these issues is that study findings could be compared to when a more comprehensive measure of social capital is used. A more comprehensive measure of social capital has been tested and accredited for the Ugandan setting (95). A second issue that could merit further research is the testing of the thesis study design in other areas of the country with different cultural norms. A third issue is whether the study findings remain robust when a different health outcome is assessed.

Three questions that would benefit from further qualitative findings would be: 1) Why are relatively wealthier women less trusting of their communities? 2) Why do relatively wealthier women in the HDSS setting have less informational and instrumental support? 3) How does reciprocity work in real time to undermine use of effective health care?

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