



Family planning in rural Uganda: can mobile communication make a difference?

*A study on the opportunities and limitations of using mobile
phones to overcome barriers to family planning in Hoima
district, Uganda*



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A study on the opportunities and limitations of using mobile phones to overcome barriers to family planning in Hoima district, Uganda

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This thesis is the final product of an amazing but also challenging ten months. A completely new field of studies provided for a busy and sometimes confusing, but very interesting and instructive period. The real adventure started in January when after some weeks of preparation my four-month fieldwork in Uganda began. The beauty of the country, friendliness of its people and the strength, positivity and development you could see everywhere were inspiring. On the other hand differences in pace and work ethos, things that did not work out as planned and the coming and going of ideas were sometimes frustrating. The every day reality of living in a rural area was not always easy, and made me think about my ambitions and future. Luckily I was not on my own, and therefore I would like to thank some people for their help in the entire process of which the end result is this thesis.

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Executive summary

Family planning is an important concept in the field of development for two reasons. First and foremost every human being has the right to access to information on the concept and to the means to practice it. Second, when family planning uptake is low, high fertility rates are seen and these have a negative influence on maternal and child health, economic development, public infrastructure and the environment. Uganda has the 5th highest birth rate in the world and has a high unmet need for family planning: 41% of the women that are sexually active do not want to get pregnant but do nothing to prevent it. Because of Uganda's limited resources, effective yet inexpensive family planning interventions must be developed. Mobile phones are gaining popularity in the field of development as their use is increasing rapidly in developing countries. However, there has been little to no research on their use in the field of family planning, and research on the use of mobile phones in rural areas in general is scarce. The objective of this study was to gain a better understanding of the value of mobile phones as an information and communication channel in Uganda's rural areas, and more specifically to influence family planning uptake.

The research took place in Hoima district, Western Uganda, both in Hoima town, a provincial town, and in the surrounding rural areas. Both qualitative and quantitative methods were used: 15 health workers were interviewed, 140 surveys were done, half in town and half outside of town, and another 16 in-depth interviews were done with the local population.

The results revealed several reasons why people were not using contraceptives. Most of these can be addressed by providing people with information on the topic. This will increase awareness, address misconceptions, change negative attitudes, especially of men, decrease the wish for a large family and help understand side effects. In addition to giving information, access to and quality of services should be improved. Although radio is still the most popular communication channel for family planning information, due to its widespread accessibility, the phone competes with face-to-face contact for the second position. The phone is popular because it brings information to the people, it is accessible at any time and in any place, it is private and information (especially via messages) can be used to teach others. However, people also stress the need for personal advice and asking questions, and even though setting up a call centre could fulfil part of this need, face-to-face contact remains necessary. Access to mobile phones is limited by financial costs, limited access to electricity and literacy and language barriers, although these last ones are often overcome with help of friends. Access was found to be higher in town, among men, and, contrary to what is often described, lower for adolescents. However, of the entire research population, 65% had their own phone and 86.4% had phone access, so even in a rural population, phone use is widespread, and phones are a good way of reaching large groups of people.

All in all this research found that the mobile phone could definitely be used to increase awareness and knowledge on family planning, especially among men, so that more people can make an informed choice on whether they want to use family planning or not. However, other channels, like the radio and outreach activities should also be used to ensure that the entire population is reached. Furthermore quality and quantity of family planning services should be improved to make sure people can bring the decision they have made into practice.

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Abbreviations

A-level	Advanced level (year 6 secondary school)
AIDS	Acquired Immune Deficiency Syndrome
DHS	Demographic Health Survey
DVT	Deep Venous Thrombosis
GDP	Gross Domestic Product
GNI	Gross National Income
HC	Health Centre
HIV	Human Immunodeficiency Virus
HRRH	Hoima Regional Referral Hospital
ICPD	International Conference on Population and Development
ICT	Information Communication Technology
IUD	Intra Uterine Device
LC	Local Council
O-level	Ordinary level (year 4 secondary school)
MDG	Millenium Development Goal
NGO	Non-Governmental Organisation
PC	Portable Computer
PPP	Purchasing Power Parity
RRH	Regional Referral Hospital
SIM	Subscriber Identity Module
SMS	Short Message Service
STD	Sexually Transmitted Disease
TV	Television
UGX	Ugandan Shillings
UN	United Nations
VHT	Village Health Team
WHO	World Health Organisation

1 - Introduction

While worldwide population growth is thought to stabilize within 50 years (Jensen, 2011) and some countries in Europe even complain about their declining fertility rates, in many developing countries the opposite is the case. The high fertility rates found in some countries limit individuals, and more especially women, in their development and in the fulfilment of their basic human rights. Furthermore, deciding on the number of children one gets is a human right in itself. Giving birth to this many children also brings health risks for mother and child, and has consequences for the time distribution and economical situation of the household. On the national and global level, rapid population growth can also have adverse effects with regards to economic growth, public service distribution and the environment.

While there are different factors that influence fertility rates, using contraceptives is the easiest way for an individual to influence the number of children he or she will get. Family planning interventions show people advantages of smaller family sizes, make them aware of the possible methods to influence family size and help them to get access to these methods and use them properly. Although the concept of ‘family planning’ can come with a bitter taste in the mouth due to coercion in past programmes, this does not have to be the case as Prata (2007; p 219) states rightly: “Family planning does not limit people’s rights; it gives people choices. Couples are able to control their fertility and therefore achieve desired family size and timing of the birth of their children.”

Uganda is the country with the 5th highest birth rate in the world; women on average give birth to 6.2 children, a number that has not changed much over the past years (World Bank, 2012). Contraceptive prevalence is only 42% for all women and 30% for married women and there is an unmet need for contraceptives of 41% (DHS, 2011; Ch 7). This means that 41% of the women that currently do not want a baby but are at risk of getting pregnant are not protecting themselves. Although there is quite an extensive literature on the reasons why uptake of family planning is low in Sub-Saharan Africa in general (e.g. Campbell, 2006), as well as in Uganda in particular (e.g. Nalwadda, 2010; Blacker, 2005) and what barriers there are to prevent women from starting to use contraceptives, the problem is still very relevant as the numbers above show.

In developing countries like Uganda where human and financial resources are poor, an on-going search for the most effective yet least costly family planning intervention is going on. Recently a lot of interest is shown in using new information communication technologies like the mobile phone and Internet for development purposes. The number of mobile phones is rising quickly all over the world, also in developing countries. Between 2000 and 2010, the number of mobile phone subscriptions in low- and middle income countries increased by more than 1500 per cent from 4 to 72 per 100 inhabitants. While broadband coverage is often limited to urban areas, and smart phones are not affordable for most people in these countries, use of call and SMS services is widespread even in remote rural areas (Minges, 2012).

Most interventions and research on the use of mobile phones for health care purposes have been done in developed countries (Cole-Lewis, 2010; Gold, 2011; Levine, 2008). There are on the other hand a number of successful examples of mobile phones (often through SMS) being used in developing countries for banking, insurance and agricultural development

(Friederici, 2012; Minges, 2012). There have also been some pilot studies in the health sector (L'Engle, 2010; Tolly, 2012) but funding is scattered, many projects run next to each other and scaling up or replicating is barely taking place as thorough evaluations are missing. Most interventions miss a theoretical background and no research is done in advance on the target groups and contexts in which they will take place before their implementation (Gurman, 2012).

Most of the research that is done also focused on those populations in which a positive effect is expected, but that are not necessarily the most in need: urban populations (Corker, 2010) or higher educated populations (Mitchell, 2011). Research almost invariably takes place with groups of people that are frequent mobile phone users and within these groups those that subscribe for the intervention, while non mobile phone owners or people that do not participate in the intervention are left out. No research has been found that looks at the possible effects of an intervention on the general population in an area, and not just the often 'privileged' phone owners and users. Moreover, the combination of mobile phones and family planning has, despite the importance of the topic in Uganda, not yet been made.

1.1 Problem identification and research objectives

As the data above show, there is a large need to increase contraceptive uptake in Uganda. Although quite some research has been done on the reasons why uptake of family planning is low compared to other countries, birth rates remain stable, and no large increases in family planning uptake have been seen over the past years, especially in rural areas (World Bank, 2012). Mobile phones seem to contain a promise, as the number of subscribers in Uganda rose quickly with 1700 per cent between 2002 and 2008 (Nchise, 2012).

Although the enthusiasm about mobile phones is big, and theoretically they have some very promising characteristics, research on their actual value for health care in rural areas is unsatisfactory. The main focus lay on urban or higher-educated populations that were in possession of a mobile phone and those populations that are most in need in terms of knowledge and services remain underexposed. The topic of family planning in combination with mobile phones has never been investigated.

This research uses a theoretical perspective combining behavioural as well as communication theories to assess the value mobile phones can have in increasing family planning use in rural Uganda. It consists of two parts. First of all it aims to clarify which factors influence the uptake of contraceptives positively and which factors hinder their uptake in Hoima district, a rural area in the west of Uganda. Secondly, it assesses the possible role mobile phones can play in increasing contraceptive uptake, characteristics of mobile phone users are identified and the strengths and weaknesses of mobile phones as communication tool are evaluated. The main objective of the research therefore is to gain a better understanding of the value of mobile phones as an information and communication channel in Uganda's rural areas, more specifically to influence family planning uptake. The main research question on which the thesis is based is:

What opportunities can communication through mobile phones create to increase contraceptive use in Hoima district, Uganda, and what limitations are there in the use of mobile phones for this purpose?

The main question was divided into five sub questions:

- 1. Which demographic factors play a role in contraceptive use and which subgroups need special attention?*
- 2. Which demographic factors play a role in mobile phone ownership and use?*
- 3. What are the barriers to contraceptive use and how could these be overcome by a mobile phone intervention?*
- 4. What are the preferred communication channels for people to be informed about family planning and its services, and why?*
- 5. What characteristics do phones have to facilitate communication and behaviour change, and what problems may arise in using them for these purposes?*

1.2 Thesis structure

This thesis consists of nine chapters. In the subsequent chapter, chapter two, the theoretical framework underpinning the research is presented. The positions of family planning and of mobile phones in the development debate are discussed, and the theoretical models and conceptual framework are introduced. In chapter three more information on the background of Uganda is presented, and the current status of family planning and mobile communication in the country. Also previous research from Uganda on the topic is discussed. Chapter four discusses the design and methodology of the research. In chapters five to seven the findings of the research are presented. Chapter five focuses on the findings surrounding contraceptive use and the opinions and reasons underpinning use or non-use of contraceptives. Chapter six presents the level of mobile phone use, characteristics of phone users and problems or barriers to the use. In chapter seven the two topics are combined. Different possible communication channels for family planning are discussed, as well as the different options there are on using a mobile phone to inform people on the topic. In chapter eight, the conclusion, the findings of the research are discussed and linked to the theories and previous research on the topic. Recommendations for future research are done and the limitations of this research are discussed. Finally an answer is given to the main research question.

2 - Theoretical framework

Family planning as well as information communication technologies (ICT)'s, or more specifically mobile phones, are not new concepts in the field of development. The combination on the other hand is quite new. This chapter starts by describing the different theories and opinions there have been on family planning over time, the rationale for family planning programmes and two important subgroups that need targeting. It then introduces some of the main theories and models used in family planning programmes. After that a description of mobile phones in the field of development and behaviour change, and their theoretical advantages and disadvantages is given. The chapter concludes with public education theories and the presentation of the conceptual framework on which the research is based.

2.1 Family planning: a contested notion

Family planning and its programmes and policies have played a prominent role in the international development debate, with ever shifting opinions. Until 1950 there was no record of any institution in the developing world that was concerned with limiting population growth and in 1951 India was the first country that implemented a national family planning policy. In the 1960's, rapid global population growth was observed, while at the same time more effective ways of limiting family size came available (Caldwell, 2002). In low-income countries, several family planning programmes were launched, as rapid population growth was seen as a threat to development, and donor support expanded throughout the 1970's and 80's (Edouard, 2009). However, by the 1990's, family planning became less popular. More and more critique was expressed over the coercion that was often seen in the programmes in Asia, for example in China and India (Caldwell, 2002).

The International Conference on Population and Development (ICPD) in Cairo in 1994 meant a major shift in the family planning field. The demographic-economic rationale was replaced by a focus on reproductive health and rights and women empowerment, with attention for the needs of individuals rather than demographic targets. Gender equality was accentuated, since having fewer children gives women opportunities for non-domestic activities (Cleland, 2006). Campbell (2009; p 3104) argues: "the ability of women to control their own fertility is absolutely fundamental to women's empowerment and equality".

Seeing family planning as a basic human right was not new; the International Conference on Human rights stated in 1968 and 1974 that everyone has the right to decide freely and responsibly on the number and spacing of his/her children and the right to adequate education and information on family planning (Hale, 2010). Family planning can also be directly related to some classical fundamental human rights, like the right to non-discrimination, information and education, the highest attainable standard of health, and the right to privacy and life (Cottingham, 2012).

The ICPD in Cairo emphasized to a larger audience that the goal of family planning interventions was no longer to limit population growth, but to help couples and individuals regardless of their marital status to have the number of children they want, whenever they

want them. As there are many couples that want fewer children than they are having, reductions in fertility were expected from this strategy. However, any such result would be seen as a collateral benefit, rather than a goal in itself (Gwatkin, 2009). Critics mention that even though the ICPD underscores repeatedly that no form of coercion or any (dis)incentives should be involved in family planning interventions, some neo-Malthusian ideas can be found. The conference implicates that low population growth is beneficial for a country, rapid fertility decline is better than slow decline, and stabilisation of the population would be ideal (Hodgson, 1997). These arguments are not surprising, since rapid population growth is indeed thought to have adverse consequences at the global, national and individual level.

Globally the pressure on the bio-capacity of the earth increases. In 2007 the earth had just enough resources to provide for the population and absorb its wastes, under the current technology (Braeckel, 2012). Although it is mainly the rich countries that are responsible for unsustainable use of the earth's limited resources (Cleland, 2006), the growing population in developing countries, combined with the need for an increase in affluence, means they can have a large impact in the future (Jensen, 2011).

Population growth also poses a problem for the development of nation states. When population growth is higher than economic growth, even though countries are becoming more prosperous as a whole, the GDP per capita is likely to increase much less or even decrease (Braeckel, 2012). The unfavourable population pyramid, with a large young population compared to the working age people, reduces income per capita even more (Ezeh, 2012). Lastly, it is very hard for the government to maintain public services and infrastructure at a stable level to keep up with the growing population, let alone improving those services (Campbell, 2009; Ezeh, 2012).

A last benefit of family planning is found on the individual level. 40% of the pregnancies in Sub-Saharan Africa are unintended, and preventing these pregnancies could result in the prevention of around 150.000 maternal deaths a year (Braeckel, 2012; Cleland, 2012). Cleland (2012) even states that family planning is the best way to reduce maternal deaths because it is cheap and does not rely on complex technology. Family planning not only improves maternal health, but also the health of the children. Children born within 2 years of their older sibling have a 60% increased risk of infant death, compared to children born more than 2 years after their sibling (Cleland, 2012).

The delinking of family planning from economic development and social and environmental benefits and putting it in the reproductive health and rights field resulted in less funding and attention for the topic from 1994 onwards. Attention shifted to other topics like the emerging HIV/AIDS epidemic. Illustrating is the fact that family planning initially did not get a place in the Millennium Development Goals, while it underpins the majority of the goals, except the last one¹ (Benagianio, 2012). Later on, in 2007, 'universal access to reproductive health' was included as an additional target to MDG 5: improving maternal health (Edouard, 2009).

¹MDG's:
(UN, 2013)

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality

5. Improve maternal health
6. Combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Global partnership for development

Recently, after nearly 20 years of neglect, family planning has again received attention. In the London Summit on Family Planning in 2012 the goal was set of halving the number of women with an unmet need for family planning in the world's poor countries in the next 8 years (Potts, 2013). After delinking family planning from developmental benefits in 1994, emphasis is again placed on the need for family planning and the benefits it can have for development. Cleland (2006; p 1810) comments: "no contradiction exists between a respect for reproductive rights and a renewed sense of urgency in family planning promotion." Many policymakers fear the topic 'population' because of the sensitive issues involved and fear for violating couples rights. However, most population growth today is not a result from reproductive self-determination, but from unplanned pregnancies. Assuring that the highest proportion of births possible results from parent's intentions to raise a child, would have a tremendous impact on population growth (Engelman, 2010), and the above discussions shows that slowing population growth can be done easily within a human rights framework. In the end, seeing family planning as a human right does provide the strongest argument for its importance. Caldwell (2002) noted that even when we achieve replacement fertility or below replacement fertility, and ideologies for raising fertility might rise, this does not mean that attention should shift away from universal access to family planning. Edouard (2009; p 158): "even in the absence of a threat from overpopulation, contraceptive services should be available so that individuals can exercise their rights to achieving their desired fertility".

A final debate in the family planning field is the debate on the necessity of specific interventions. Although contraceptive use is one of the biggest drivers of fertility decline, in European countries fertility fell sharply in the 1930's without any intervention. More recently, the same trend was observed in Brazil and Burma, showing that if couples really want to limit their fertility they will find a way anyhow and a contraceptive market will emerge (Cleland, 2013). It is sometimes argued that development is the best contraceptive model and many experts state that universal education would be a more cost-effective measure with a bigger impact on reducing fertility than specific family planning campaigns (Hale, 2010). Indeed, investments in child survival, education, women empowerment and poverty reduction have a positive influence on fertility decline. However, there is no sheer evidence of thresholds in these indicators that will ensure fertility decline. Contraception often meets with resistance, fear and moral discussion, even when the need for it is there (characterized by unplanned pregnancies). Reducing barriers to the services by providing subsidies and public information campaigns, the goal of most programmes, does seem necessary. Additionally, in the past 50 years, no poor country has experienced a decline in its fertility without a strong family planning programme, and comparison between similar countries with and without programmes (e.g. Kenya and Uganda) show the positive influence they can have (Cleland, 2013).

2.2 Important target groups in family planning

There are two subgroups in family planning that deserve special attention: the men, which traditionally have been left out, and the youth.

While initially family planning was seen purely as a women's thing, men increasingly receive attention as a target group. Nalwadda (2010) found that men's preferences influence

contraceptive use more than women's preferences, and indeed men seem to have, a predominantly negative, influence on contraceptive use of their wives. Another study in Uganda also showed that women were twice as likely as men to believe that the number of children they will have depends more on what their partner wants than on what they themselves want (Wolff, 2000). Men more often want a large number of children as traditionally large families provide a man with prestige. Another reason for men to disapprove of contraceptive use is the fear that their wives will become more promiscuous and be unfaithful. However, men are becoming increasingly aware of the cost of having many children and this is an important point to target them on (Fapohunda, 1999).

A Ugandan study showed that the topic of family planning is hard to discuss between couples and many people underestimate the desire of their partner to stop childbearing (Wolff, 2000). This lack of communication quite often results in the covert use of contraceptives, especially when contraceptive use is a new or uncommon phenomenon. Therefore, in promotion of male involvement and couple's decision making in family planning, one thing should be kept in mind. Encouraging couple's discussion can also have an adverse effect when there is disagreement, because it makes secret use more difficult. Wolff (2000; p 136): "How much emphasis to place on meeting the needs of individual versus those of couples is a question that must be addressed in each programme setting".

Another population group that deserves special attention are the youth (age 15-24 by WHO definition), and for good reasons. First of all the youth are a big group in developing countries, for example 49% of Uganda's population is below 15 and 20% between 15 and 24 (Nalwadda, 2010). But, as Bankole (2010; p 117) says: "investing in young people is of great importance not only because of the size of the adolescent population but also because of the roles this group will play in shaping the future of their societies". The youth will influence the future growth of a country's population immensely. Health risks of getting pregnant are also higher for young people. Women under 20 are twice as likely to die in childbirth as those above and their children are twice as likely to die in the first week of life. Almost half of the unintended pregnancies occur in youth below the age of 24, and the majority of unsafe abortions (57%) as well (Williamson, 2009). Getting pregnant also limits young women's educational and economic opportunities and can ruin their social status (Bankole, 2010).

Knowledge of contraceptives is lower for younger age groups than for the rest of the population. In some Sub-Saharan African countries 50% of the youth report never having had school based reproductive health education, probably because there is a common belief that educating youth about sexual health will encourage them to start sexual interaction. There is however no proof of this, as many studies showed that sexual health education does not lead to earlier or increased sexual activity (Bankole, 2010; Prata, 2012).

Contraceptive use for youth is still surrounded with a lot of fear and shame due to the social stigma's surrounding sex before marriage, more so for women than for men. Young women in Sub-Saharan Africa admit being scared to be seen at family planning clinics and to seek information. Discrimination of youth in health institutions is very common, and there is often a lack of privacy and confidentiality (Prata, 2012). Ugandan adolescents told that sometimes health workers would report to parents or husbands when adolescents come by (Nalwadda, 2010).

2.3 Uptake of family planning as behaviour change

The final goal of family planning programmes essentially is to induce a behaviour change. Over time different behavioural theories have developed, improvements have been made and shortcomings identified. Two of the further developed and widely used theories have been used in this thesis and will be explained with reference to several earlier concepts.

2.3.1 The theory of planned behaviour

This theory (Ajzen, 1991) is well known and widely used in the field of behaviour change, and often forms the theoretical underpinning of behaviour change campaigns. The theory is an extension of the theory of reasoned action that was formulated earlier by Fishbein & Ajzen in 1980 by adding the notion of perceived behavioral control. The theory is depicted below in figure 1; not shown are feedback loops behaviour might have on the other determinants.

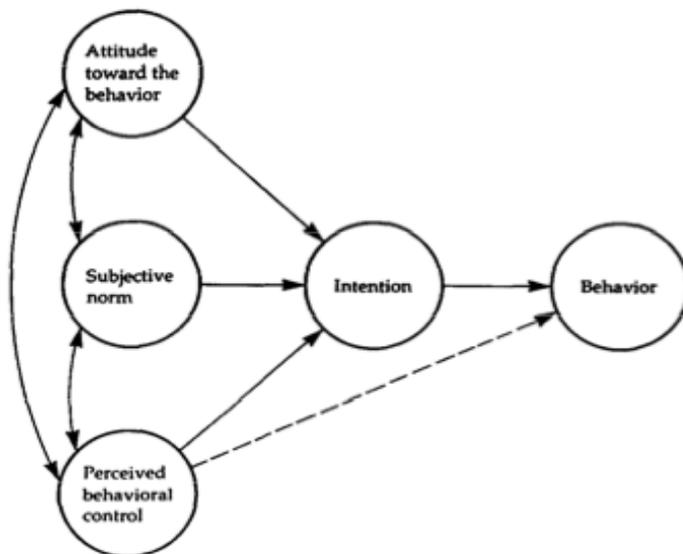


Figure 1: The theory of planned behaviour (Ajzen, 1991)

According to the theory of planned behavior, behavioural achievement is directly influenced by both intention (motivation) and ability (behavioural control). It depends on the situation which one is more important. Empirical research showed that when there are no control problems, intentions can predict behaviours quite accurately. However, some actions, like getting contraceptives in Uganda, are not completely controllable, and then the concept of behavioural control becomes important. Perceived behavioural control is a person's perception of the ease or difficulty of performing a behaviour and whether it will lead to a certain outcome. This can vary across situations and actions. When perceived behavioural control corresponds with actual control, it is a better predictor of behaviour. The notion of perceived behavioural control is closely linked to the concept of self-efficacy, introduced by Bandura (1977). He showed that people's behaviour is strongly influenced by their confidence in their ability to perform it in the right way to achieve a certain goal (their self-efficacy).

Intention, the second direct determinant, is affected by attitudes towards the behaviour, subjective norms and perceived behavioural control. The attitude is the degree to which a person has a favourable or unfavourable look at the behaviour. The subjective norm represents the social pressure to perform or not perform the behaviour. The relative importance of the three determinants of intention depends relying on the situation. Attitudes seem more important in most studies than subjective norms, meaning that personal consideration has a bigger influence than perceived social pressure.

The three determinants of intention all represent a form of belief. As explained in Fishbein and Ajzen's (1975) expectancy-value model of attitudes, attitudes towards a behaviour are formed by a combination of beliefs about the consequences of a behaviour and the costs involved with performing it. Whether these outcomes or costs are viewed positively or negatively and the likelihood of them occurring determines the attitude towards the behaviour. Beliefs can be instrumental (benefits/costs) as well as affective (like/dislike). Subjective norms are a function of a person's belief of what important others might think of a behaviour multiplied by his motivation to comply with these others. Perceived behavioural control, or beliefs on control are based on past experiences and second-hand information from other persons. The more resources and opportunities people believe they possess and the fewer obstacles they see, the bigger their perceived behavioural control.

Regression analysis on the theory of planned behavior showed that it is a good predictor of behaviour, but that including past behaviour in the regression can still add to the predictive value. As past behaviour is seen as one of the best predictors of future behaviour, this means that more determinants could still be added to the model to improve its predictive value. Of course, past behaviour already plays a role in most of the constructs, namely perceived behavioural control, attitude and subjective norm (Ajzen, 1991).

The theory of planned behaviour has been widely challenged. Some critics outright deny that any decision is influenced by a conscious thought, others say the theory needs extension, and argue that emotion and affect should play a larger role. Ajzen wrote a very sensible response in 2011 to these critics and did some convincing research to underline the rightness of his theory. He shows that the theory of planned behaviour does not assume an individual as completely rational. Attitude, subjective norm and perceived behavioural control are a direct reflection of beliefs people have that are not necessarily accurate representations of reality. These beliefs are perceptions of this specific individual, influenced by premises, emotions and context (Ajzen, 2011).

2.3.2 Information – Motivation – Behavioural Skill model

Another theory that is less widely known, but has been used more specifically in the field of sex-related preventative practices and in a developing world context is the information-motivation-behavioural skill model (Fisher, 1992). This model was originally designed for reducing AIDS-risk behaviour and integrates theory and research both from social psychology and health psychology (Barak, 2001). Research comparing different AIDS-risk-reduction interventions in different target groups (general public, adolescents, university students, sex workers, gay people) found that when interventions stress information, motivation and behavioural skills, their impact is enhanced. This theory therefore argues that there are three

determinants of behaviour change: information (about risks and how to prevent them), motivation (affecting whether someone brings knowledge to practice) and behavioural skills that affect whether a motivated person with knowledge is able to change his behaviour. Information and motivation come first and activate behavioural skills through which the behaviour is executed. However, information and motivation can also independently influence behaviour, when the behaviour change is uncomplicated and no extra skills are necessary (figure 2).



Figure 2: Information-Motivation-Behavioural Skill model (Fisher, 1992)

The specific information, motivation or behavioural skills needed to change behaviour differ depending on the target group. Some determinants can be more important than others in certain situations/populations. Information is a necessary but often not sufficient condition for behaviour change. Even well informed people need to be motivated to initiate and maintain behaviour change, also when the change is uncomplicated. Motivation is influenced by attitudes, social norms and perceived costs and benefits of the behaviour. The concepts of attitude and subjective norms are lent from Fishbein's theory of reasoned action. Perceived costs and benefits, as well as perceived vulnerability (e.g. to unwanted pregnancy) are elements that come from health belief models. Behavioural skills are those skills necessary to execute behaviour change. They may be communication skills, negotiating skills, public behaviour skills or empowerment. One should also have a sense of self-efficacy or the perceived control to use the skill (Fisher, 1992).

When comparing the theory of planned behaviour with this information-motivation-behavioural skill model you see many similarities. Both theories have lent the concepts of attitude and subjective norm that influence intention or motivation from the theory of reasoned action. Both take into account the necessity of having a belief in one's skills to execute the behaviour and see this as a direct determinant of behaviour together with motivation (or intention). However, the information-motivation-behavioural skill model assigns a larger role to behavioural skills, not just perceived, but also actual skills or control. It also explicitly mentions the necessity of having information before behaviour change can take place. Although the theory of planned behaviour implicitly assumes the necessity of the presence of these two factors, for the context of this research mentioning them explicit is in place, especially since information about contraceptives and control over their use are not self-evident in Uganda.

2.4 Mobile phones in development

The first sentence of the World bank paper ‘Maximizing mobile’ (Minges, 2012; p 11) states that: “Mobile communication has arguably had a bigger impact on humankind in a shorter period of time than any other invention in human history”. This belief has led to the increased attention for mobile phones as tools for development. Not only is their usefulness in development identified, access to a mobile phone is also increasingly seen as a basic human right (part of the right to communication), rather than a welfare benefit. Some people even argue for inclusion of telecommunications infrastructure in the list of transport, electricity and water; infrastructures that the government is obliged to provide (Shanmugavelan, 2004). However not everyone is positive about the mobile phone. Some people think the enthusiasm is overdone and say that development problems need a more comprehensive approach tackling different sectors rather than relying on these new technologies for a quick fix. Others say that the new technologies will only increase existing inequalities (Kaplan, 2006).

Fact is that in developing countries the number of mobile phone subscriptions is rising sharply and increased by over 1500 percent between 2000 and 2010 from 4 to 72 per 100 inhabitants (Minges, 2012). This number of subscribers not necessarily represents the full size of the impact mobile phones can have as James (2007) argues rightly. Especially in Africa, mobile phones are often used by more than one person, so the number of subscribers is often an underestimation of the number of users. Network access figures on the other hand are too optimistic.

The increase in the number of subscribers (and probably users) that is seen, is likely to continue, as the younger population is quick in the uptake of the new technology and welfare slowly increases in developing countries. According to Minges (2012) developing countries will increasingly have an influence on the ICT industry because of their rapidly expanding markets. Furthermore they skip a whole generation of wired technology, while the developed world has to make an extra step from wired PC’s to small-screen smart phones. However, Shanmugavelan (2004) rightly argues that usually the ICT sector is more concerned with new technologies and services, rather than extending the currently available services to all and adapting them for development purposes. Sometimes broadband coverage in a country is extended, while some parts do not have small band coverage yet. Many interventions are based on ‘fashionable applications’ while the majority of mobile phone users in developing countries does not yet have access to broadband networks and Internet because the costs are still too high.

However, there are also initiatives specifically focusing on developing countries, and simple mobile phones are more and more used in pro-poor development. They serve to send farmers information about market prices and the weather, are increasingly used as a data collection tool and enhance communication between professionals (Minges, 2012). The use of mobile phones in health care is also increasing. mHealth, defined by Friederici (2012; p 45) as: “any use of mobile technology to address health care challenges such as access, quality, affordability, matching of resources, and behavioural norms [through] the exchange of information”, has numerous possible applications (also see section 2.5.1) Phones can be used as a data collection tool, for example about the resources available at health facilities, or about contagious diseases. They can serve as a way of providing health care to remote areas by

sending reminders, mobile prescriptions, test results or do simple monitoring of chronic diseases. Mobile phones can also enhance communication between health care professionals, leading to more efficient referrals or better standard practice. Lastly they can serve in public health to educate the public (Friederici, 2012).

2.4.1 Theoretical opportunities and problems of phones in development

Mobile phones are thought to have several characteristics that make them unique and very useful in improving pro-poor development and health in developing countries. First of all they are a cheap way of reaching large groups of people in all segments of society. The large rural urban divide that exists for fixed telephone lines (in most African countries >70% are in the top-three of largest cities) is smaller for mobile technology. From a provider point of view extending mobile networks is much easier and cheaper and requires fewer infrastructures than extending fixed lines. However, very remote areas sometimes still lag behind when providers claim infrastructure is not good enough to work there (Kaplan, 2006; Shanmugayelan, 2004).

With regards to individual users, there also seems to be a smaller barrier for the use of mobile phones than that of other devices. As Kaplan (2006; p 3) describes it: “the existence of a so-called ‘digital divide’ along the socio-economic gradients is less pronounced in mobile phones than in other communication technologies such as the Internet”. Prepaid services provide people with an unstable income with the possibility to buy airtime whenever the opportunity arises and use it over an extended period of time. In this way they can control their expenses. Even when they don’t have money to buy airtime, they can still be called and receive messages.

Phones also provide a certain level of privacy, as they are personal devices and can be handled in private spaces, although phone sharing in developing countries can make this advantage invalid. While voice communication is still the main use of mobile phones, data and text-based ways of communicating are increasing. While in developed countries the use of text messaging is decreasing again, for a lot of users in developing countries that have no Internet on the phone it remains popular (Minges, 2012). Text messages are an asynchronous form of communication, meaning that they can be read whenever convenient for the phone user. People do not have to be available at the moment the message is sent and even when the phone is off, the message will be delivered when it goes back on. Another advantage is that because it is silent messages can be sent and received in place where a conversation is not possible. It is also cheaper than voice calling (Kaplan, 2006; Cole-Lewis, 2010; Friederici, 2012).

A last advantage of phones is that they can be used to reach the younger population. As Minges (2012) describes, younger users tend to pick up new technologies quicker than older users. Considering the size of the young population in most low-income countries, and the role they will fulfill in their country’s future, mobile phones are the perfect channel to reach the population of the future.

Apart from these advantages, in developing countries there are numerous challenges that can prevent programmes based on mobile phones from being successful. Especially for rural populations that are often already relatively disadvantaged in terms of income, education and public services, barriers preventing a successful phone programme can be high.

First of all there is the financial cost of buying and using a phone. Although mobile phones are cheaper than other technological devices as computers or smartphones, the cost of buying the phone, buying the airtime and paying for electricity to charge it may be too high for the poorest part of the population (Chib, Lwin, 2012). Due to this cost aspect, sharing of phones is very common in Sub-Saharan Africa, especially in rural communities and this increases the number of people with phone access. This phone sharing however poses problems of privacy and confidentiality. Two-way communication is also difficult as the user of the phone is not always in possession of it and cannot receive spontaneous calls. Received and send text messages can be read by subsequent users (Kaplan, 2006). Especially in the field of health care, where messages might be tailored to the health of the individual, privacy should be ensured (Friederici, 2012). Surprisingly, a Ugandan study among HIV positive patients sending them their lab results per SMS showed that the vast majority (90%) were not afraid of disclosure of their status by this type of messaging (Siedner, 2012). This is discordant with findings from another study in rural Uganda, where Burrell (2010) found that concern about the secrets contained in a phone made phone owners hesitant of letting others use their phone.

Another problem is that literacy levels, including ‘technology literacy’ can be low in developing countries making understanding the messages and operating the phone difficult (Friederici, 2012). Studies showed that the ratio of text messaging to voice calling is lower in developing countries than in the developed world, most likely due to higher illiteracy rates. Indigenous languages can form another barrier (Kaplan, 2006). However, comparing phones to other advanced technologies like computers, the technological literacy necessary is much lower. A study in Indonesia confirmed this, as operating a mobile phone was much less of a problem than operating other devices (Chib, Lwin, 2012). Network problems can be another major deterrent in the success of a mobile phone intervention. Especially in remote rural areas network coverage can be far from optimal (Chib, Lwin, 2012).

For text messaging, the amount of information that can be sent is very limited. This makes it difficult to communicate a complex message or have an interaction. Health related messages ideally are culturally and socially appropriate and fit the individual patient, but this is hard to achieve in 160 characters (Kaplan, 2006).

Lastly some studies show that there is a large gender inequality in the mobile phone sector. Men are much more likely to have a phone than women. A study looking at phone sharing in rural Uganda showed that many women used their husbands phone, but were completely denied privacy and phone operation, with the husband entering the phone number and being in the room when his wife made the call (Burrell, 2010). However, another study among adolescents in Ugandan secondary schools showed that girls were as likely as boys to own a mobile phone. The relatively high educational level of the study population might have played a role here (Mitchell, 2011).

It is still unclear whether the positive or negative aspects of phone interventions take the lead in developing countries. Moreover, circumstances and populations differ, so each intervention needs its own approach. Currently the main complaint in the debate on mobile phones in development is the lack of proof for their effectiveness. There are many projects that are not founded on theory or baseline research, and comprehensive studies evaluating the impact of mobile phone interventions are lacking (Friederici, 2012; Kaplan 2006).

2.4.2 Mobile phones in behaviour change and family planning: previous research

Systematic reviews of interventions that use text messages for promoting healthy behaviours show that this can have positive short-term behavioural effects. Effects seem to exist through different age groups, across nationalities and among risk and non-risk groups (Fjeldsoe, 2009; Cole-Lewis, 2010). However, most of the studies took place in the developed world. In 2006 Kaplan noted in a review that: “the relative lack of information for developing countries is striking”. The fact that Gurman’s review of behaviour change interventions in developing countries in 2012 could include 16 articles shows the speed with which developments in the field take place. In the developed world, most studies focused on behaviours like smoking cessation, losing weight, exercising and self-management of asthma and diabetes (Fjeldsoe, 2009; Cole-Lewis, 2010). There are however also examples of increasing knowledge about safe sex and safe sexual behaviour among adolescents that show that text messaging has a positive impact (Gold, 2011; Levine, 2008). In developing countries, most of the focus lies on HIV/AIDS. One of the few studies that looked into the influence of frequency and content of text messaging was done in South Africa (Tolly, 2012). In this study participants received either 3 or 10 text messages with either an informational message about HIV testing, or a motivational one. The study showed there is a threshold for positive impact, because the testing was higher in the 10 messages groups than in the 3 messages groups. The type of messaging also had an impact; motivational ones were more effective than informational ones.

So far there have been two academic studies that looked into the use of mobile phones specifically in the field of family planning: one in Democratic Republic (DR) of Congo (Corker, 2010) and one in Tanzania (L’Engle, 2012).

In DR Congo they worked with a toll-free hotline that people could call to ask questions. Promotion took place through radio, television and educational activities. They received 80.000 calls in 3 years, of predominantly men (80%). A possible explanation for this could be their bigger access to cell phones or mass media, or the fact that conventional health services often focus on women. Many men, however, called on behalf of their wife asking about side effects she experienced. 20% of the callers called with other issues than family planning because they did not understand the concept of the service. This study depended completely on the initiative of the caller to seek for family planning information, and targeted mainly an urban population.

In Tanzania an SMS service was set up, providing information about 8 different contraceptive methods: their side effects, effectiveness, duration of use and ability to return to fertility (L’Engle, 2012). It was promoted in health facilities and through posters. In the 10 months of the project, 4813 queries were made by 2870 different persons. The majority of the queries were made by females (56%) and the majority of users were younger than 29 (60%). Young users made more queries on average than older ones. An open-ended question asking about changes in contraceptive use was well understood and answered by 500 participants of which 400 mentioned a change. The study showed that text messaging is feasible in informing the population, especially youth, but also men and can induce a behaviour change (although self-reported). The study was however dependent on participants making the first step in getting information, and as promotion of the service was done in clinics, mainly those already

accessing services were the ones that knew about the service. No information on non-participants was collected.

2.5 Communication and ICT models

To underpin more theoretically the role mobile phones can play in increasing family planning uptake two more theoretical frameworks are introduced. One focuses on the use of ICT's in education in developing countries, the other is a communication theory often used in public education campaigns.

2.5.1 Value of ICT to education model

Information Communication Technologies (ICT's) can play various beneficial roles in promoting development through education. In this theory the factors and forces that influence adoption and impact of ICT's in the developing world are depicted. Education is linked to development through four pathways with four different beneficial roles.

The first role is opportunity producer, where ICT's can produce greater time/cost efficiencies and lessen transportation costs. Secondly, ICT's can also work as capability enhancers, when they improve the handling of certain situations, like referral services in health care. ICT's have a role as social enabler in improving communication between people, and also between community members and health care providers. The final role is the ICT as knowledge generator, by improving access to medical information. However, there are also barriers to the use of ICT's, which the original model from Banuri, Zaidi and Spanger Siegfried (UNDP 2005) does not take into account, but that are of most interest for this study. Figure 3 shows the model including the barriers as added by Chib, Lwin (2012).

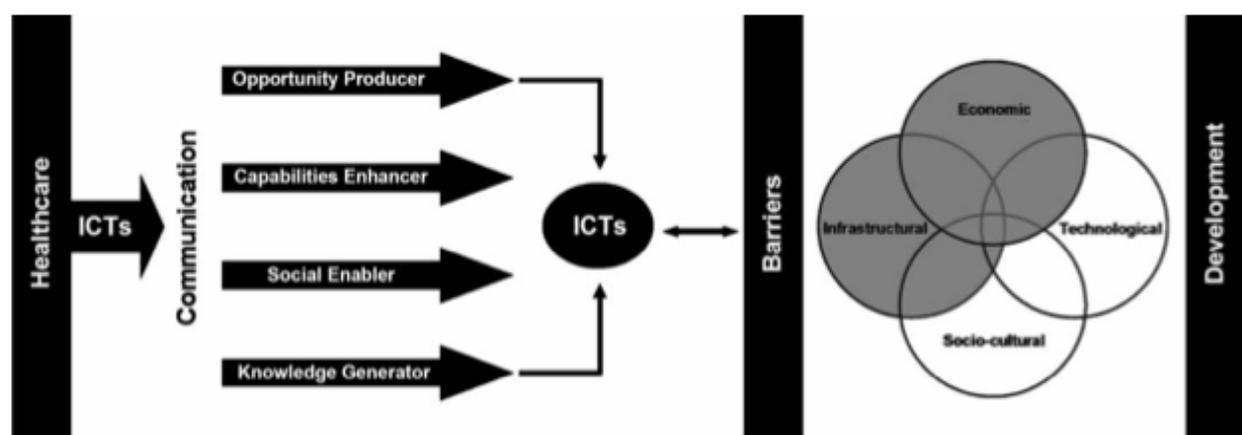


Figure 3: Value of ICT-to-education model (Chib, Lwin, 2012)

There are four possible types of barriers that can limit the impact ICT's (or mobile phones) can have in a developing country. The barriers can be infrastructural, economic, technological and socio-cultural in origin.

Infrastructural barriers mainly exist on the macro level, regarding the rollout of telecommunication networks, especially in remote areas. Spread of networks is often limited and capacity inadequate. Often lines of other infrastructural services are followed and this further isolates communities already deprived of transportation and communication means. Economic barriers exist at the individual level when people do not have the financial means to obtain access to ICT communication hardware and to continue using them. Poorer people are less likely to have access to modern ICT. Technological barriers exist when people do not know how to use the ICT. Unfamiliarity with a device leads to insufficient skills to use the device efficiently. Especially the fact that a lot of ICT devices and Internet content is published in English, makes it hard for those people that are not proficient in this language. Illiteracy may also play a role. Finally socio-cultural barriers, like beliefs that new technologies challenge traditional values and practices, may stand in the way. Gender inequality plays a large role, as women are often less proficient in the English language, have less technological skills and less access to ICT's (Chib, Lwin, 2012).

2.3.2 Communication – Persuasion model

The communication – persuasion model (McGuire, 1989) gives an overview of the factors that play a role in persuasive communication campaigns, of which public education campaigns are an example. The model consists of inputs and outputs; the inputs are the different components of the campaign, the output factors are the successive steps someone takes after being influenced to end up executing the behaviour. Input variables are of most importance here, since those can be influenced to increase the persuasive strength and the impact of an intervention. There are five types of input variables each of which is explained in more detail below.

- *Source*: The source refers to the perceived source. This is not necessarily the actual source that constructed the message; it is the source the public perceives the message comes from, for example the person presenting it. A source can have different characteristics that influence its effect: unanimity, attractiveness, credibility, power and in case of a person personality and demographics. Source credibility has been widely studied and has a large impact on the persuasive power of a campaign. Public confidence in institutions can differ considerably; physicians, scientists, educators and religious leaders are in general perceived more trustworthy, while press leaders, government workers and television personalities do not get a lot of trust.

- *Message*: The message is the variable that can most easily be influenced. First of all the content of the message can be influenced; the type and strength of information, inclusion or omission of certain facts and whether a negative or positive appeal is used. In general negative appeals, or putting emphasis on risks or problems are overused, as showing positive effects can be more beneficial in long-term compliance. Other factors like the length of a message, the frequency of repetition, the organisation and style also play a role.

- *Channel*: The channel refers to the medium through which the message is communicated. This medium influences the amount and type of information that can be communicated and the ease of understanding. Each channel also has beliefs attached about its credibility, and one channel can be 'liked' more than another.

- *Receiver*: Of course the characteristics of the receiver play a large role in whether a message will be persuasive or not. Demographic characteristics like age, gender and education, as well as someone's personality, lifestyle, beliefs and prior knowledge all influence how a message is perceived. Knowing these characteristics of the receiver is very important, as it makes it easier to design messages that fit the preferences of that particular receiver.

- *Destination*: When and where the message reaches the receiver can also have an impact: does the receiver have to execute the behaviour change immediately or on the longer term and are there any counterarguments around that contradict the message. Lastly noise or clutter in the surrounding can distort the clarity of the message.

These five input factors and their characteristics have an influence on the 13 output factors, the successive responsive steps that must be elicited when a campaign is effective and persuasion takes place. These output steps are a simplification of reality: stages can be skipped or gone through in a different order. The input and output variables can be put into a matrix (figure 4), that serves to identify how each input characteristic can influence each stage of persuasion.

INPUT independent variables OUTPUT dependent variables	Source	Message	Channel	Receiver	Destination
					Education
Exposure					
Attention					
Interest/Liking					
Comprehension (learning what)				+	
Related cognitions (forming opinion)					
Skill acquisition (learning how)				+	
Attitude change				-	
Memory storage					
Retrieval					
Deciding					
Behaviour					
Reinforcement of desired acts					
Consolidation / Integration					

Table 1: Input / Output Persuasion matrix (McGuire, 1989)

There is often an opposite effect on different stages of persuasion. The education level of the receiver for example can have an adverse effect on stage 7, as educated people are more critical. However, education has a positive effect on stage 4 and 6, since educated people comprehend and learn quicker.

Since the probability of each step to happen depends on the probability that the preceding steps have happened, the effect of each campaign will be limited. The probability of each step happening is often lower than one, so the probability of the targeted behavior happening (step 10) will be considerably lower than one, since it is the product of the probability of the former 9 steps.

2.6 Conceptual model

Elements from all four theories discussed here have been taken together to form the conceptual model that forms the basis of this research (figure 5).

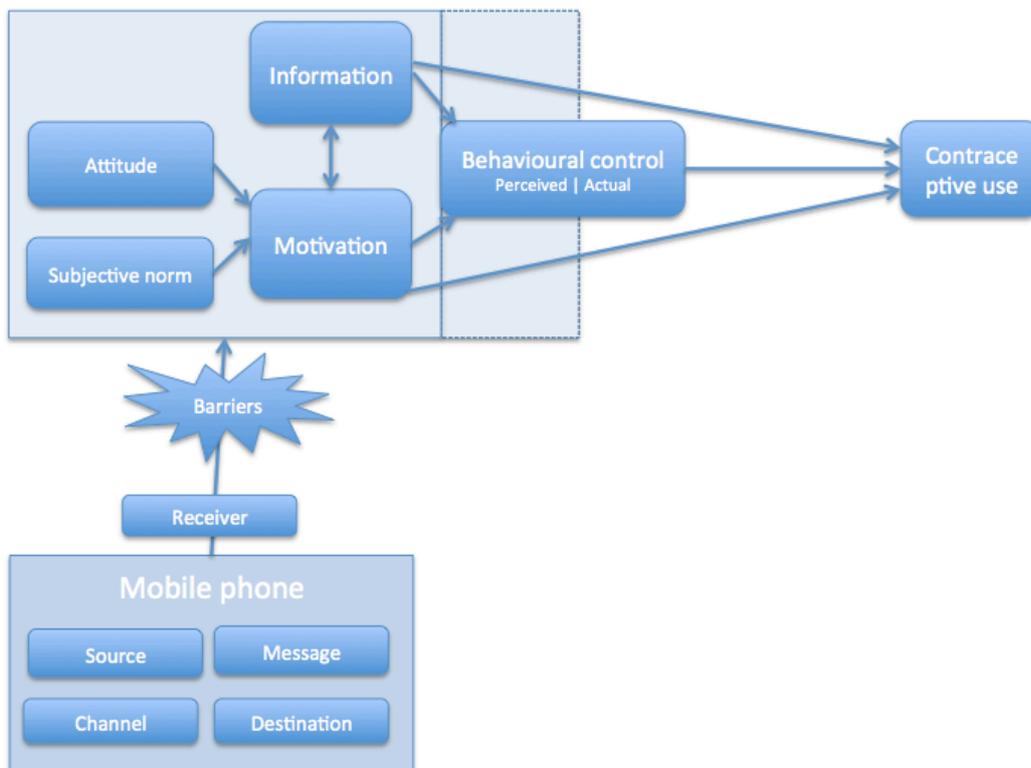


Figure 5: Conceptual model

The model is divided into two parts. The first part represents the behaviour change that is executed when someone starts using contraceptives. Determinants of behaviour are a combination of determinants seen in the two theories explained in section 2.3. Some determinants can also be recognized in the output stages from McGuire’s model, for example exposure to information and attitude change.

The second part of the model shows the influence a mobile phone can have on people’s behaviour by influencing the different determinants. For example by giving people information, or changing their individual attitudes or the subjective norm, hence people’s motivation to use contraceptives. Perceived behavioural control can also be influenced. The different characteristics of a mobile phone from McGuire’s model may or may not increase the impact a phone can have. The mobile phone might also face some external barriers in communicating its message that hinder its ability to influence the determinants of behaviour.

The determinant 'actual behavioural control' deserves to be mentioned explicitly and individually. It is different from the other behavioural determinants because it is an external factor that influences behaviour change over which the individual does not exercise a lot of control. Therefore it is placed outside of the box with the other determinants as it can hardly be influenced by a mobile phone intervention.

3 - Regional thematic context

This chapter gives more information on the location where the research took place: (rural) Uganda. First of all some general information on Uganda with regards to politics, geography, and economics will be given. After that the current situation with regards to family planning is discussed and the special urgency of the topic in Uganda. Thereafter the status of the mobile phone in Uganda is presented. The chapter concludes with previous research done in Uganda on family planning and mobile phones.

3.1 Facts and figures about Uganda

Uganda is a country in the east of Africa. It is a relatively small country with a land area of 199,810.0 square kilometres. It is landlocked and borders Kenya, Tanzania, Rwanda, DR Congo, and South Sudan and it is divided into 112 districts. In 2012 Uganda had 36.4 million inhabitants, and a GNI per capita of US\$ 547. The life expectancy at birth was 54 years (World Bank, 2012). This research took place in and around Hoima, Western Uganda (see map 1).



Map 1: Uganda

In 1962 Uganda gained independence from Britain and became a republic, led by president Obote (DHS, 2011; Ch1). In 1971 a military coup overthrew the government of president Obote, and in the following 8 years the leader of the coup, Idi Amin, exercised absolute power in an authoritarian regime. This resulted in economic decline, social disintegration and human rights abuses. Almost the entire professional class fled the country, schools were abandoned, hospitals were understaffed and undersupplied and the whole infrastructure of the country deteriorated (Blacker, 2005). After Amin was put in exile in 1979, president Obote

returned and human rights violations continued. In 1986 Yoweri Museveni, leader of the National Resistance Army, became president of Uganda and is until today. The NRA government ended human rights abuses, instituted broad economic reforms and started political liberalisation and freedom of press (DHS, 2011; Ch1). Recently dissatisfaction with the government is increasing as Museveni continues to rule the country without much room for critique. The widespread corruption in the government on all levels also meets with a lot of resistance.

The economy of Uganda is mainly agricultural, 70.4% of the land is used for agriculture and the majority of the population (66%) depends on subsistence farming. Annual GDP growth was 3.4% in 2012. In the 5 years before that was around 6.5% a year. In 2009 12.2% of the population lived below US\$1.25 a day (PPP) and 27.4% below US\$2.00 a day (PPP) (World bank, 2012).

12.3% of Uganda's population lives in cities. Population densities are highest in central and (south-) western regions and decline towards the north. Differences in development indicators between urban and rural areas are high: for example where in urban areas three-quarters of the population is located in the highest wealth quintile, in rural areas only one in nine persons are in the highest wealth quintile (DHS, 2011; Ch 1). The majority of the population is literate, for women the percentage lays at 64%, but for younger women (aged 15-19) the percentage is higher, namely 78%. For men the number stands at 78%, and there is less diversity between age groups (DHS, 2011; Ch 3.3).

Uganda's health care is split in a public and private part. The government accounts for about 30% of the health care, NGO's for 45% and for-profit private facilities for 25%. The services are divided into different levels: village health teams, district-based health centres (HC II-IV), regional referral hospitals and national referral hospitals (two in Kampala). District based health centres exist in different categories with different levels of care. There are Health Centres level II, mostly focused on prevention, level III, that can also admit patients, and level IV that execute small surgeries. The health care sector in general, and especially the public sector, faces numerous challenges. On all levels there is shortage of personnel and resources; 72% of government health facilities have a monthly stock-out of at least one medicine. All district health centres are supposed to be supplied with nurses and midwives, but in reality in health centres II often only nursing aides are working. Clinical officers should be posted at health centres III en IV but are also often missing. Staffs are therefore often overworked and the quality of the care deteriorates. Distance and bad infrastructure are other major deterrents to obtain skilled care (Leahy, 2010; Ch 4, 5). As a result only 57% of the births are attended by skilled staff and the maternal mortality ratio is high: 310/100,000 live births in 2010 (World Bank, 2010).

Hoima district lies in the northern part of the Western Region of Uganda. It's main town, Hoima, lies on a distance of about 4 hours from Kampala. The population of Hoima district is 499,100 people of which 46,000 are classified as urban and 453,100 as rural by the government (NWSC, 2010). Hoima district has one Regional Referral Hospital situated in Hoima town, two health centres IV of which one public and one private and about 40 health centres II/III, the majority from the government. There are two private family planning clinics that organise outreaches (MoH, 2009).

3.2 Fertility and family planning in Uganda

The population of Uganda is growing very quickly, with 3.4% per year (constant over the past 10 years). In addition to that, Uganda has a very young population, 49% is below the age of 15 (figure 6) (DHS, 2011; Ch2.2; 2.3)

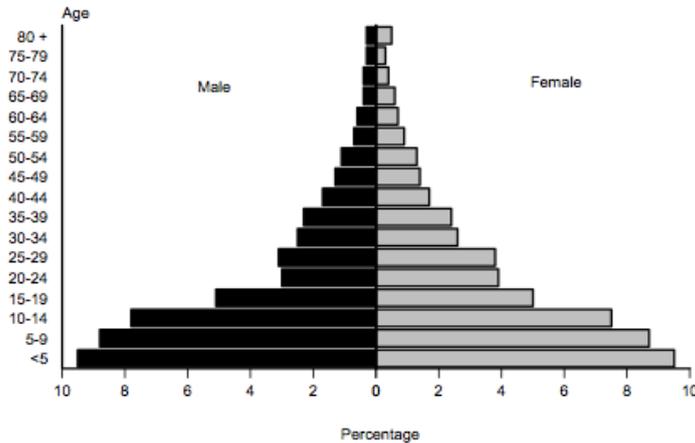


Figure 6: Population pyramid Uganda (DHS, 2011)

Women on average give birth to 6.2 children, meaning that Uganda has the 5th highest birth rate of the world (World Bank, 2011). However, differences between urban and rural areas are very high. In urban areas the average fertility was 3.8 in 2011 while in rural areas it was 6.8. Wealth and education show a negative relationship with fertility: women with no education had 6.9 children on average and women with tertiary education 4.8. Women in the lowest health quintile had 7.9 children and women in the highest 4.0 (DHS, 2011; Ch 5).

The fertility rate of a population is a consequence of different factors, like age at first marriage and first sexual intercourse, abortion rates and the use of contraceptives. Several socio-economic factors influence these determinants (Asiimwe, 2007). In Uganda the median age at first marriage and the median age at first birth have remained fairly stable over the past 30 years. Women in rural areas, as well as women with lower education and from poorer families marry about two years earlier than their counterparts (DHS, 2011; Ch 4, 5). Although fertility preferences in general are high in Uganda (4.8 children for women and 5.7 for men), on average women have 1.7 children more than they would have wished for. Gaps between the ideal number of children and the actual number are again bigger in rural (2.0) than urban areas (0.6). In the five years before the DHS of 2011 56% of the births was planned, but a full 44% was either unwanted or mistimed (DHS, 2011; Ch 6).

Blacker (2005) made a comparison between the development of fertility rates in Kenya and Uganda between the mid-1970's and mid-1990's. The conclusion was that while there was almost no difference between the two countries in age at first marriage and first birth, post-partum insusceptibility and abortion figures, the fertility rate of Kenya had fallen with 40% while in Uganda it only fell with 10%. This large difference could be attributed to the use of contraceptives that was much higher in Kenya (39%) than in Uganda (23%). The lower figure for contraceptive use was not necessarily because there was less need in Uganda, but just because this need was fulfilled less often. Although this is an old study, little has

changed in Uganda as the figures above illustrate. Contraceptive use will still be the determining factor that is most easily changed for fertility rate.

In 2011 35% of the married women in Uganda had an unmet need for family planning, meaning that they were at risk of becoming pregnant, did not want that to happen, but were doing nothing to prevent it. 21% of these women needed contraceptives for spacing (postponing pregnancy) and 14% for limiting (finishing childbearing). For all women, the figure was 41% (DHS, 2011; Ch 7). 42% of all women and 30% of the married women did use a contraceptive method, mostly a modern one. The most commonly used method is the injectable, while unmarried women also use the male condom frequently. Use among married women, especially of a modern method, is increasing over the past years (figure 7), but as said above, unmet need is still very high.

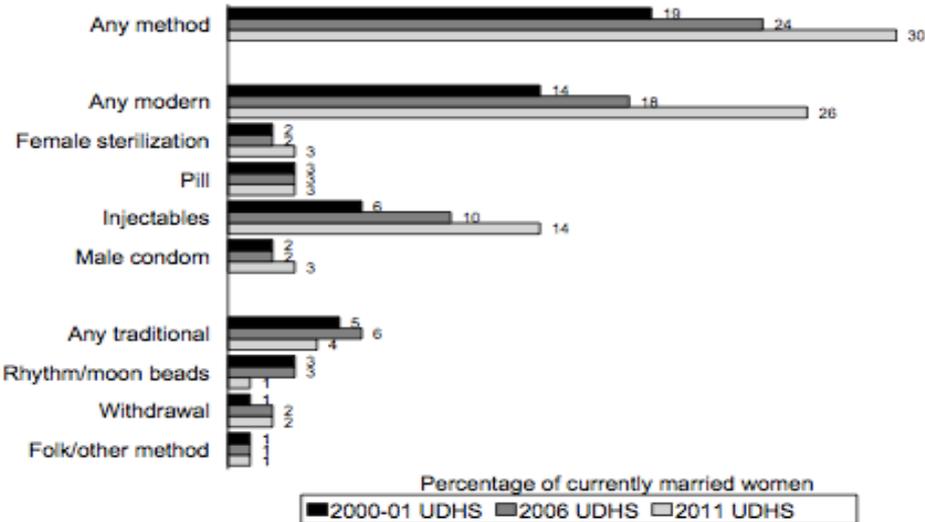


Figure 7: Trends in contraceptive use among currently married women (DHS, 2011)

There is a wide gap between urban and rural areas in contraceptive use. In urban areas 46% uses contraception, in rural areas only 27%. Knowledge of at least one contraceptive method is almost universal (99%). Male condom, injectable and the pill are most well known, but the extent of this knowledge is unclear. People with higher education, and probably more extensive knowledge, are much more likely to actually put their knowledge into practice by using contraceptives: 44% of women with secondary education or higher use contraceptives compared to 18% of uneducated women. The public sector is the main source of modern contraceptive methods, providing to 47% of the users. 45% of users obtain their methods from the private sector, mainly from private hospitals or clinics (DHS, 2011; Ch 7).

3.3 Mobile phones in Uganda

The number of mobile phone subscribers in Uganda has risen exponentially over the last years. While in 2002 there were 1.5 phone subscribers per 100 inhabitants, in 2008 there were 27 and in 2011 48 (World Bank, 2012). The number of Internet users grew much less, from 8 per 100 inhabitants in 2008 to 13 in 2011, showing that most phone users will not have a smart phone. However, there is an urban-rural divide in terms of ownership and use of mobile

devices. In 2010 in the western region, where Hoima is situated, mobile phone coverage was 64% in urban areas and 37% in rural areas (Nchise, 2012). As argued in section 2.4, the number of mobile phone subscriptions can be an underrepresentation of the number of users. However, when in the field it was observed that many Ugandans have dual SIM cards (see section 6.3), so subscription numbers can also overestimate the number of users. Mitchell (2011) estimated the number of mobile phone users in Uganda in the adult population at having risen from 16% in 2002 to 80% in 2006.

The institution responsible for Uganda’s communication sector is the Uganda Communication Commission. It keeps an eye on the competition and tariffs, and has recently introduced a law forcing all users of a SIM card to register themselves to prevent phone criminality. There are a number of phone operators active in Uganda that are heavily competing each other. MTN is by far the biggest operator with a market share of 52.5% in 2012 (MTN, 2013) and the widest network coverage. The rest of the market is more or less equally shared between Orange, Airtel, Warid and Uganda Telecom. The mobile network, as well as the broadband 3G network, is continuously expanded, also to the rural areas to look for new markets. The current coverage of MTN is depicted in figure 6 below. The Rural Communications Development Fund invests in these activities to promote accessibility of basic communication services for all people in Uganda (ITU, 2009).

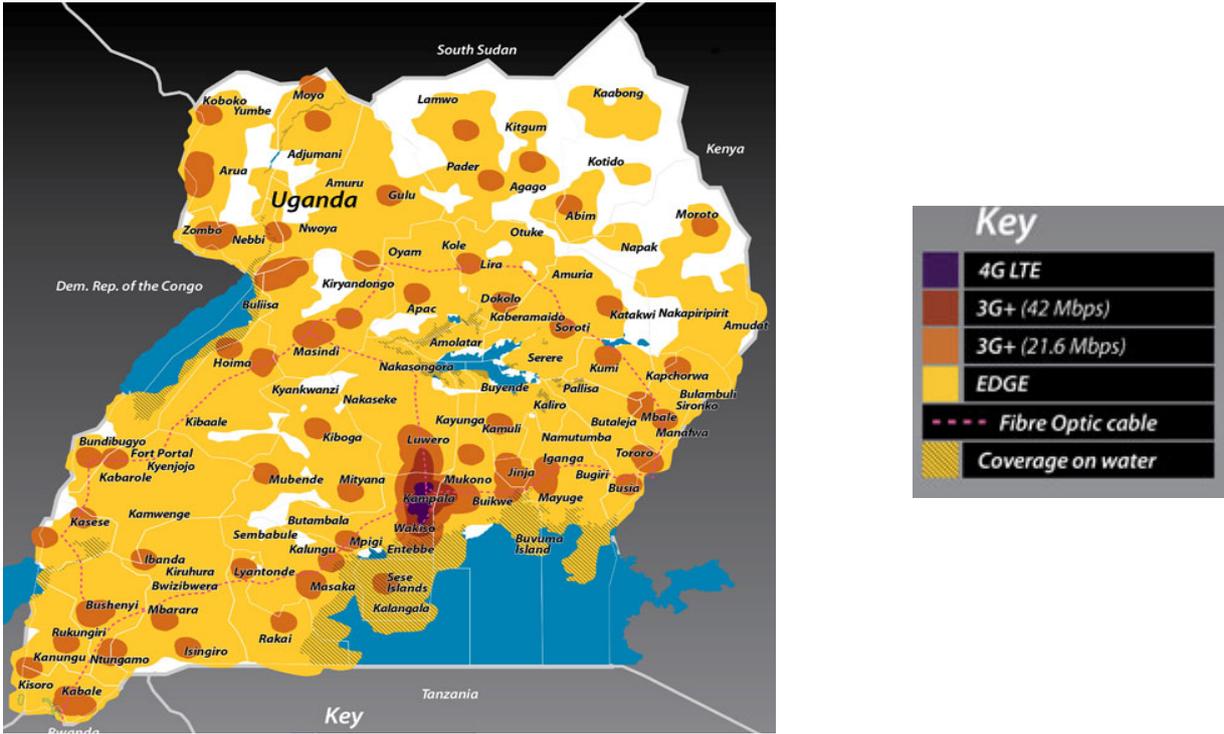


Figure 8: Network Coverage MTN, 2013 (MTN, 2013)

SMS and Mobile Money are two services that are becoming more and more popular, especially for the rural population. Via SMS information about weather, news and sports can be obtained. Voice SMS is an extra service for those that have trouble with reading and writing. Mobile money serves as an alternative for formal banking. Money can be transferred for paying school fees and other bills, and to send or receive money to or from relatives (ITU, 2009).

Until now the characteristics of phone users have not been thoroughly investigated. The fact that every phone user will have to register his or her SIM card means that some basic information on the demographic characteristics of the users will come available. This will give a better insight in which part of the population uses the phone, and the usage patterns of different users.

3.4 Previous research in Uganda

In Uganda until now no research has been done combining specifically the topics of family planning and mobile phones. However, research on family planning and on mobile phones in behaviour change separately has been done. First the results of existing research on the reasons for low contraceptive uptake are presented, and after that research on the use of mobile phone in the field of behaviour change in Uganda.

3.4.1 Barriers to family planning

Campbell (2006; p 87), in a systematic review, described barriers to family planning as: “the constraining factors that hinder realistic availability of the technologies and/or the correct information that women need if they want to have control over whether and when to have a child.” One of the biggest barriers to family planning in general, and also in Uganda is thought to be a lack information or misinformation. Many people do not know why they would use contraceptives, how they should use them and where to get them. Often people have many misconceptions about the dangers contraceptives have, most of the time not based on evidence (Prata, 2009). Knowledge is often worse for younger people, while these are more in need of contraceptives. In Uganda 63% of sexually active unmarried women and 87% of married women age 15-19 do not use any contraceptive and for women aged 20-24 years the figure stands at 43% and 79%. Of the women between 15 and 24, 60% wants to space or limit childbirth but are not using any method (Nalwadda, 2010).

Other barriers can be more formal, from a country’s legal system, like prescription-only status of contraceptives, abortion laws and regulations on providing contraceptives to unmarried women (Campbell 2006, 2009). While in Uganda the official family planning policy is quite liberal (apart from abortion law), stating that every sexually active man and woman should have access to contraceptives without need for consent from partner or parent, individual providers may think otherwise (Nalwadda, 2010). Personal prejudices may lead to providers not giving out contraceptives to women that are too young, unmarried, or do not bring a written consent from the husband (Campbell, 2006). More than one third of health care providers in a study in rural Uganda said they would not provide contraceptives to youth below 18, unmarried, still in school, or without children. Only a quarter of the providers were fully comfortable giving out contraceptives to sexually active young people. Striking is that a little less than one third believed that using contraceptives at a young age could cause infertility (Nalwadda, 2011).

Financial costs, including transport costs, are another barrier to family planning (Prata, 2009). In Uganda in public facilities, contraceptive methods are free of charge, however, there are other barriers on the supply side that may play a role. Prata (2009) elaborates on the fact

that there is often no steady flow of contraceptives, leading to discontinuation of their use, and when women experience side effects there is no other contraceptive option for them. Another problem is the general scarcity of health facilities, leading to large geographical distances.

While these supply-side barriers are often given a lot of attention, the study Ketende (2003) did in Uganda, could not find any of the service delivery factors having a significant effect on contraceptive use in rural areas. The only factor approaching significance was the number of different contraceptives available, but geographical accessibility, dissemination of information, level of training of staff and follow-up mechanisms proved insignificant.

The last types of barriers often mentioned are socio-cultural ones. Religious objections against contraceptive use as well as traditional practices may play a role. Traditionally Uganda has a culture of procreation and lineage, and therefore a desire for large families is often mentioned as a reason for a low uptake of family planning. A study in rural western Uganda found out that children were much treasured and if you didn't have many children, you were looked down upon. 44% of the interviewed also saw children as a source of labour (Asiimwe, 2007). Campbell (2009) on the other hand, denies this desire for a large family and claims that demand for family planning will follow supply. She states there is a latent desire for family planning, and that: "most women in all societies, if they had the means and understood that safe options were available, would choose not to bear many children" (p 3108). Data from demographic health surveys in different countries indeed show that wanted fertility is almost always lower than actual fertility, and when actual fertility declines, wanted fertility does too (Prata, 2007).

Negative attitudes of men that are often influential in their wife using contraceptives (see section 2.2) can also form a barrier. In Uganda the last estimates from 1998 estimated that 15% of the women use contraceptives secretly, though the rural figure (18%) was much higher than the urban one (8%) (Biddlecom, 1998). Since then contraceptive use in general has increased, but it is unclear what kind of effect this has had on covert use.

A review of 8 theses done in western Uganda when in the field, found barriers to contraceptive use consistent with the ones mentioned above. Lack of information and misinformation seemed to be the largest barrier, followed by a desire for large families, religious concerns, supply side barriers, transport or access costs and a negative attitude of men towards family planning.

3.4.2 Mobile phones and text messaging in behaviour change in Uganda

Within Uganda the number of studies done on mobile phones and text messaging has been almost exclusively limited to the HIV/AIDS field. Siedner (2012) conducted a feasibility study with phone-owning HIV patients in rural Uganda, asking them whether they would like to receive their lab results via text message. The majority of participants were very positive about this. Concerns that were raised (but only by 4-14%) had to do with literacy, privacy and technical issues. Surprisingly even illiterate persons indicated they would like to get the text message, because someone else could interpret for them, and 90% of participants were not at all concerned with privacy. When asked prioritizing specific features of a message, specificity and language were considered most important, while length was considered least important.

All participants expressed interest in a form of interaction, where they could either call back or text back in response.

A large feasibility study among rural secondary school students (Mitchell, 2011) showed that 61% of the ones having a phone were interested in receiving information about HIV/AIDS through SMS. The large setback in interested people in comparison with Siedner's study most likely has to do with the fact that this is preventative information for a healthy population, rather than information for a group of patients. Schools and religious institutions were identified as preferred information source, probably because they are commonly used already, and because only 27% of the students had a phone. Although the study took place in a rural area, the choice for students enrolled in high schools means that the research population was relatively privileged, since only 14,6% of Ugandans attend secondary school (Mitchell, 2011). Information on non-phone owners was not collected.

Three studies (Chib, Wilking, 2012; Danis, 2010; Hoefman, 2010) actually implemented an intervention. They all worked with a quiz format, sending participants questions on HIV/AIDS. The studies showed that communication through SMS with untrained users is possible. Over time users learned: fewer questions were answered in the wrong format (conversational or invalid answers) (Danis, 2010). Chib & Wilking (2012) found out that when people answered a question correct, they were more likely to continue answering questions, insinuating that the knowledge gap increases with a quiz format. Hoefman (2010) observed a large gender divide in his study: much more men than women participated. While men heard about the service through the radio, women were more often told by relatives. He concluded that a variety of media and information channels should be used to reach both men and women. In all three studies participation rates were quite low (<25%), and no information was collected on the people that were approached but did not participate, leaving an information gap. Also, the studies only approached individuals that already had a phone, lacking information on the target population in general.

The Applab study (Nchise, 2012) comes closest to combining family planning and the mobile phone. It was a study focusing on mobile phones and reproductive health. A health tips application was launched through which people could ask questions on reproductive health issues. In a six-month period almost 2,5 million queries were received from about 650.000 different users, divided over health tips, agricultural tips and weather tips. It is not clear how many were on health. Users advised in focus groups that an edutainment feature would maybe increase or sustain their interest, they would like to see the service offered in other languages than English and they expressed concerns about future costs of the service. A survey among university students and personnel found out that 100% of the participants had a phone, 60% of the respondents had heard of the health tips application and half of them used it about once a week. Although this is one of the largest studies on using mobile phones to provide reproductive health education in Uganda, a big limitation is the fact that only students in a tertiary educational institute in Kampala were surveyed. This urban, high-educated population is not likely to represent the entire Ugandan population and is also not the one that has the biggest need for access to health information. This study also did not focus on family planning, but more on reproductive health in general, and focused on phone owners, rather than answering the more fundamental question on who the phone owners were.

4 - Methodology

This chapter presents the outline of the research as it was designed to do the data collection in Uganda. The different phases of the research and the different methods used are described, as well as the sampling of the research population and the strategies for data analysis. Lastly the main limitations of the research are discussed.

4.1 Research Strategy

For this research a mix of quantitative and qualitative research tools has been used. This mixed method approach has gotten increased interest over recent years for different reasons (Bryman, 2006). The aim of this research was to assess the value of a mobile phone intervention in increasing contraceptive use in a rural area in Uganda. Quantitative methods provided opportunities to collect data from a larger sample giving a more general and reliable view on who were the users of contraceptives as well as mobile phones. On the other hand a more comprehensive understanding of the motives for use or non-use and opinions on both contraceptives and mobile phones was sought, for which qualitative tools were more accurate. By combining both types of methods triangulation of the data could take place by comparing the findings from different methods. The different data sets also shed light on each other and could explain and illustrate each other's findings in different occasions.

Before the actual fieldwork took place a thorough analysis of the existing literature was done to assess the existing information in the international literature and the gaps herein, as well as the processes happening on the ground. In addition to reviewing international articles, locally a review of eight field studies written on contraceptive use in western Uganda at Mountains of the Moon University was done. The findings of this 'desk research' are presented in chapter 2 and 3 above. The collection of primary data during the fieldwork that took place between the end of January 2013 and the beginning of May 2013 was done in three phases. Throughout the entire period of fieldwork, participant observation took place. Field notes have been taken of observations made or informal conversations that were held, as the researcher was working and living with and among Ugandans.

The first phase of the fieldwork, was used to see whether the information found in the international literature was applicable 'on the ground'. 15 key-informant interviews were held with health care workers active in the field of family planning in three different locations in Uganda. The first location was Kampala, the capital city, the second was Kisiizi, a village in the mountains, and the third Hoima, a rural town in which most part of the final research took place. Participants were identified by visiting different public and private health care facilities and were working in different job positions in the family planning field. Both Ugandan nationals and expats (from the UK) were interviewed. The interviews served to get an overview of the issues surrounding family planning and mobile phone use and the differences in these issues between geographic locations and between the public and private sector. The interviews lasted between 15 and 25 minutes and were recorded and transcribed. The topic lists of the interviews can be found in appendix 1.

In the second phase of the fieldwork, surveys (see appendix 2) were conducted in different locations within Hoima district. Before the survey was conducted, it was reviewed by local staff to check the relevance and applicability of the questions. After that five pilot surveys were done to see whether there were any inconsistencies or ambiguities, and the survey was adapted accordingly. Surveys were done in the form of face-to-face interviews with the help of a translator. Visual aids were used to facilitate understanding of some of the questions and verify some of the answers (appendix 3). Questions were asked without giving predefined answers. For the purpose of analysing, answers were categorised in the appropriate category whenever possible. In the survey first some general questions about the demographic characteristics of the participant were asked, followed by questions about contraceptive knowledge and use as well as the sources for contraceptive services. After that, questions about communication channels and more specifically mobile phone use were asked.

A total of 140 surveys were conducted, half of them in Hoima town, the other half outside of town. Due to lack of time and especially resources in terms of staffing, transport and money, for the survey convenience sampling was used instead of random sampling. To prevent bias, a range of different health facilities was chosen to conduct the surveys. Within Hoima town, half of the surveys were conducted in the Hoima RRH, a public facility, and the other half in Azur Christian HC IV, a private facility. By choosing a public and private facility, a presumably poorer and richer population were represented. The second half of the surveys were conducted on five different sites outside of Hoima town, with distances to the town ranging from 15 to 30 kilometres. Different sites were chosen to get a good overview of the different areas within the district. Additionally survey participants were recruited at the Out Patient Department of the health facility rather than at the family planning or antenatal services, to get as general of a population as possible. Every person between 15 and 49 attending OPD, and also their companions were asked to participate and, if willing to, required to sign for consent. No two persons from one couple were included. Attempts were made to get the same amount of men and women, but have not completely succeeded as women attend health services more often than men. In addition to this survey, health workers, working in the different health facilities visited, filled in a question concerning the ideal type of message (appendix 4), a question also asked to the in-depth interviewees.

In the last phase 16 in-depth interviews, lasting 15-30 minutes, were done to get a better insight in the reasons behind using or not using contraceptives and people's knowledge and opinions about the topic (topic list in appendix 5). Information on people's understanding and view of the mobile phone was collected as well as their ideas on what should change with regards to family planning, what type of intervention should be designed and how information should be communicated. It was not possible to retrieve survey participants for these interviews, so 16 new participants, again recruited at OPD were found. Again, attempts were made to get a diverse group of participants, as explained above. In the end 8 men and 8 women were interviewed in a variety of ages.

4.2 Data analysis

All interviews, both from the first and the last phase of the research have been recorded and transcribed shortly afterwards. Analysis took place by identifying returning topics and themes

and ordering interview segments accordingly in Word. Special attention was paid to similarities and differences between different groups with regards to geographical location and public/private facility for the health care workers and with regards to location, gender and age for the in-depth interviews.

For the survey questions were given without predefined answers, but whenever possible the given answers were positioned into a category. Survey data were immediately entered in Excel. SPSS was used for calculations with the data to identify characteristics of different groups in the research populations and look at means and medians. Cross tabulations were made to compare different groups.

Even though the survey sample was relatively large and diversified, as there was no random sampling, we could not assume that the research population forms a representation of the general population of Hoima district. Therefore some goodness-of-fit tests were done comparing the characteristics of this research population with data from the Uganda National Household survey 2009/2010 and the Uganda Demographic Health Survey of 2011. As there is no statistical data available of only Hoima district, a comparison was made with data of the entire western region, compiling of 12 districts. The conclusions of these goodness-of-fit tests differed. For some demographic indicators no significant difference was found between this research population and the population of the official surveys. Those were age, ideal number of children and male education as compared with the DHS of 2011 and literacy rate, religion and income in groups as compared with the UNHS 2009/2010. However, for contraceptive use and female education there was a significant difference compared to the DHS 2011.

So even though the research sample was quite large and diversified, because no random sampling took place, no official statistical data of Hoima district is available and the goodness-of-fit test gave ambiguous outcomes, it is not possible to conclude that the research population is a representation of the general population of Hoima district. This means that the conclusions drawn in this research only apply to the research population and not the general population of Hoima district. Because of these limitations no statistical testing was done. Cross tabulations were used to identify the influence different variables have on each other.

4.3 Main limitations

Although extensive attention has been paid to avoiding possible bias, this research still has its limitations.

In the collection of the data, there were some factors that made communication more difficult. First of all there was a language barrier, which imposed the use of a translator. While all key-informant interviews could be held in English, since health workers in Uganda master this language, even here misunderstandings due to different vocabularies might have appeared. For the surveys and in-depth interviews, most of the time a translator was needed. Although the purpose of each question was extensively explained to the translator, having an intermediate might have resulted in loss of meanings or expressions, or preliminary interpretation of answers by the translator.

In addition to that family planning is a sensitive topic, so respondents might have kept certain views or information for themselves rather than sharing it with the researcher and translator. The fact that there was always a gender difference between the respondent and the

researcher or translator (since the researcher was a woman and the translator a man) might have had an adverse effect. To encourage respondents to be as honest as possible, surveys and interviews always took place either in a private room, with only the respondent, researcher and translator there, or at a reasonable distance from other people.

Another limitation in the data collection was the fact that some questions in the survey and interviews were hypothetical ones, since in reality no mobile phone intervention on family planning exists. This made understanding for the participant sometimes difficult, and a real evaluation of the use of an intervention can only take place after its implementation.

In interpreting and analysing the data, bias from the researcher might have played a role. The researcher made a lot of efforts to immerse herself in the Ugandan culture by living as well as working alongside Ugandans in a 'typical' small town Ugandan environment. Participant observation took place continuously and many conversations in informal settings and observations made in 'every day life' gave a more in-depth understanding of the research topics. However, cultural differences most likely played a role in the interaction between researcher and participants and in interpretation on both sides.

The last limitation in data analysis comes forth from the convenience sampling used. This means that the results of the research cannot be generalised to the general population of the district. Hypothetically the research population can differ considerably from the general population on attributes closely related to either contraceptive or mobile phone use. Moreover the most important target groups for a family planning intervention are also the hardest to reach for a researcher, so might have stayed out of the sample.

5 - Contraceptive use in Hoima district

This chapter will give an overview of the findings surrounding contraceptive use in Hoima. It takes into account the first research question: “*Which demographic factors play a role in contraceptive use and which subgroups need special attention?*” as well as the first part of the third research question: “*What are the barriers to contraceptive use and how could these be overcome by a mobile phone intervention?*”

The chapter starts with a general introduction of the research population and its characteristics with data from the survey conducted. A distinction between the research population in and outside of town will be made. After that the different reasons that influence the use or non-use of contraceptives are discussed. Data from expert interviews, in-depth interviews and the survey are integrated, to see whether the information found is consistent.

5.1 Characteristics of the research population

A total of 140 surveys were done, 70 in Hoima town and 70 in the surrounding rural areas. The main characteristics of the sample are summarised in table 1 (next page). The majority of the participants were female. This is not surprising, as women visit health facilities more often than men, for health issues related to children. The average age was 28 years, and ages ranged from 15-49, which are the age limits taken from the WHO definition of the fertile female population (WHO, 2011). Most participants went to primary school (48.5%) of which 15% finished. Another 37.9% went to secondary school and most of these people (31.5%) finished either O-level after four years or A-level after six years. Only 10% got tertiary education and 3.6% never went to school. Due to the relatively low educational level a considerable amount of the participants was illiterate or could only read the local language, Runyoro.

The GDP per capita in Uganda is US\$ 547 (World Bank, 2012), and the survey sample on average earned more than twice as much, about US\$ 1128 a year. However, the distribution was quite skewed, and if we leave the five participants with the highest and lowest income out, the average income ends up at US\$ 859 per year. Almost half of the participants lived from subsistence farming (49.3%), 15% was still a student, 12.1% had their own business and 12.1% was formally employed. The rest of the participants were either housewives or jobseekers.

The majority of the participants were married (66.5%) of which 7.2% was in a polygamous marriage. 14.3% was in a relationship and 12.9% was single. The mean number of pregnancies was 2.8 in the whole group, and the mean number of live children 2.5. The ideal number of children was 4.5, a little lower than what was found in the Demographic Health Survey of 2011 when it was 4.8 for women and 5.7 for men.

While doing the surveys a distinction was made between the population of Hoima town and the population of the surrounding rural areas. In national statistics Hoima town is classified as an urban area, but compared to other cities in Uganda it is an underdeveloped urban centre, more of a rural town. However, the survey did find differences between town and the surrounding areas on different indicators. The gender distribution in the two groups is more or less similar (as can be seen in table 2) as well as the mean age (27.8 in town and 28.6

in rural areas) although in the rural group the ages are a bit more diverged towards the extremes. In rural areas the Catholics and Islamic people were overrepresented, and in the urban areas there were more other Christian groups.

	Absolute (n=140)	Percentage
Gender:		
- male	53	37.9%
- female	87	62.1%
Age:		
- 15-24	57	40.7%
- 25-35	47	33.6%
- 36-49	36	25.7%
Religion		
- Catholic	63	45.0%
- Protestant	53	37.9%
- Islam	7	5.0%
- Other (Christian)	17	12.2%
Education		
- none	5	3.6%
- (some) primary school	68	48.5%
- O level	44	31.5%
- A level	9	6.4%
- tertiary education	14	10.0%
Literacy		
- Yes (also in English)	87	62.1%
- Yes (only local)	23	16.4%
- No	30	21.4%
Monthly income:		
< UGX 50k (< US\$20)	17	15.5%
UGX 50-100k (US\$20-40)	26	23.6%
UGX 100-200k (US\$40-80)	29	26.4%
UGX 200-500k (US\$80-200)	30	27.3%
> UGX 500k (> US\$ 200)	8	7.3%
Missing (students)	30	-

Table 1: Characteristics research population

	Hoima town	Rural area
Gender:		
- male	37.1%	38.6%
- female	62.9%	61.4%
Age:		
- 15-24	38.6%	42.9%
- 25-35	41.4%	25.7%
- 36-49	20.0%	31.4%
Religion		
- Catholic	40.0%	50.0%
- Protestant	41.4%	34.3%
- Islam	2.9%	7.1%
- Other (Christian)	15.7%	8.6%
Education		
- none	4.3%	2.9%
- (some) primary school	37.1%	60%
- O level	34.3%	28.5%
- A level	11.5%	1.4%
- tertiary education	12.9%	7.1%
Literacy		
- Yes (also in English)	65.7%	58.6%
- Yes (only local)	17.1%	15.7%
- No	17.1%	25.7%
Monthly income:		
< UGX 50k (< US\$20)	9.3%	21.4%
UGX 50-100k (US\$20-40)	25.9%	21.4%
UGX 100-200k (US\$40-80)	24.1%	28.6%
UGX 200-500k (US\$80-200)	29.6%	25.0%
> UGX 500k (> US\$ 200)	11.1%	3.6%
Missing (students)	n=16	n=14

Table 2: Characteristics by location

In educational and income level bigger differences can be seen. While in town the majority (58.6%) went to secondary school and 24.4% finished A-level or tertiary education, in the rural areas only 37.1% went to secondary school and 8.5% finished A-level or higher. The illiteracy rate is also higher in the rural areas.

The income difference between the two groups is big too; the average income in town (UGX 310.000) is almost twice as high as the average income in the rural areas (UGX 164.000). The rural areas have significantly more people in the lowest income group and less in the highest. This is not surprising when you look at occupation. In the rural areas the vast majority (71.4%) lives from subsistence farming, 8.6% have their own business and only 7.1% are formally employed. In Hoima town there is more diversity. While the biggest group still consists of farmers (27.1%), more people have a regular job (17.2%), have their own business (15.7%) or are housewives (17.1%), supposedly because their husbands' income is at a reasonable standard.

The average number of children is higher in rural areas (2.9) than in town (2.2), while the average age is similar. When looking closer at the data, the explanation may lie in the fact

that in rural areas people get children at a younger age. In the rural area the number of children rises quickly between the 15-19 and 20-24 age groups, from 0.4 to 1.6, while in the urban group this rise is only visible between the 20-24 and 25-35 group (from 0.8 to 2.5 children).

Because of the similarities in age and gender, but the differences in socio-economic indicators as well as the number of children, and due to the fact that Hoima town is classified as urban in official statistic data, later on in this thesis a distinguish will be made between the ‘rural’ and ‘urban’ groups. However, the reader should always keep in mind that the population in general is very rural and Hoima town is a rural town rather than a developed city.

5.2 Factors influencing contraceptive use

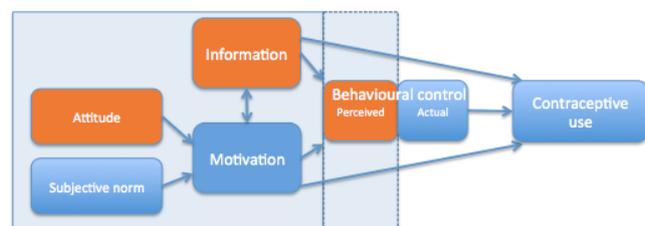
The percentage of contraceptive use found in this research is higher than what might have been expected from the literature and official statistics. 52.9% of the participants used a modern form of contraception, 12.9% used a traditional form of contraception and 34.3% used no form of contraception at all. Different factors can play a role in the decision to use or not use contraceptives and the actual act of (not) doing so, and these are described one by one.

5.2.1 Lack of awareness and misconceptions

“There is a lot of neglectance. People do not plan their reproductive life; they just let it come. They do not plan when to have children or how many, it just overcomes them. That has to do with education.”
(Ugandan doctor from an NGO)

“Others are saying that this family planning are bad, why are they bad? Others are saying that family planning is bad; others say it leads them to dry down there. [...] Let me ask you, will this IUD not infect me, my cervix. That is what I hear people say.” (Woman, 18 years, Hoima town)

Lack of awareness and misconceptions are two of the reasons most mentioned by both health workers and the people themselves as to why people do not use contraceptives. Both have to do with a shortcoming in *information*. This can be information about the concept of family planning and its importance and benefits, information about contraceptives themselves and how they work, and information about where, when and how to obtain them. This lack of information, and especially wrong information and misconceptions, can also influence people’s *attitude* towards family planning and their *perceived control*. More education on family planning is necessary to fill the information gap.



Knowing the concept of family planning and the methods available

First of all, there are people that do not know that such a thing as family planning exists, and as a result never think about it. All health workers agree that especially in the rural areas located at a geographical distance from health facilities or towns, awareness about ‘planning for a family’ and why this is important can be limited because people are not exposed to information through regular channels. The government recently executed a large family planning campaign emphasizing mainly on the economic benefits of family planning for the individual: getting the amount of children you can take care of so you will be able to feed them properly and send them to school. The campaign seems to have had effect, as most of the interviewees could indeed name benefits of family planning, mostly economical ones. Health benefits or benefits on a larger scale as well as identifying for themselves a right to family planning did rarely or not at all come forward.

“I think because most people they are poor, they want to have children they will be able to educate, care for. I also know most people are suffering, because they have had many children, and they are not able to care for them. I even have my brothers who are suffering from that. [...] Land is not enough these days, because people used to think I have land, I will give it to my children, but now there is no land there.” (Man, 33 years, Hoima town)

Of course, even when people know the concept and why it is important, they may still lack information about the different methods, how they are used, and where to get them. Most interviewees wanted to learn more about contraceptives, especially on how they worked and their side effects. Many said that if they would know all about the side effects, they might start to use a certain method. They also identified the need for their communities to learn more and repeatedly asked whether someone could come to the community to sensitize the people. People also want information on when and where to access the family planning services.

The survey showed that every participant could name at least one family planning method with an average of four. However, the average number of methods of which participants could explain how they worked or how to use them was considerably lower: 1.8. Some methods, like the condom and injectable, are better known than others. The number of methods someone knew did not have a large effect on contraceptive use. However, when someone could explain the use of at least one method, the likelihood of that person using contraceptives increased compared to someone that could not explain any methods. This is not surprising, as most people that use a contraceptive method, can also explain the use of this method so the direction of the relation is not clear. In the end, of the 48 people not using contraceptives, only 5 mentioned lack of knowledge as the main reason why.

General education did not really show a relationship with contraceptive use, which is surprising since this is seen as the biggest determinant for contraceptive use in the literature. It did increase the number of methods people knew, and especially the number of methods they could explain. For example 57.1% of the people with tertiary education could explain the use of 3 or more methods, while only 31.1% of the people that went to secondary school and only 21.9% of the people with primary school or lower could do so.

Although education in the rural areas is considerably lower than in town, as seen in the previous section, the number of methods people could mention or elaborate on did not differ considerably between the rural and the urban group.

Misconceptions

Apart from a shortage of information there is also a lot of wrong information going round, leading to misbeliefs and misconceptions about contraceptives (box). On the one hand these myths are a result of a general low standard of education, on the other hand poor service delivery also plays a role.

Sometimes health workers do not instruct people properly about the use of contraceptives or do not mention the side effects and how to deal with them. If a woman then experiences any problems, she will blame it on the contraceptive. Sometimes even health workers are wrongly informed. A clinical officer in a HC III said he thought hormonal methods were not good, because they could cause deep venous thrombosis. This is indeed true, but the risk of dying from a DVT in Uganda is lower than the risk of dying in childbirth.

Another problem is that when one person experiences side effects and shares this with his/her friends, the whole community can get scared to use any contraceptive in the future, especially when there is no trustworthy information available to explain these side effects or counterargument the rumours that go around. One of the interviewees said:

Misconceptions

Contraceptives cause:

- (cervical) cancer
- infertility
- stillbirths
- 'lame babies'
- fibroids
- internal wounds

Contraceptives can:

- float through the body
- 'spoil' the cervix
- disappear

"The information people are getting from their friends is the only thing that is spoiling them from using family planning methods. I believe most of the people are misinformed. Because today you may meet someone telling you I am experiencing headache because of using injectable, but it comes from something different, so I think people need to be sensitized on the side effects." (Woman, 30 years, rural area)

61.4% of the survey participants (86 people) did have one or more contraceptive methods they found unacceptable or would never want to use. There were no big differences between rural and urban areas. Although some of the reasons given for this unacceptability were based on realistic objections, like not wanting the insertion of a coil, not wanting a method that was permanent or finding pills inconvenient since they have to be taken every day, 66 people gave reasons that fell into the category 'fear of side effects'. In 16 cases this was a fear for realistic side effects, like prolonged periods or missing periods. However, these participants did not have personal experience, but only heard of these side effects from others. The majority of side effects that were feared were not based on any evidence as found in the research that has been done on these contraceptives.

One of the interviewees stated that whenever someone is using family planning and experiences any health problems, they are related to family planning. Even he himself

attributed the problems of his new born baby to family planning, although he was not even sure his wife had been using any contraceptive:

“She gave a baby boy, when it was around two months, he started developing skin rashes from inside and outside, so to me I suspect that was family planning. Although she [my wife] did not disclose it to me, she never wanted me to know that she is using pills, but later after the baby was born, and having experienced that one, that is why I was expecting that she was.” (Man, 28 years, Hoima town).

Surprisingly, whether someone did or did not have a method he or she found unacceptable did not have an influence on contraceptive use. This might have to do with the variety of methods available. Someone fearing that the coil might cause cervical cancer can always use the injectable instead. It was observed that the higher the number of contraceptives someone could mention, the higher the chance he or she found methods unacceptable. This relationship was not seen with an increasing number of contraceptives that could be explained. This shows that people often ‘hear’ about methods, but do not have enough or the right knowledge connected to them.

Another interesting finding is that the younger people are, the more often they have methods they find unacceptable. The number of methods of which someone has extensive knowledge on the other hand increases with age (table 3). These findings show that especially the youth need more information and the right information about contraceptives.

	≥ 1 unacceptable method	Extensive knowledge on methods		
		0	1 or 2	3 or more
15-19	85.7%	42.9%	39.9%	17.9%
20-24	69.0%	17.2%	58.6%	24.1%
25-34	51.1%	8.5%	59.6%	31.9%
35-49	50.0%	13.9%	47.2%	38.9%

Table 3: Knowledge on and contraceptives by age group

Many health workers also identified the youth as an important target group, since getting pregnant has more adverse outcomes for them with regards to health as well as socially and for their future education or career.

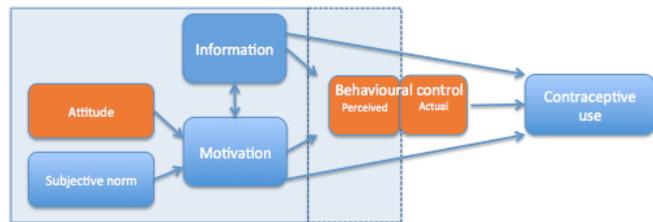
5.2.2 Attitude of men

“Because most men in the village, my village where I normally go, they don’t care. At home you find the man has a wife, and they try to use family planning, but you find he has children outside the gate. I think they don’t know, they want a lot of children. Some think having a lot of children makes you a big man [laughs] you are great in the clan yeah, wrong beliefs just.” (Man, 33 years, Hoima town)

Although most contraceptive methods are designed for women, men have a big say in the decision to use contraceptives. Almost all health workers, and half of the interviewees (both men and women) mentioned that men have a big influence on contraceptive use, and may

control the use of their women. Since most of the men have a negative *attitude* towards the use, their impact prevents women from using contraceptives.

First of all the attitude to contraceptive methods suitable for men themselves is predominantly negative. Men see contraceptive use as a women’s problem and are very reluctant in using barrier methods as they reduce their pleasure in sexual intercourse. Vasectomy is too definite for many people, and thought to reduce ‘manhood’. However, even when it is the wife using the contraceptive method, men often do not agree either.



When looking at the knowledge on contraceptives, men know fewer methods than women (table 4). This difference is more pronounced in rural areas than in urban areas. For extensive knowledge on methods the difference is smaller, but most of the men can only explain one (47.2%) or two (22.6%) methods, which invariably includes the condom. They have little knowledge on female methods of contraception that are much more reliable and often more convenient.

	Number of methods		
	2 or less	3 or 4	5 or more
Men	30.2%	43.4%	26.4%
Women	6.9%	46.0%	47.1%

Table 4: Contraceptive knowledge by gender

This shortage of information causes them to have wrong beliefs about contraceptives, as explained in the section above. Men fear especially those side effects that might interfere with sexual intercourse. There is a widespread belief that every hormonal contraceptive will reduce a woman’s sex drive and the humidity of the vagina, and every method that has the suggestion of prolonging the menstrual period is also immediately put off. A private health worker said that some men even tell their wives that if they go for family planning and experience any side effects, they will not support them in tackling these problems.

Another widespread belief from men is that their wife will become more promiscuous when on family planning because she won’t get pregnant so her husband cannot find out when she sleeps with someone else. A community health worker mentioned that men want their wives to be ‘busy’ because if a woman does not have many children she looks smarter and younger and has more time to spend on her appearance and to flirt with other men. In many occasions health workers and both male and female interviewees mentioned the double morale on sleeping “outside of the gate”. On the one hand a fear for promiscuity of the wife leads to the husband prohibiting her to use contraceptives. However, when the wife insists on the use of contraceptives it is very common for the man to get another wife, either formal or informal, to have more children with.

The biggest reason why men are reluctant to contraceptive use seems to be that they attach more weight to having a large number of children. The survey results showed that men indeed seem to want more children than women. While 16.5% of the women want 2 children or less, for the men this is only 3.8%. At the other extreme, 34.6% of the men want 6 or more

children, and only 17.7% of the women. A correction was done for age because the average age among men was higher, but then still, the relationship was seen.

This desire for a lot of children seems to come forth from the status involved in having a large family and showing one's virility rather than a particular liking of children.

"Most of the men are the ones forcing them to produce. For example a man will tell you I need to produce to enlarge my clan. Because as a woman you cannot have a clan, you will have a clan from where you are produced from, but you will not have a clan from where you are married to, so most of the man will tell you, I want to enlarge my clan." (Woman, 30 years, rural area)

However, some health workers mention that this status involved with large families is disappearing and that men increasingly start to listen to the benefits, especially the financial ones, of having fewer children.

The overall negative attitude of men leads to cases where women start using contraceptives without their partner knowing. All health workers invariably say that the injectable is the most popular contraceptive, because it is easy to keep the use hidden: it can be taken like a secret without the husband knowing. In the survey 8 women admitted they were using contraceptives without the knowledge of their husband, often because he wanted more children and she didn't. In two cases the husband only agreed to traditional family planning and in one case the husband only agreed after doctors assured him that his wife would die if she got pregnant again. Secret use is risky for the women, and women may decide that it is easier to not use than use secretly. Health workers comment that when a woman experiences a side effect she may stop using the method rather than risking her husband noticing. Women are also often financially dependent on their husband, and as such do not have the financial means to either travel to a government health centre or get a contraceptive from a private clinic without their husband's knowledge and support. One woman mentioned problems because of the time it would cost her to get the method. Her husband would ask her why she was late and this often resulted in domestic violence.

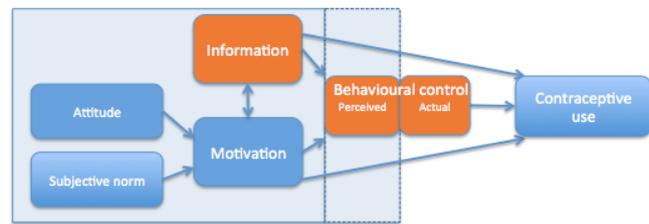
Several health workers as well as interviewees explicitly mentioned the need to educate the men and 'win them over'. Both men and women should not just be educated on the methods available and how they work, but also on the fact that contraceptive use is a basic human right, and that the decision to use or not use it should not be dictated by someone else.

5.2.3 Access problems & Poor services

"Because you can't expect them to come to this hospital. That is not realistic. It is realistic to deliver it near to where the women are, rather than to expect them to take a day off, which is what they do, they take off a day of work in the fields or to look after the family to come to the hospital." (Expat midwife, private hospital)

"Not so modern facilities here in Uganda and not so big. I believe there are some places where there are overwhelming numbers, but the facilities are not able to provide them the services they are supposed to get [...] Secondly, not only Hoima but Uganda in general is access. Rural areas, bad road; accessing them is not easy." (Ugandan doctor from NGO)

Problems with accessing health services (in terms of money and transport) and poor quality of these services (insufficient stocks or waiting times) can form another barrier to contraceptive use. These factors have to do with *actual behavioural control* and for an individual it is difficult to influence them. However, they also have to do with a shortage of *information* on the services available and the *perceived behavioural control* on how easy it is to get contraceptives.



Health workers from public facilities mention problems both with providing access for their target communities as well as with the quality of the services. There is a lack of skilled people to insert the methods and give proper education leading to long waiting times and people leaving because it takes too long. Methods being out of stock is very common, so people have to be send away, or, when using a certain method, have to stop. In HRRH at the time the research was done only implants and IUD's were available, pills had not been there for two months and injectables for four months. In other health centres they had not had injectable for 6 months. A Ugandan midwife in the national referral hospital about progesterone only pills being out of stock:

“And imagine how mothers who are breastfeeding, that especially come here, and this pill is the only thing that is right for them. And then they can get it from pharmacies, but most of our mothers here don't work, and their husbands don't support, so they don't have money for it, so others will end up not using family planning.”

Then there is also the problem of accessing the services of public hospitals. Due to the low budgets and the problems mentioned above, there is often no money and staff to go out to the communities. This means that people have to come to the clinics and hospitals and this costs them time and money for transport. In Kampala access to services is much easier, simply because of the smaller distances and the better infrastructure. A new problem in Kampala that can be recognized from western society is that more and more women in the city have a regular job, and as such cannot come to the clinic because their working hours are the same as the opening hours of the clinic.

Health workers from private facilities (especially NGO's) agree that some target populations are hard to reach, but mention far less quality problems in their organisations. They often provide outreach services and go into the rural communities to find their target populations. However, these outreaches are very costly in terms of time, money and staff needed to organise them. Another problem with the private facilities is that there is often a small financial cost involved in obtaining the contraceptive. A doctor from a private hospital commented that when she went on outreach she found women that knew what they wanted, but when they found out they had to pay, they left. Later on she involved an NGO that could provide methods for a reduced rate, and then the uptake was massive. A community health worker had the same experience the other way around. She used to get free contraceptives

from an NGO and the people were using them, but now the NGO was gone so the people also stopped using.

In contradiction with these comments from the health workers the interviewees from the in-depth interviews did not mention any access problems for the services. They all referred to the different government health centres that were usually easy to reach and where services were free, and the outreaches organized by NGO's. The survey also showed that the location did not have a large influence on contraceptive use, so even though traditional methods were used more often in rural areas, geographical distance does not seem to play a big role (table 5).

	Hoima Town	Rural area
Modern method	57.1%	48.6%
Traditional method	8.6%	17.1%
No method	34.4%	34.4%

Table 5: Contraceptive use by location

What should be kept in mind with interpretation of this data, is the fact that those groups that are difficult to access for education and service delivery, are also difficult to access when searching research participants, so chances are only people were included that are somehow already being reached by family planning services.

The interviewees did have some comments on the quality of services, telling that waiting times can be long or methods out of stock, but they can often choose an alternative service. As a woman (30 years) from a rural area commented:

“At least as per now, the health centres are well equipped. And if the drugs are not there sometimes they can inform you, at such and such date we will be having the stock. And if you cannot wait until that date you can at least approach the [private] clinics, we have very many clinics in this place.”

In the survey people were asked where they obtain their contraceptive methods, and this shows that the majority (58.6%) gets them from a public health facility, while only 29.3% goes to a private clinic (profit or non-profit) and 12% goes to the pharmacy. In rural areas more people rely on public health care (73.5%) than in urban areas (46.6%), while the urban group uses private clinics far more than the rural population (41.5% vs. 14.7%).

Interpreting this data one should keep in mind that NGO's working in the family planning field often work together with government clinics in providing contraceptives in rural areas. This means that in the end more people may obtain their contraceptives indirectly from a private source. However when an NGO works together with a government health centre, methods are normally provided for free, so the end result for the user is the same. When we look at income, we see that this does have an influence on contraceptive use that is more pronounced in urban than in rural areas (table 6 next page). These findings endorse the fact that in urban areas more people rely on private services.

A group that again deserves special attention are the youth, as barriers to education and services can be higher for them. As mentioned earlier, knowledge of contraceptives is considerably lower in this age group, maybe showing a higher barrier in obtaining information on the topic.

	Hoima Town		Rural area	
	UGX <100k	UGX >250k	UGX <100k	UGX >250k
Modern method	36.8%	72.2%	41.7%	63.7%
Traditional method	21.1%	0.0%	25.0%	9.1%
No method	42.1%	27.8%	33.3%	27.3%

Table 6: Income and contraceptive use by location

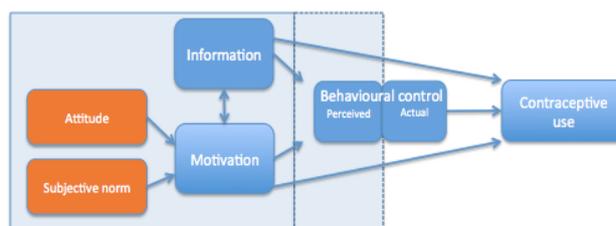
Use of traditional methods compared to modern ones is also higher in the youngest age group (23.5%) as well as in the highest (36.4%) while in the others it is only 11%. In the older age group this might have to do with established negative attitudes towards modern methods. The adolescents might feel less comfortable accessing services to obtain modern methods and prefer to use a method they can practice themselves.

5.2.4 Religious considerations

“I am a chair person of the church, every week we tell people about family planning. There are some churches that don’t allow family planning because they feel that it’s... the commandment says in the Bible: ‘go and produce’. Especially the Catholics. But for us we feel that... because we have seen that families they produce very many children, children are not going to school, children are becoming thieves, bad children on the community. So you find that having many children is actually not good.” (Protestant man, 38 years, rural area).

Some religions are well known for their conservative views on contraceptive use worldwide. These beliefs (or *subjective norms*) can influence people’s individual decisions to use contraceptives. In Uganda the existing religious groups are the Catholics (40%), Protestants (35%), Muslims (12%), Pentecostalists (8%) and other groups (5%) (UNHS, 2010).

Catholics and Muslims, as well as some Pentecostalists can be very conservative with regards to family planning, prohibiting it completely, or only allowing for



traditional methods. For example in some catholic nursing schools, no family planning education is given and the students go to protestant schools to be taught in this topic.

However there are also church leaders that are very cooperative and helpful in spreading ‘the gospel of family planning’ and in some churches even family planning education is given, or services are announced.

Although there is consensus about which religions can be inhibitive, almost all interviewees emphasize on the differences there are between the *attitudes* of individuals within a certain religion, and the individual choice everyone has to make on this topic. A Born Again Christian man for example made his own choice:

“Like me I am a Christian, now the Bible says go and produce and be fruitful. Now some people think God wants them to go and produce very many children, [laughs] Which I don’t agree with that. They think family planning is against God’s will and they end up producing very many children, but when it comes to responsibility they fail, of course.” (Man, 33 years, Hoima town)

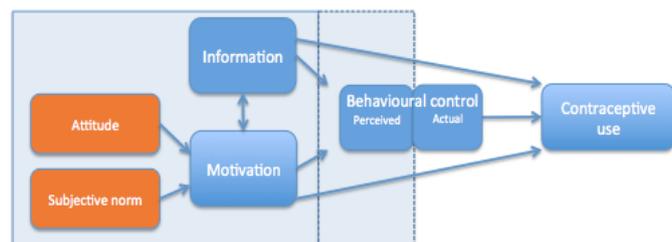
In the survey some effect of religion on contraceptive use was seen. Catholics indeed seemed to use contraceptives a little less than Protestants (38.1% non-use vs. 28.3%). When looking at use of a modern versus a traditional method, there is no big difference between the two religions: Catholics 82.1% modern; Protestants 86.8%. Religion also does not seem to have an influence on unacceptability of methods, ideal number of children, or knowledge. The number of participants of religions other than Protestantism and Catholicism are too small to say anything about relationships. Overall only 8 people mentioned that religion influenced their contraceptive choice (of which 5 pentecostalists). It could be that religious considerations are not easily mentioned, but expressed in fears of getting lame children, getting infertile or getting cancer.

5.2.5 Desire for large family

“The African perspective, people here they don’t believe in having few children. They belief in making big families, so when you die, you leave your legacy behind and things like that. [...] But I have to be cautious, of that things are changing a little bit. Not like the past when you used to have big families with maybe ten children or twelve. At the moment, families are kind of becoming smaller talking about, four, five, six, there.” (Ugandan doctor NGO)

Most of the health workers agree that Uganda has a culture (and *subjective norm*) of getting many children and having big families.

Also in the survey a relationship was found between the desired family size and the use of contraceptives. The group of people wanting 7 or more children were the ones with the lowest contraceptive use (38.5%) of which mostly traditional methods (23.1%).



The desire for a large family has several reasons. First of all child mortality is still quite high, so there is no security that all your children will survive. There is also no good social system, so children are your caretakers in your older age. Because most of Uganda’s population lives from subsistence farming, children are often used to work on the land, however, plots of land are becoming smaller and smaller. Lastly there is a lot of prestige involved with having many children, especially for men. They feel the need to enlarge their tribe or clan. Men seem to want more children than women in general as discussed above (5.2.2).

“Because in Uganda here, traditionally, many children means defence, so a man having many children around is more defended. It will seem that when I get many children, maybe others will be clever, others will be strong, others will be weak. When he is old he will think the children will help him.” (Man, 38 years, rural area).

However, most of the health workers think that the trend is changing. People start to realize how expensive it is to have children, and they consider it more important to take good care of

their children. As many Ugandan health workers say, the future is not as bright anymore, there is a scarcity of water and land, and there are no jobs. One of the doctors mentioned that often when you ask people they want fewer children than they are having, so that means that they not necessarily wanted the number of children they are having.

In the survey a strong correlation can be seen between age and ideal number of children (table 7). The younger people are, the fewer children they seem to want. This data seems to reinforce that having a large family is becoming less and less popular.

Ideal number of children	15-24	25-35	36-49
1 or 2	21.1%	4.4%	5.7%
3 - 5	73.7%	71.1%	40.0%
6 or more	5.3%	24.4%	54.3%

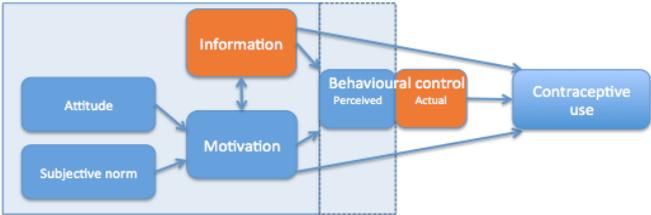
Table 7: Ideal number of children by age

Education also has a significant influence on the desired family size. People with no education or only primary school most often want 6 or more children (35.7%), while in the higher groups percentages are 21.7 and 6.8%.

5.2.6 Side effects

“I agree with family planning, but my problem is most... all women who have undergone family planning have complications. Others when they go for family planning they overbleed, others they become fat, others they become skinny. I have never seen any woman saying I am on family planning and I am doing well, that is the problem.” (Man, 33 years, Hoima town)

While only 3 health workers (all Ugandans) mentioned side effects as a reason for the low uptake of family planning, the vast majority of the women complained about the side effects of contraceptives both during the survey and during the in-depth interviews, and even some men asked about the side effects their wives experienced.



Side effects often form a reason for women to stop with a particular contraceptive method that is relatively outside of their *control*. Some women switch to another method, but others stop completely. Three survey participants were currently experiencing side effects and were at the point of stopping the method or switching. When asked whether people used any method before (irrespective of current use), 45.1% did, some people more than one method. In table 8 the methods mentioned are shown and also the side effects they are related to. Of the 32 people that used injectable, only 6 did so without a problem, and of the 28 that used pills only 7 did without problem. The rest mentioned one or more side effects. 16 participants indicated that they switched to their current method after having had side effects with previous ones. Condom use is not in the table since it is more seen as a method for STD protection than a long-term family planning method.

	Injectable (32)	Pills (28)	Implant (7)	Coil (1)
Prolonged menstruation	13	15	4	1
No menstruation	6	0	0	0
Weight change	5	2	1	0
Headache	2	1	0	0
Back pain	2	0	0	0
Abdominal pain	5	5	1	0
Dry vagina	2	3	0	0
No problem	6	7	2	0

Table 8: Side effects of contraceptive methods used in the past

Of course, this table gives a biased view as it consists of complaints of people that stopped using the method. Of the 30 people currently using injectable, only 1 complains of side effects (irregular bleeding), and of the 11 people using pills none. Patterns in use also obviously show the different experiences people have with different methods; 3 people switched from pills to injectable because it had less side effects, two people made exactly the opposite move.

Side effects not only impact the contraceptive user, but also the people around. A lot of people get their information about methods through informal channels, and hearing about other people having side effects with a certain method may discourage women from using it, or stimulate men to discourage their wives from using it. In the survey, fear of side effects often came forward as a reason why people found certain methods ‘unacceptable’ for them to use. In 51 of the 66 cases the fears were unsubstantiated and based on misconceptions about the effects of contraceptives. However, in 16 cases there was a fear for realistic side effects like spotting or prolonged menstruation. People had heard about side effects from others, but did not have personal experience.

A large part of this problem again has to do with education and *information*. People often do not realize that every method works different and has different effects on the body, and also that every human being is different, so that when they experience a side effect with a certain method, their neighbour not necessarily will get the same. Side effects that are harmless also cause fear in people as the following quote illustrates.

“They come with bleeding and amenorrhea, they want also to have their period. Like yesterday I had a client, she had used depot for three months and she didn’t bleed. She asked me, where is the blood going, is it going to effect me... is she not having any more children if she doesn’t have her periods? And I didn’t know what to answer.” (Ugandan midwife, private hospital)

When people understand why their period has stopped and that it is not harmful, they might accept this side effect and continue using the method. The problems of other side effects like prolonged bleeding, headache or a dryer vagina cannot be solved just by explaining them.

6 - Mobile phones in Hoima district

This chapter gives a description of the patterns of mobile phone ownership and use in Hoima district as found in this research. It will formulate the answers to the second research question: ‘Which demographic factors play a role in mobile phone ownership and use?’ and partly to the last research question: ‘What characteristics do phones have to facilitate communication and behaviour change and what problems may arise in using them for these purposes?’

The chapter will start with an overview of the variables and factors that play a role in whether people have access to a mobile phone or not, identifying who the *receivers* are when communicating through a phone. It also describes when, where and how phones are generally used. It will then provide information on the problems identified that can form a *barrier* to the (optimal) use of mobile phones.

6.1 Mobile phone users

While it is clear that the use of mobile phones is picking up very quickly in developing countries in general and also Uganda in specific, it is often expected that mobile phone users, and *receivers* of the information sent through a phone have certain characteristics. Most people expect phone uptake to take place in larger urban centres, and more specifically Kampala. When talking to health workers, they estimate that in Kampala the vast majority (85-95%) of people will have a phone, but they are much more sceptical about phone ownership in rural areas. Most interviewed health workers thought that in rural areas the majority of people would not have a phone. Not only health workers, also some participants from in-depth interviews believed that not many people would have a phone, although they themselves almost invariably did have one.



The survey showed that the majority of the survey participants had their own mobile phone, a smaller percentage shared a phone and only 13.6% did not have access to a mobile phone at all (table 9). However, a difference between town and the surrounding rural areas could be seen. While in town 77.1% of the people had their own mobile phone, in rural areas this was only 52.9%. There was less difference in the occurrence of phone sharing, but overall the number of people without phone access was much higher in rural areas than in town. This does coincide with the belief that urban populations are easier to reach through a phone than rural ones. However, keeping in mind the rurality of the entire area, including Hoima town, the percentage of access and ownership are higher than might have been expected.

Apart from believing that urban people are more likely to have a phone than rural people, health workers mentioned other factors influencing phone access. First of all they thought there was a gender divide: men would more often own a phone than women, and if there was a phone in a household, the man was most likely to have it. They also presumed that higher socio-economic groups were more likely to use a mobile phone than lower ones.

The survey reinforced the idea that men are much more likely to own a phone than women (table 9). Access figures on the other hand did not differ that much due to the fact that

phone sharing is much more common for women than for men. One thing should be noted when interpreting these figures: women often say they share a phone with their husband, but none of the men said to share a phone with their wife. It is most likely that when phone sharing between partners occurs, the phone is predominantly in possession of the man, and the woman only lends it when she needs it. The differences in phone ownership between the sexes were present in town as well as in the rural areas.

	Mobile phone ownership	Shared mobile phone	No mobile phone access
Total	65.0%	21.4%	13.6%
Location			
- Hoima town	77.1%	18.6%	4.3%
- Rural areas	52.9%	24.3%	22.9%
Gender			
- men	83.0%	5.7%	11.3%
- women	54.0%	31.0%	14.9%
Income			
- <50.000	70.6%	5.9%	23.5%
- 50-100 k	65.4%	23.1%	11.5%
- 100-250k	58.6%	27.6%	13.8%
- 250-500k	76.7%	20.0%	3.3%
- >500 k	87.5%	0.0%	12.5%
Education			
- none	40.0%	60.0%	0.0%
- primary	58.8%	23.5%	17.6%
- secondary	69.8%	18.9%	11.3%
- tertiary	85.7%	7.1%	7.1%

Table 9: Characteristics of phone ownership and access

With regards to income a trend could be seen, but it was not completely straightforward. The highest percentage of people without phone access is found in the lowest income group, and the difference between the other groups is considerable. Figures of phone ownership are a bit inconsistent, although the two highest income groups appear to have the largest percentages of phone owners. Phone sharing is most common in the middle-income groups. While the relationship did not show very clearly, when survey participants were asked why they did not have their own mobile phone, financial cost was the reason most often mentioned, by 73.4% of the participants. Other reasons had to do with permission from parents or partner, not needing a phone or not knowing how to operate it.

For education a trend is also visible. When people are better educated, they are more likely to have their own mobile phone. Phone ownership increases steadily from 40.0% for people without education to 85.7% for people with tertiary education. Phone sharing is higher for the lower educated groups, making access figures a bit more equal. Although access and ownership was relatively high (more than half) in all demographic subgroups, the survey findings indeed show that phone-owners are more likely to be men, and on average seem to be better educated and having a higher income than non-phone owners.

This might partly explain the relationship that was found between phone ownership and contraceptive use, as income and education are often thought to influence contraceptive use as well (table 10). However, ownership and access were higher in the group not using

contraceptives than in the group using a traditional method.

	Phone ownership	Shared phone	No phone access
Modern method	71.6%	21.6%	6.8%
Traditional method	44.4%	27.8%	27.8%
No method	62.5%	18.7%	18.8%

Table 10: Mobile phone access and contraceptive use

An explanation for this can be found in the ‘diffusion of innovation’ theory from Rogers (Haider, 2004). Both modern contraceptives and mobile phones can be seen as innovative products that are newly introduced in a society. According to the diffusion of innovation theory there are different groups of people in society that are more or less likely to pick up new trends: innovators, early adopters, late adopters, early majority, late majority and laggards. It could be that those people that were quick with the uptake of the ‘new’ contraceptives are also quick in uptake of mobile phones. Users of traditional methods might have an aversion to modern methods, and also modern ICT.

Mobile phones are seen in literature as a good way of targeting younger age groups, as they are an attractive means of communication for the youth. The survey showed that in this research population phone ownership and access is definitely not higher in the younger population (table 11).

	Phone ownership	Shared phone	No phone access
15-19	42.9%	35.7%	21.4%
20-24	65.5%	24.1%	10.3%
25-35	74.5%	14.9%	10.6%
36-49	69.4%	16.7%	13.9%

Table 11: Mobile phone access by age

The 15-19 year old group was even the one with the lowest phone ownership and access. In the other age groups phone access is quite similar. Until the 25-35 year old group phone ownership increases, after that it decreases a little again. Access figures for adolescents in and out of town differ tremendously. Phone ownership is much higher in town (78.6%) than in rural areas (7.1%) where phone sharing is much more common in this age group. This difference can partly be explained by the occupation: most rural adolescents are farmers, while urban adolescents are more likely to be either formally employed themselves or have a husband with a job taking care of them. However, when comparing the students in both groups 47.1% of urban students have their own phone and only 14.3% of rural students. The most logical explanation is a difference in parental income, but no data was collected on this issue.

6.2 Usage patterns of mobile phones

When looking at the patterns of phone use, or the when, why, for what and with whom of the use, some observations should be highlighted.

First of all, as seen in the above section, phone sharing is quite common, especially for women. Of the 30 people in the survey sharing a phone, over three quarters (n=23) shared this phone with one more person, the others shared it with more than one. For women this person was most of the time their husband (17 times), but as discussed before, in this situation most likely the husband possesses the phone while the wife can lend it. Sharing a phone within the family was quite common: five people said they shared a phone with their sibling(s) and sharing between generations also took place: parents with children, grandparents with grandchildren, or aunts and nieces. Two people shared the phone with a friend. This phone sharing can pose limits to the use of a phone, as the user cannot always access the phone when needed, and cannot always be reached when he or she is not in possession of the phone. It also influences the privacy of the users.

Access to electricity also influences the usage of the mobile phone. Only half (50.0%) of the survey participants had access to electricity in and around their house. The other half had to pay to make use of other people's electricity and 8.6% also had to travel more than 2 kilometres to get to there. This limited access to electricity to charge the phone can lead to the phone being switched off more often, or even a regular pattern of the phone being on and off on certain times. One of the rural interviewees gave an example of a working day, where the phone is left at home. This might be to save battery, or because it is the only phone of the household and is of more use at home than in the field.

"Here in Uganda, in the morning, most people wake up with a plan of going to the gardens, as a number of the population here don't have jobs. So early in the morning he wakes up, takes tea, then the garden. At times they leave phones at home and at lunch time everyone is like, let me see how many missed calls I have." (Man, 38 years, rural area)

On the one hand there are these limitations on phone use, on the other hand the phone is very popular. People that have the opportunity to use their phone unlimited give it priority over many other things. The phone is always brought with, and it is very rare for a Ugandan to ignore a phone call, even when in an important meeting, at dinner in a restaurant, exercising or driving. This might also have to do with the fact that there are no voicemail services.

The phone is used for a variety of things, but calling is still the most popular, 31.1% of the interviewees even say to only use the phone for calling. They would receive a text message sometimes, but never send one. 53.1% of the participants used the phone also for sending and receiving text messages on a regular basis, and 55.6% used it also for mobile money. 40% of the participants used all three utilities. The number of people having Internet on their phone is still very limited and smart phones are very rare to see, but exact figures are unknown.

As text messaging is cheaper than calling, it seems to be relatively underutilized. This might have to do with literacy problems (see next section), but there were 19 people that did not use texting while they did use mobile money for which one also needs to be literate. Different expat workers confirm that getting a text message from a Ugandan is rare, that they would not always get a reply on their own messages, and that language used was very simple.

The people that do use text messaging are enthusiastic about it, especially about the fact that it is asynchronous. When thinking of the limitations in phone use mentioned above

this is logical. Messages can be received also when the phone is switched off, and be read later if the phone was not in possession of the receiver at the time the message arrived. By sending a message you will always make sure to reach the person, while when you call someone the phone may be off and he might not call you back.

6.3 Barriers to the use of a phone

As shown in the first section, a variety of factors can influence whether someone has an own mobile phone and whether someone even has access to a phone. Patterns of use can also differ due to external barriers some of which have been touched upon already. Different groups in society can be influenced more or less severely by these *barriers*. Four types of barriers are identified as proposed by Chib, Lwin (2012) (Section 2.5.1).



Economical barriers

These are the costs that are involved for the individual to obtain and use a mobile phone. First of all there is the cost of buying a phone and a SIM-card. Next there is the cost of putting airtime on the phone to be able to call and send messages. Lastly charging the phone involves paying extra money (500 UGX = 0.20 US\$ per time) when someone does not have electricity at home.

Survey participants that did not have their own phone were asked for the reason why, and of the 49 people not having their own phone 36 named financial costs as the main reason. Of these, 13 participants mentioned that they had a mobile phone before, but that it broke or was stolen and that they had not yet found the means to replace it. However, from the data no straightforward relationship could be found between income and mobile phone ownership (table 9). Looking at the average income, buying a phone will always consume a considerable part of the household income. Personal perception on the importance of a phone probably plays a large role in the decision to purchase one.

Several interviewees said that at the time of the interview they did not have money to put airtime on their phone, so they could not make calls or send messages although they could still receive them. To reduce the costs of calling and texting, many Ugandans have a dual SIM-card. The costs involved in obtaining a SIM-card are often returned in the form of airtime, and some providers even give them out for free. Calling and texting between two SIM-cards of the same provider is cheaper than between two different providers. Many Ugandans have two or more phone numbers to be able to communicate with different people with different providers for the cheapest rate.

Technological barriers

This type of barrier occurs when people lack the skills to operate the phone or to make use of it in optimal manner. Only two of the 140 survey participants said they did not know how to operate a mobile phone, and also gave this as the main reason why they did not have one. However, several examples came forward of people having trouble with sending and receiving text messages, mostly due to literacy problems.

“You know, a number of people, it is very easy for them to receive calls, and they are good in making calls and receiving calls. But when it comes to message texting, most people are very reluctant; they cannot open messages and read what is there. They cannot even text a message to a friend.” (Man, 31 years, rural area)

The same man added that sometimes people might not even realize they are having a new message. Another man from a rural area saw the same problem. He said that most people buy a phone to communicate with their friends through calling, and that sending messages is not common. However, he also identified the advantages of messages as being asynchronous and a lot cheaper than calling.

While not every Ugandan is fluent in English, almost all phone operations are done in English, due to the variety of local languages there are in Uganda (about 40). In the survey 55.4% of the participants was fluent in English, while 14.4% said they spoke and understood it a little bit. Gender and location did not have a big influence on the number of people not speaking any English. The level of English was a bit better in urban areas and among men (table 12). Age had the biggest influence. Percentages of people speaking little English were relatively similar, but the number of people speaking no English increased clearly with age, and the number of people speaking English fluently on the contrary decreased massively.

	Fluent English	Little English	No English
Total	55.4%	14.4%	30.2%
Gender			
- male	60.4%	7.5%	32.1%
- female	52.3%	18.6%	29.1%
Location			
- town	61.4%	11.4%	27.2%
- Rural area	49.3%	17.4%	33.3%
Age			
15-19	82.1%	14.3%	3.6%
20-24	75.9%	10.3%	13.8%
25-35	42.6%	19.1%	38.3%
36-49	34.3%	11.4%	54.3%

Table 12: English proficiency in groups

	Literate in English	Literate local language	Illiterate
Total	62.1%	16.4%	21.4%
Gender			
- male	62.3%	18.9%	18.9%
- female	62.1%	14.9%	23.0%
Location			
- town	65.7%	17.2%	17.1%
- rural area	58.6%	15.7%	25.7%
Age			
15-19	82.1%	14.3%	3.6%
20-24	86.2%	6.9%	6.9%
25-35	48.9%	17.1%	34.0%
36-49	44.4%	25.0%	30.6%

Table 13: Literacy in groups

The majority of the research population, 62,1%, could also read in English, 16,4% could only read in the local language, and 21,4% was illiterate. Illiteracy rates are a little bit higher among women than men, but a larger difference was seen depending on geographical location and age (see table 13). Illiteracy is much higher in rural areas than in town, especially with regards to reading in English. Age had an even larger impact. The youth (15-24) are much more likely to be literate in general, and also specifically in English than the older groups.

What can be concluded from these tables is that it sometimes seems like more people can read English than can properly speak English. This also came forward in the in-depth interviews. Many people had trouble expressing themselves clearly in English but said that when it came to reading they would be able to read and understand it. Some people even

preferred reading in English to reading in the local language, even though their speaking was not very developed.

Also, when people were confronted with the fact that they could not read but still claimed to understand how to operate the phone or text messages they received, they said they asked friends and relatives that were higher educated to help them interpreting. Although logistically it is a nightmare to adapt the language of messages or phone systems to the geographical location of the target group, the data make clear that this could slightly increase the population reached.

Infrastructural barriers

A third barrier to optimal phone use has to do with infrastructure. Network problems can limit the use of mobile phones. The data in this research show that network coverage is quite good. 38.5% of the phone users never experience any problem with the network, 31.1% has a problem less than once a month and only 30.3% of the people claims to have problems on a weekly basis. Network problems are more common in the rural areas than in town. In town 41.5% of the people never experiences a problem and only 26.2% has a problem on a weekly basis; in rural areas only 35.1% never has a problem and another 35.1% has problems every week. Having a dual SIM, apart from decreasing airtime costs, can also solve network problems as in remote areas some providers might have network while others have not. An interesting characteristic of Uganda is the fact that mobile network coverage is much better than landline coverage. As one of the expat doctors in a public hospital said:

“In fact Uganda has skipped a generation in terms of technology because it doesn’t have landlines. It doesn’t have landlines because people used to steal the wires, for the copper content, so that never really got started as a method of communication, certainly not outside of the cities. So they have got a well developed cellular network that is widely advertised.”

A second infrastructural problem is the electricity network. Not having electricity in one’s house means that one has to pay an additional fee to charge the phone and sometimes one has to travel. In town electricity access is much better than in rural areas: 65.7% of the people has electricity in their house while in rural areas this is only 34.4% meaning that the rest of the people would have to pay. Access to electricity is also influenced by income. Of people earning less than 100.000 UGX only 27.9% had electricity at home, of the people earning more than 500.000 UGX 87.5% had electricity at home.

The relationship between having electricity in the house and mobile phone ownership was obvious. Of the people with electricity 77.1% had their own phone, of the people having to pay 56.9% had their own phone and of the people that had to pay and travel >2 km only 33.0% had their own phone. Access figures decreased in a similar manner.

Socio-cultural barriers

The last types of barriers are socio-cultural barriers. Four survey participants mentioned that they did not have a phone because either their parents (2) or partner (2) did not allow them to. Especially the older generation seems to be reluctant with regards to the new technology, they prefer communicating face to face so they can see the person the information comes from and

there is time for discussion and questions. Expat workers recognized this preference for face-to-face interaction:

“Culturally I don’t know how well it would work. One thing that struck me in Uganda is that people interact face-to-face. Even with very intelligent people electronic communication is not something they particularly like using. If people text or email, it is at a low level, they send fairly perfunctory messages. I think people are a bit suspicious of electronic communication” (Expat doctor at public hospital)

The sharing of phones can also lead to socio-cultural problems. Phone sharing poses privacy problems, especially when text messages are sent and received on the phone as these can be read by subsequent users when not deleted. Differences in attitudes on certain topics (more specifically contraceptives) between partners, or between different generations in a family can cause trouble in the use of the phone for this topic.

7 - Communication about family planning in Hoima district

This chapter elaborates on how information about family planning and its sources is distributed right now, and what options there are to distribute information. It looks at people's preferences on how they would like to be informed and their perceptions of different communication channels. The chapter provides an (partial) answer on the last two sub-questions: 'What are the preferred communication channels for people to be informed about family planning and its services, and why?' and 'What characteristics do phones have to facilitate communication and behaviour change and what problems may arise in using them for these purposes.'

In figure 9 the sources where people currently get their family planning information from are depicted. People mentioned between 1 and 6 different sources, on average they came up with 2.3 sources. Radio and public health facilities (either the main hospital or the health centres) are clearly the most popular information source. Outreach activities on family planning and talks of village health teams are also popular, especially in the rural areas. Information is often extended from the primary source to other people; many people got (part of) their information from friends. Rarely information is also received from the partner, family members or parents. School is relatively high in the ranking, mentioned by 31 people. However, realizing that 47.9% of the respondents went to secondary school while only 22.1% mentioned school as an information source, shows that family planning education is not yet part of the standard curriculum. Apart from radio, modern media were not very popular. The most likely explanation is that people do not have access to newspapers, television or the Internet as easily as they do to the radio. This is also discussed in the following sections.

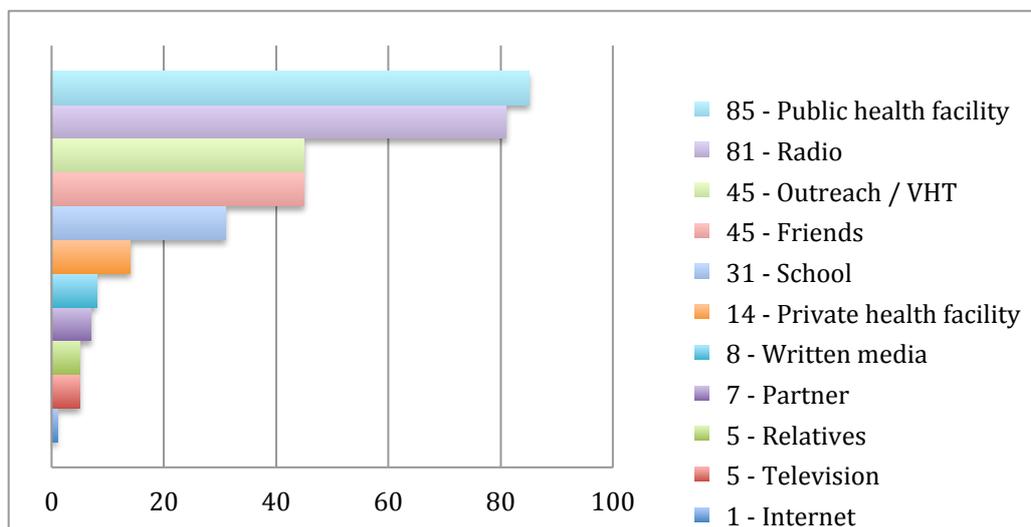


Figure 9: Current sources of family planning information

The different sources can be categorized into four broader categories: formal health care (public & private facilities, and outreaches), media channels, informal channels (friends and family), and school. Formal sources with official information are most often mentioned (see figure 10). The formal health sector is by far the most popular and some information comes through schools. Media channels are mentioned by 96 of the 140 participants, and the role

informal channels play should also not be underestimated. A considerable amount of information arrives as secondary information that was passed on through individuals.

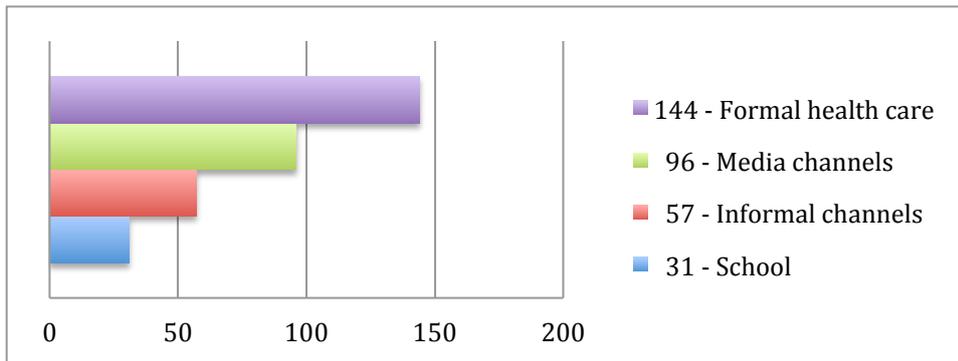


Figure 10: Current information sources in categories

While these figures give an overview of the different sources information can come from and which are most commonly known and used, they say nothing about frequency of use or about which quantity of the information comes from which source. They also do not show which source people like the best. It is imaginable that informal sources or media are easier to access than the more formal sources of information, and that as such they are more often consulted and play a larger role determining the information people get.

In the rest of this chapter data is presented on the preferred information channels for the research population, and what advantages and disadvantages were linked to the different types of channels. The phone is discussed more in-depth in the last section and with more concrete examples on how it could be used to give information.

7.1 Preferred information channels

In this section people's preferences on how they would want to be informed about family planning are discussed. People were asked to choose from five different information channels the one they liked the most, the second-best and the worst. The first choice was 'face-to-face', representing the formal health care system, where information is given through health education talks to a group or in individual consults. The second was mobile phone, as this is the channel that is researched in this thesis. The third option was radio, a known popular media channel. The fourth was television, a media channel that makes use of visual helps and as such might increase understanding compared to audio or textual information. The last choice was posters/leaflets, an 'old-fashioned' type of written information. Informal channels were not included because the reliability of the information they give is not always clear. Although the official information will in some cases be forwarded in unchanged form, in other cases information might get lost or changed while being passed on. In spite of this, as mentioned above, their role should not be underestimated, and can increase the impact each of the five channels can have.

Radio is obviously the most popular information channel (table 14), it is the favourite one for 42.9% of the participants, and mentioned most often as second-best channel as well. Only 6 people would not like to be informed through radio. The popularity of the radio is no

surprise, as 97.9% of the interviewees had access to a radio and 82.9% even listens to it on a daily basis. Most radios work on batteries, so electricity at home is not a prerequisite to be able to listen to the radio.

	Favourite		Second-best		<i>Worst</i>	
	%	n =	%	n =	%	n =
Radio	42.9	60	33.9	47	3.9	6
Mobile phone	25.0	35	21.7	31	7.4	10
Face to face	24.3	34	18.6	26	2.4	3
Television	5.7	8	12.8	18	13.2	19
Posters/leaflets	2.1	3	3.6	5	30.0	42
All are fine/nothing else			9.4	13	43.1	60

Table 14: Preferred information channels

Mobile phone and face to face follow radio, and their popularity is very similar. The percentage of people naming them as their number one is almost equal. The mobile phone is a little more popular as second choice, however, there are also more people that do not like it at all as a way of being informed about family planning. People having their own phone are more enthusiastic about it as a communication channel than people sharing a phone or not having access. None of the people without a phone mentioned it as their number one choice, 10% of the people that shared a phone and 35.5% of the people owning a phone.

Television and posters are clearly the least popular. They are rarely mentioned as the most popular channel, and 42 people did not like posters and 19 did not like television at all.

7.1.1 Group preferences

When looking at differences between groups with varying demographic characteristics, it becomes clear that preferences for communication channels differ. Although poster and television continue to rank lowest in all groups, and most of the time radio remains the most popular channel, differences occur in the percentages of people choosing between the top-three channels.

In table 15 the numbers for the urban and rural population are compared. The ‘worst’ choice is not shown as differences between town and the rural areas in this category were minimal. When looking at the favourite information channel, the order of the first three channels differs between the two geographical areas. In town the radio is most popular, shortly followed by the mobile phone, and then face-to-face. In rural areas the radio is by far the most popular, for almost half of the participants. Face to face is the next option and mobile phone has only the third position. For the choice of second-best, differences are a bit smaller, but in the same direction. Radio is most popular in both groups, but more so in rural areas. This time mobile phone is second in both groups, but in the rural area face-to-face is almost as popular.

	Favourite (%)		Second- best (%)	
	Town	Rural	Town	Rural
Radio	37.1	48.6	35.7	39.0
Mobile phone	32.9	17.1	25.3	25.8
Face to face	20.0	28.6	15.1	22.7
Television	7.1	4.3	15.9	12.5
Posters	2.9	1.4	7.9	0.0

Table 15: Channel preferences by location

So while in town radio and mobile phone both seem popular options for being informed about family planning and face-to-face contact is less popular, in rural areas radio is by far the most popular followed by face-to-face and only then the mobile phone. All three channels are, in both locations, far ahead from television and posters. The difference between the two areas is not that surprising when thinking back of earlier chapters. Access to radio is very high in general, but phone access and ownership differ considerably between town and the rural areas, making it understandable that in town the phone is more popular than outside of town. Educational levels, and with that literacy rates and the percentage of people speaking English are lower in rural areas than in town, providing an explanation for the high popularity of face to face information.

Differences in preference not only exist between town and the rural areas, but also with regards to gender (table 16).

	Favourite (%)		Second- best (%)	
	Men	Women	Men	Women
Radio	32.1	49.9	40.5	35.7
Mobile phone	35.8	18.4	27.7	21.8
Face to face	20.8	26.4	18.0	21.8
Television	9.4	3.4	11.6	15.6
Posters	1.9	2.3	2.2	5.0

Table 16: Channel preferences by gender

For men, the mobile phone is mentioned most often as favourite communication channel, but when we look at both first and second choice, we see that the mobile phone and the radio are more or less equally popular. Face to face has the third position. For women, radio is by far the most popular, followed by face to face and the mobile phone has the third position. This reinforces the belief that mobile phones are especially suitable for targeting the male population. However, also 40.2% of the female population has the mobile phone among one of the two first choices as a source of information. Again here, differences in ownership and literacy levels provide an explanation for why the phone is more popular with men and why face-to-face information and the radio are more popular with women.

Lastly a comparison was made between different age groups (table 17), as mobile phones are often seen as a good way to target younger age groups. The differences seen between youth (<25 years) and the oldest age group (>34 years) were not so big. Radio seemed a bit more popular in the older age groups, for mobile phones the differences were

negligible and face-to-face seemed a bit more popular in the youth group, however, when taking the second choice into account this difference almost disappears.

	Favourite (%)		Second- best (%)	
	< 25	> 34	< 25	> 34
Radio	43.9	48.7	36.0	39.1
Mobile phone	24.6	23.1	23.7	25.0
Face to face	24.6	20.5	22.0	25.0
Television	5.3	5.1	16.7	11.0
Posters	1.8	2.6	1.8	0.0

Table 17: Channel preferences by age

Since in the previous chapter is shown that mobile phone ownership was lowest in the 15-19 year old group and more or less equal in other age groups, it is quite logical that the mobile phone is not more popular in younger age groups than in older ones, as phone access is lower.

7.1.2 Benefits and disadvantages of different channels

After choosing the two best information channels and the worst information channel, participants were asked why their favourite was their favourite, their second best was also good and why they would not want to be informed by the channel of their ‘worst’ choice. The channels are discussed one by one below.

Radio

Benefits

- + Easy access
- + Easy to understand
- + Large audience
- + Possible to ask questions
- + Transportable, to bring with you
- + Cheap
- + Trustworthy information
- + Extensive information; no limit

Disadvantages

- Public channel, no privacy
- Set time; might miss programme
- No access
- Might be wrong information
- Audio information; wants to read it

There were 107 participants that put the radio as one of their two favourite channels. 89 of these gave access as the main reason for this. Since 97.9% of the participants had access to a radio and 82.9% listened to it every day, it is not surprising that it is easy for people to pick information on family planning through the radio. Other reasons (as listed in the boxes above) were far less often mentioned, in the range of 5 to 10 times. Several people mentioned the fact that if there is a radio programme on family planning, listeners can call the radio station and anonymously ask questions as a positive point. Only 6 people named radio as their least favourite information source, so negative points were far less mentioned. 3 people found the

radio not private enough, as other people can hear that you are listening to family planning information. One woman said that if her husband would hear that she was listening to such a programme, he would switch off the radio. Other people were afraid they would miss the programme, as they did not always have the radio with them or on.

Mobile phone

Benefits

- + Easy access
- + Always with you
- + Information comes to you
- + Private
- + Accessible at any convenient time
- + Easy to understand
- + First-hand information (formal source)
- + Information can be reread/recalled

Disadvantages

- No access
- Illiterate
- No possibility to ask questions
- Limited information; no details
- Phone might be switched off
- Might be wrong information

66 people chose the phone as one of their two favourites. Again, easy access, meaning that they had their own phone, was the reason most often mentioned, 35 times. However, more phone specific advantages were also mentioned. People emphasized on the fact that wherever they would go they could bring their phone, and that when the information comes to the phone they can access it at any time and in any place convenient for them. It does not interfere with their daily activities. Information can also be stored and recalled at a later moment. Lastly the phone provides the possibility to get information without other people knowing. 10 people said they would not like the phone as a way of getting family planning information. 6 of these had no access, and some others could not read so would have a hard time understanding the information. However, illiterate persons would still prefer a phone to posters, as they can bring a phone to a friend to interpret, while posters are less transportable. The limited amount of information that could be sent and the difficulty of asking questions, except when calling, were other disadvantages mentioned.

Face to face

Benefits

- + Easy to understand
- + Possible to ask questions
- + Extensive information; no limit
- + First-hand information (visible source)
- + Personal advice
- + Private

Disadvantages

- Time costly to access
- Difficult to reach location
- Small audience; one by one
- Set time to access information

Face to face was one of the two favourite information channels for 60 people. The main reasons were the fact that information is understood best when explained in a conversation (37 people) and that interaction is possible and an unlimited amount of questions can be asked (32 people). Other reasons were the fact that a lot of information can be given, people had access, and it was private. Only 3 people did not like face-to-face information. This low number probably comes forth from the fact that in principle every single person can access this information channel. However, as these people mentioned, accessing it is time costly and can be difficult because of the distance.

Television

Benefits

- + Easy access
- + Easy to understand
- + Visual effects
- + Large audience

Disadvantages

- No access
- Set time; might miss programme
- No possibility to ask questions
- Power cuts

Television was not a very popular channel, only 26 people chose it as one of their favourites while 19 had it as their least favourite. This has mostly to do with access. A television is a relatively expensive purchase, and electricity in the house is necessary, a luxury only 50% of the survey participants had. This means people need to watch television in public spaces, and cannot have influence on the channel or programme that is watched. Of the 26 people that liked it as a communication channel, 19 had their own television. They liked it because information is presented visual and hence easy to understand, and because it can reach many people at the same time (regarded they have a television). All 19 that did not like it gave as the main reason the fact that they could not access it. They also mentioned the set programming, and the fact that no questions can be asked.

Posters / Leaflets

Benefits

- + Easy access
- + Easy to understand
- + Stepwise information

Disadvantages

- Hard to find (no access)
- Difficult to understand / illiteracy
- No time to read them when underway
- No privacy; people see you read
- No possibility to ask questions

Posters or leaflets were by far the least popular form of getting information. Only 8 people liked it, while for 42 people it was the worst source. The people liking it all saw posters or leaflets frequently and had no difficulty reading and understanding them. The majority of the people however said they were very rare to see and hard to find, especially in rural areas (21 people). Distribution of leaflets and posters is very difficult due to the bad infrastructure and

the underdeveloped postage system. Some people also complained that when you see posters, it is often when you are travelling, so you don't have time to read them. Many had difficulty understanding them, either because of illiteracy or because of a lack of details (13 people). Posters are often damaged and old-fashioned. Also, many of these written educational materials are found in health facilities, and once people are there it is easier to speak to a health worker than figure things out themselves. Lastly privacy was an issue, as they are often put in public places. One man even argued that putting posters and leaflets in public places would 'spoil the younger generation' and give them wrong ideas.

7.1.3 'Ideal' communication

What becomes clear in the above section is that none of the information channels is ideal, and that different people prefer different channels. However, some generalizations can be made with regards to what people think is important in a good education channel.

First of all, people need to have access to the channel. If people do not have the means to make use of a channel, they will never get informed through this channel. The radio, although it might not be the channel that gives the information in the easiest way, is still most popular because almost everyone can access it. Television and posters on the other hand are not popular because people cannot find a way of using them.

However, not just the ability to access the channel, but also the ease with which information can be retrieved from it plays a role. Through radio, television and the mobile phone, information comes to the people. On the other hand, when they want personal or face-to-face information, people have to go to the source of information to get it and this costs them time, and sometimes money. The asynchronous character of text messaging via the phone is seen as an extra benefit time wise, because information can be accessed at a time that fits into the user's schedule, while with radio and television you are bound to a fixed programming schedule.

Secondly, the information needs to be very clear. As discussed in chapter 5, the lack of information on family planning is striking, and the amount of wrong information and misconceptions going around is large. There are a lot of things that need to be thoroughly explained, so that even a relatively undereducated population can understand them. Face-to-face is definitely the best way of explaining the message extensively and clearly, as the amount of information that can be given is unlimited and a continuous interaction can take place between information giver and receiver so that all questions can be answered. In other media channels the amount and contents of the information that will be distributed are predetermined, and, in the case of a mobile phone, quite limited. Adding an extra service so that people can ask questions like what is done in radio shows where people call to get their questions answered would partly solve this problem. Also the way in which information is distributed, visually, textually or auditorily, can play a role in its understanding. Unfortunately this is not the same for everyone, as a literate person might prefer a text while an illiterate person might not. Between two illiterate persons the one might have a more visual understanding of things while the other prefers to listen to explanations.

Lastly privacy can be an important aspect in a sensitive topic like family planning. Although not often mentioned, for some people this plays a large role in how and where they

decide to access information about family planning as well as the services. Especially in groups where use of family planning is less accepted, like unmarried people, or people that use it without consent of their partner or family, privacy, also in obtaining information, plays a large role.

Trustworthiness of channels differed between participants. While some people trusted 'direct information' coming from radio or the phone, as these were official channels, others believed that lies could be easily sent or told. On the other hand, some people trusted face-to-face information, as they could see the person the information came from, while others were afraid this person changed the official information or interpreted it wrongly

These results correspond very much to what health workers say about providing education. They identify two types of education: large-scale education through mass media, and small-scale personal education in health facilities. Both types are necessary to increase contraceptive uptake. For the large-scale education radio is seen as the best medium, in concordance with what was found above. Ugandan health workers also refer positively to the space there is in radio programmes for questions from listeners. By inviting local experts and having a question and answer session with them, it is ensured that the entire listener population from the region can understand. However, most health workers see face to face as the best method of giving information, even though it might be very time and resource consuming, and you only reach those people that show up for a meeting. As an expat doctor in a private hospital said:

"I think going there and talking to them, you have to do it all by hand, which makes it very time consuming. They are a difficult population to reach, not just geographically; you can't put an advert on the radio or TV because they don't have them, you can't stick a billboard on, because there aren't any. They are not the easiest group of women to reach, but perhaps the ones that need it most. That is why I think the going on this little clinic trips, you can advertise to 50, 60 women at the same time, you can talk to them about the benefits of family planning and tell them how it works and provide it at the same time. It is incredibly time consuming, but I cannot really see an alternative way"

The most important thing in face-to-face communication is making it easy for people to access it, so providing it on a regular basis near to the people. When providing information this way people can ask questions, you can address misconceptions and give personalised information. Many health workers say that educating church leaders or local councils (political leaders chosen by a community) would help tremendously. This would increase the reach the education has, and local leaders are often well informed about their community, and how, when and where to target them best. Using them to advertise outreach services would also be good.

In the end combining different channels is probably the best strategy. One of the doctors proposed that in health centres educational videos can be shown on television screens for the patients in waiting areas. On the other hand, announcing where and when face-to-face information is given can also help. Radios or phones can be used to announce when and where family planning services can be obtained, especially for outreaches. Many in-depth interviewees also implicitly said that mass media channels are good to use, but in combination with personal services, and also to announce those services:

“Like go in the villages, you can pass through the church leaders or the LC leaders, you make groups and you talk about family planning. Or through radios, radio is also good, but people might want to see you face to face and ask you questions.”(Man, 33 years, Hoima town)

“Radio, TV, phone. We could use radio, TV and mobile phones. Because sometimes you may not listen to the radio or TV, but someone may call you, there is a sensitization at this place, and sometimes they announce through churches, so we could also target churches.” (Woman, 29 years, rural area)

Ultimately people will have to come to a physical location to obtain contraceptives (unless they use a traditional method), so education and services are often integrated.

7.2 Family planning information through the mobile phone

Although the above section has made clear that the mobile phone is not the ideal information channel (because nothing is) and that combining different channels will probably be necessary, since the mobile phone is a new player in the field some more in-depth information on how it could be used was collected.

7.2.1 Channel

Like discussed in the previous section, the mobile phone as a communication channel is quite popular. Depending on location and gender, it accounts for the second or third position in the list of five channels between which could be chosen. People like its privacy and it is a ‘fashionable’ communication channel. The barriers to access it are lower than for the television and posters. Some barriers do play a role, as discussed in section 6.3, but only 13.6% of the research population did not have access to a phone.



The phone in itself has different ‘channels’ through which it can send information: calling, text messaging and Internet. Since the number of smart phones in Hoima is negligible, and those with a smart phone are definitely part of the ‘upper class’ of the population, Internet is not considered here. Calling and texting both have their pros and cons.

Calling is the channel that comes closest to face-to-face interaction. That was also the main reason why so many people were enthusiastic about it. While the visual helps that can be used in face-to-face interaction are lacking, people can still ask questions, get personal information and the amount of information that is provided can be virtually unlimited. Calling is however very staff intensive as communication is on a one-by-one basis. Calling is also more expensive than sending text messages for the target population. Another problem is the language, more so with calling than texting. If a central call centre is set up the language will most likely be English. For people that are not fluent in English, this service would not work, and it is difficult to find an interpreter. As one of the interviewees said:

“The problem would be language, that might only be a problem. So now for instance if you would call them, they don’t know English and you don’t know Runyoro, now what do you do. But if it is a message, even someone can interpret it.” (Man, 33 years, Hoima town).

Also, when you set up a hotline to answer questions, you expect the target population itself to make the first step to call. When people are not aware of family planning they will not take this step. However, calling on an unsolicited basis is a bit problematic, especially when the call arrives at a moment that is not convenient for the mobile phone user.

Text messaging on the contrary is asynchronous: after retrieval a message can be opened and read at any time, when the phone user finds it convenient. A message can also be stored and reopened on a later time. Messages can be sent to large groups of people at the same time, making it a time- and cost-effective measure. However, if you would want to include a possibility for asking questions (deemed quite important), for example by texting a message back, then the amount of staff necessary increases, as each SMS has to be replied to individually. While with calling your language barrier might be a bigger problem, for text messaging literacy rates are more important. The good thing is that messages can be kept and on a later moment interpreted by a friend, overcoming the language and literacy barrier. SMS is however limited in the amount of information that can be provided. A text message only has 160 characters, and although subsequent messages can be sent, you cannot send pages and pages of information. For text messaging also a higher level of phone operation is necessary than for calling, and as seen in chapter 6, not everyone with a phone is able to open a text message. Text messaging in Uganda is still relatively in its infancy, and not as widely used as calling yet. However, the participants that did use it were very enthusiastic about it.

When survey participants were asked specifically whether or not they would subscribe to an SMS service that provides information about family planning (if they would have a phone) 82.9% said they would definitely. Of the people that would not subscribe three people said they did not have a phone and did not think of getting one either because they prefer the radio. Two people were sharing a phone and were afraid the other user might see the message. One woman, although she had her own phone, said that when the message would come at the wrong time and her husband would see it, this would result into violence. Two people did not know how to open and read messages.

Other people, although wanting messages, did have some remarks: four people said they would only want the message in the local language, two people said that if a message came they would also want a place to go for face-to-face explanation and one person said that he would not want messages more often than once a week. A funny remark is that of the people that wanted to subscribe 16 were illiterate. When asked why they would still want it, since they cannot read the message, they said they would go to a friend, colleague or their partner to have the message interpreted.

When people were asked why they would want text messages with information the immense shortage of knowledge once again surfaced. 93 people said they wanted to learn more about family planning, and several others gave related reasons like staying up to date or finding out whether ‘what they heard was true’. Several people also mentioned the need to educate others with the messages, especially their partner. Many found text messages easy to understand, and many liked the asynchronous character, making sure they could read

messages at the right time in the right place (home) and even look up the information again later. Other reasons mentioned had to do with characteristics of the phone: people liked the fact that information would come to them, the privacy and reliability of the phone.

Almost all in-depth interviewees would prefer there being an option to ask questions, preferably through calling because it is easier, but some also wanted it via messaging because it would take them less time and was cheaper than calling. Messages would also always be delivered, but with calling the participant might not come through or the call to the participant might not come through.

When asked whether they would be willing to pay for a message and if yes, how much, most of the participants said they would be willing to pay from 50 – 1000 UGX per text message with an average of 225 UGX (US\$ 0.09). The biggest phone provider currently charges 110 UGX per message. Many interviewees emphasized on the fact that they had very little money, and that if the service would cost them money there should also be an opt-out option for in case they would not have money anymore.

7.2.2 Source

When looking at how a phone is seen as source, one has to look at where people perceive the information received through the phone to come from. This does depend on what the message says about the source of information, and on the general perception people have on the mobile phone as a source. The real source of information could either be the public health care sector (e.g. the ministry of health or the hospital) or the private health sector (e.g. a private clinic or a family planning NGO). Although no questions have been asked on the reliability of these ‘underlying’ sources, trust in government institutions like the ministry of health is not very high. Health institutions are likely to be valued higher both on credibility and also on attractiveness.



The credibility of the phone itself differs per person. While some people say they do not really trust information they get over the phone as they do not exactly know who the information comes from and it may easily be lies, other people do trust the information send by the phone, because they perceive it as ‘first-hand’ information straight from a reliable, knowledgeable source. It is not interpreted by an intermediate, but they can interpret it for themselves so someone else cannot change the information before it reaches them. One person even said that getting messages would make sure he would get the right information so he was not dependent on what his wife told him.

7.2.3 Message

There are different types of messages that can be sent over the phone. As mentioned above, unsolicited calling is a bit hard to justify, and if there is a hotline the caller determines the topic, so this section talks purely about text messaging. Health workers as well as in-depth interviewees were asked to list 4 types of



messages from one to five from most to least effective (see appendix 4). Choices were: informational messages that would send facts about how methods work and their side effects, motivational messages that present the benefits of family planning, informational messages on when and where to access services and reminders for people that are already on family planning.

The health workers listed motivational messages about the benefits of family planning highest, and after that information about how to access the services. Informing people on the benefits of family planning is most important because if they are not aware of why they would use family planning they will never make the first step of accessing the services. Information about where and when the services can be accessed scored second highest. Most health workers still think that face-to-face communication is the best way of reaching and informing people. They do believe that text messages might extend the scope of people that know about the services and trigger more people to come for more information and for obtaining the contraceptive.

“For example if you are here in Hoima and you want to go to an area, like for example Kyankwanzi or something, you can send the messages. Because you would expect a big population to have mobile phones. So if you send messages, because not every one listens to the radio but at least they have their phones, at the end of the day that would increase the number of people that will come.” (Ugandan doctor, NGO)

Option 4, sending reminders to people so they can come back for another injection or a new package of pills is known to work in countries in Europe. However, health workers agreed that it would not have the biggest impact with the current problem in Uganda where first the people that are not yet aware of family planning should be targeted. Information about the methods themselves is much needed, but health workers thought it was not very realistic to distribute this amount of information via text messages.

The in-depth interviewees also listed information about the benefits of family planning highest. Most of the interviewees said that this would help the ‘new ones’ that did not yet use family planning to ‘pick the right side’ or ‘make the good choice’. If someone was not informed about the benefits, he or she would not know the importance and not pick up the service. However, it could also motivate people that were already using but experiencing problems to continue using it.

Information about the methods was listed second highest, because this is where most people feel they lack knowledge. Most interviewees said they wanted to learn more about side effects of methods. How all this information can be send in practice in a text message was not really thought of.

“You tell them the types of family planning methods, the methods which you are having, you tell them how to use them, and how it can work for them. Then there they choose what to use.” (Urban woman, 27 years)

Information about where and when to access the services was not as popular as with health workers, but still mentioned quite a lot. People would want to know where and when they

could get more information. Getting a reminder to come back to the services also appealed to people, because it made things easy, they would not have to think about it themselves. Others said that you are already reminded in hospitals when you get the method so that it is not necessary.

Again the importance of integrating mass education and personal face-to-face services becomes clear: first bring the message to the people, and then hopefully trigger them to come and get more in-depth information and services.

“A message may not be enough for my case to understand. But after getting a message, at least I will get something. And when there is any sensitization like here in the clinic or in the health centre, I will also come and add more to it.” (Man, 31 years, rural area)

The language in which the message should be sent is another issue. Not everyone that has a phone is fluent in English, and the variety of indigenous languages spoken in Uganda make it difficult to design ‘standard’ messages, as every region has its own language. Texting in English is probably the best thing to do, since there are also people that read better in English than in their own language, and people can find translators, but you might increase the target population slightly by sending people messages in the local language as well.

Targeting the message to the receiver could increase its effectiveness. Currently in Uganda, every mobile phone user has to register him or herself at the provider of which he bought the SIM card. This means that from every mobile telephone number some basic demographic characteristics like sex, age and region are known. This makes it easier to send people messages in the appropriate language and with the right content.

Lastly people were asked in what kind of style they would like to get a message: whether they just wanted the information straightforward, in a funny tone, or in form of a quiz where they had to answer questions. Answers differed. Some people said that straightforward information would be best, because it is easiest to understand, and treated more seriously and trustworthy. Others said that if it would come in form of a joke, they would laugh, automatically like it and remember it better and be more likely to share it and that if it comes in form of a quiz or joke it is more likely to be read.

7.2.4 Destination

As mentioned earlier, one of the biggest advantages of a mobile phone is its portability, and the asynchronous character text messages can have. There is no straightforward answer on when and where messages will be received through the phone.

One thing is for sure; the message will come towards the receiver wherever he or she may be. In the case of a text message, the message can be read when convenient for the receiver, in a location convenient for the receiver. This ensures that the receiver has his full attention on the message. However, messages can also come at a time or place when they are not wanted or when the receiver is not susceptible to them, and there is no certainty that the receiver will turn back to them later. For spontaneous calling this asynchronous advantage is



not there. However, when starting a hotline, people can choose the time of the call themselves and also choose where they want to make the call for the best attention span and least distraction.

When in-depth interviewees were asked when they would prefer to receive text messages, most of them mentioned a time or day when they were at home to rest, showing that there is definitely a right time for sending family planning information. In most cases this was the evening or late afternoon, when people are back from work. Friday's and Sundays were popular days because people were free and they could get the message when they were resting after church. Noon was also mentioned as a good moment, because people will look at their phones during lunch. The phone sharing leads to a problem with regards to destination. When a phone is shared, messages can come at a time that is absolutely not convenient, especially when a phone user wants to keep the information received private. Tension between husband and wife may play a big role and form a threat to the success of text messaging interventions.

“Like a phone shared by husband and wife. It would cause some problems because some women are using family planning without the consent of their husbands, so when they use the same handset, it would be a problem.” (Ugandan health worker, NGO)

7.2.5 Receiver

If we look at characteristics of phone owners (Chapter 6) and which groups prefer the phone, even though phone access and popularity is high throughout the population, it is still more likely to reach certain types of people. Receivers of message through the phone are more likely to be men, to live in or near town, to have easy access to electricity, and to have had at least a basic education so they can read some English. It is questionable whether this is also the population that is most in need of information about family planning or that you are instead reaching those that are already attending family planning services. This is also the scepticism most health workers showed:



“I think the people it would work for is probably people in Kampala who are already educated, who are already accessing family planning services. I think for the massive unmet need and the massive problems they have with family planning out here [Hoima] those aren't particularly the people that need targeting, because by that nature they are already attending and getting family planning.” (Expat doctor, public hospital)

However, phone access and ownership is still considerable (often more than 50%) in other groups as well. In addition, the fact that predominantly men are reached is not necessarily negative. Men are a very influential group in family planning that has often been neglected and they are more difficult to reach through regular family planning programmes. The mobile phone is probably a useful means to educate them, and this will indirectly have an influence on contraceptive use of their wives as well.

Moreover the impact of the message is not limited to the direct receiver. First of all there is phone sharing, so that a message to one phone might reach more people. Second of all, many survey participants spontaneously mentioned the desire to share information they received with people around them that also needed more information.

“If a message comes to my phone, and after reading it, automatically I will have to share it with someone. I will share to inform people so that they can transform the society. There are very many people who lack information on family planning, and for me if I can receive that message, that would help me in such a manner.” (Man, 28 years, Hoima town)

“After getting a message in my phone, after understanding what is the content of the message, I would share it. I call my neighbour and inform her or him that there is this information about family planning. I can call even someone that is bypassing, as long as he is related to me or a friend, by informing him there is this information on family planning.” (Woman, 29 years, rural area)

One man even proposed that the message itself should say ‘share it with another person’ in the end, so that more people will share the message with friends and it will spread automatically. The vast majority (95.6%) of survey participants when specifically asked whether they would share a message said yes, because other people would also need to learn more on the topic. Those that did not want to share said the topic or message was too private to share. When asked whom they would share the message with, the partner, friends and relatives were most often mentioned (93, 83 and 60 times respectively). Some people would also share it with their neighbours, sharing between parents and children (to both sides) was mentioned, and 4 people even had bigger plans on educating the entire community by bringing the message to schools or to the local council. One of the health workers was not a big fan of mobile phones as communication channel, but thought that sharing of the message would increase the impact:

“There wouldn’t be a problem, it can be texted and those who can receive it will receive it. But for those who are unable they won’t but at least they can get some information from their friends or relatives about it. They say there is a negative attitude on family planning. It can help.” (Ugandan midwife, public health centre)

As seen in the first section of this chapter, many people get their family planning information through informal channels: from friends or family. Sharing of information becomes much easier with the phone, extending its impact. Messages can simply be passed on and no information will be changed or forgotten.

8 - Conclusion

This research assessed the role mobile phones can play as information and communication channel in the uptake of family planning in a rural setting in western Uganda. Behavioural theories as well as communication theories were used for the theoretical underpinning. Data was collected through health worker interviews and surveys and in-depth interviews with the local population. The data can be split into two parts. First of all the factors that influence the uptake of contraceptives both positively and negatively were identified. Secondly data was collected on people's preferences on communication channels and more specifically on the strengths and weaknesses phones have, and the options there are to use them for communicating family planning information.

In the previous three chapters the findings of this research have been presented. In this chapter these findings will be discussed. Their consistency with each other and with previous research will be described. The limitations of this research are presented and recommendations for future research given. The last section will provide the answer on the main research question:

What opportunities can communication through mobile phones create to increase contraceptive use in Hoima district, Uganda, and what limitations are there in the use of mobile phones for this purpose?

8.1 The problems in family planning

The rationale for family planning differs considerably comparing what is written in the literature and the real-life situation for the people the literature is written about. Internationally the focus lies on access to family planning as a basic human right and a form of women empowerment and on the benefits family planning can have on global, national and individual level. However, when you ask the Ugandan people, they mainly come up with individual economical benefits for parents as their expenditure on food, health and school fees decreases. It is easier for people to understand those advantages they can see and experience themselves, than to think about abstract human rights concepts or the large-scale advantages.

The barriers to family planning that were found in this research were very consistent with what, among others, Campbell (2006) and Prata (2009) described in their reviews of earlier studies. All of these barriers fit into one or more concepts of behaviour change models as formulated by Ajzen (1991) and Fischer (1992). The best way to influence these determinants of behaviour change and tackle their corresponding barriers is by educating people about family planning.

Giving people information obviously influences the factor 'information' from the model. It will make sure that people are aware of the concept of family planning, its benefits and problems, the different options, and where and how to get it. When information is clear and easy accessible, it can eliminate the misconceptions that are going round, and by explaining the (often innocent) origin of existing side effects, these are less likely to withhold people from using contraceptives.

Information can also change people's *motivation* for using contraceptive use as individual *attitude* and the collective *subjective norm* can be influenced. A negative attitude to contraceptive use most of the time comes forth from a shortage of information or wrong information. When people understand the benefits family planning can have for them, the desire for large families may further diminish. Showing people the wrongness of misconceptions can also change their attitude. By focusing not just on informing women, but also men, they might change their opinion and support their wives instead of retaining them.

When the number of individuals that looks positively at family planning increases the subjective norm will shift, and it is likely that a 'critical mass' is reached after which the majority of the community will adopt family planning (Haider, 2004). Religious considerations that cause people's negative attitude are less easy to influence. Some of the beliefs come forth from wrong ideas about the mechanism of certain contraceptives (that they cause abortions), but some people just see the entire concept of family planning as against God's will, and it is their right to make this choice for themselves.

Perceived behavioural control can also be influenced by information. When people know more about contraceptives, how to use them and how to manage their side effects, they feel more in control when using them. They also need to know where and when they can get them to get an increased sense of control. If the subjective norm changes, and if men change their attitudes to contraceptives, women will feel more in control in the decision to use family planning, or at least less hindered in the decision to do so.

Information is thus a crucial factor in increasing the uptake of family planning in Uganda. However, it is not enough. *Actual behavioural control* is the factor that forms the final condition without which the behaviour cannot be executed. Quantity and quality of family planning services will not improve just by giving information, and in Hoima there is a lot to win on this front. However, while health workers had many complaints, most interviewees from the local population thought that there were enough possibilities to get family planning. It is likely though that there are still many people that were not included in this research for whom it is not easy to get family planning services, so improvement should take place.

The need to pay special attention to men and youth was identified by the health workers in this research. The survey results show that they are indeed lacking behind in terms of knowledge on family planning and its services while especially the youth want to plan for their family and get fewer children than their parents and grandparents did. For men an attitude change needs to take place first, but as mentioned above, informing them better could be a big step in the right direction.

8.2 The possible role of the mobile phone in family planning

As discussed in the previous section, next to improving the entire family planning sector, information is the key to increasing family planning uptake in Hoima. The next question would then be: how is this information best given?

There are several important factors in the choice for a communication channel. First of all the target group has to be able to access the channel. While formal health care is in

principle accessible for everyone, access to a phone, or television is less obvious. Secondly, the ease with which information can be obtained plays an important role. People prefer it if the information comes to them so they don't have to go to a certain place to get it, and if they can decide on when to access it themselves. Here the mobile phone, and especially text messaging scores high because of its portable and asynchronous character. Two other important factors are whether the information is easy to understand and whether people can ask questions. This is obviously best in face-to-face contact, but interaction can be attained for other channels as well using the phone as a medium to call experts on a certain phone number. Lastly privacy was deemed important. In the research population the radio was the most popular channel, followed by face-to-face and the mobile phone in alternate order, depending on the subgroup.

Participants of this research identified several of the strengths the literature attributes to phones, and also some limitations certain phone characteristics of the conceptual model can pose. With regards to the phone as a *channel*, the phone is seen as a cheap and easy way to reach large groups of people by intervention designers. The phone is also quite a popular communication channel for the people themselves because of its portability: it is always with them, and information comes to them, so they don't have to make an effort to get it. Calling was very popular for the research population because people can get large amounts of personal information and interaction is possible, but it is very staff and time intensive. For text messaging the asynchronous character would ensure that people can access the information at any time convenient and reread it, however, the amount of information that can be send is limited. The mobile phone was generally trusted as a *source* of information, because the received information would come direct without intermediaries.

With regards to the type of *message*, health workers as well as interviewees agree that people first of all need to be informed about the importance of family planning and the benefits it can bring. Additionally information about where and when services can be obtained would be useful, and many people wanted more information about how methods worked, and especially about the side effects. This would help massively in eliminating current misconceptions. This last type of information is due to its extent more difficult to provide through the phone, calling would be the most appropriate for this.

In the literature quite something is written about shared access, a *destination* factor. Indeed, sharing phones is pretty common, and although this increases the number of people that could theoretically be reached, it can also form a reason for people to not want family planning information on their phone for privacy reasons. However, the majority of people said that if they would get information on the phone, they would share this information with friends and relatives, so concerns about privacy were not that big. Information received on the phone is easy to share because it can be reaccessed, and this would tremendously extend the impact of an intervention.

When looking at what was expected and what was found about *receivers* of information through phones, some findings coincide while others are a bit surprising. Although the literature and many health workers are sceptical about phone use in a rural area, the survey showed that even here phone ownership and access are pretty high. It seems that the rural/urban divide is, although existent, indeed much smaller for phones than for other devices. In the literature phones are propagated as a good means of targeting a younger

population. Although this might be true in an urban context, where phone ownership is more common in all age groups, in this research the adolescents had the lowest access to a phone as financial costs prevented them from buying their own phone, especially in the rural areas around town. However when phones get more widely accessible, the youth will definitely be a good target group because they did like the channel and their English and literacy is better than that of the older generation so they can easily use it. The gender divide that is mentioned in literature was indeed seen. Men were more likely to own a phone, although half of the women also owned a phone. For family planning this divide is not necessarily negative, since men are an important target group but difficult to reach through formal health care channels. They often have limited time, and phones are a good way of reaching and informing them.

Lastly the external *barriers* that the literature proposed were to a certain extent seen in the field as well. Financial costs form the biggest barrier for the individual to purchase and use a mobile phone. Limited electricity access in especially rural areas contributes to this because people need to pay additional money to charge their phones. Furthermore, literacy rates and different languages can prevent people from using a phone, but what was seen in this research is that many people pick up phone operation very quickly and it is very common to ask friends or relatives for help interpreting textual information, so these barriers can be overcome easily. Network problems did not really play a role, network coverage in Uganda is almost universal, and many people have a dual SIM so if one network does not work they use another. The literature comments little about mobile phone use in rural areas although the barriers mentioned above are thought to especially play a role here. This research showed that even in this rural area 65.0% of the people had their own phone and 86.4% had access to a phone and because external barriers are decreasing quickly and solutions are found on a day-to-day basis these figures are only likely to increase.

8.3 Limitations and future research

The biggest limitation of this research is the fact that there is no random sampling done and the research population was no representation of the entire population of Hoima district. This means that conclusions cannot be generalised. Future research with a representative research population would give more reliable figures on the possible success of a mobile phone intervention. Data found in this research is also not applicable to other parts of Uganda. The Central region for example is much more urbanised so one would expect very different outcomes, and in the Northern region on the other hand settlements are even more dispersed and infrastructure less developed. Additional feasibility studies should take place before any conclusions can be drawn there.

Aside from this limitation, this study did show that mobile phones can add value in increasing awareness and knowledge about family planning, especially among men, and through that in increasing family planning uptake. Since the real effect and success of an intervention can only be measured after its implementation, the next step would be to conduct a pilot intervention in Hoima district and evaluate its impact. This will provide information on whether sending text messages will indeed increase knowledge and decrease misconceptions, the (un)necessity for a hotline or other form of interaction, the type of information that is most

successful, the kind of people that are reached and most importantly whether contraceptive uptake increases.

It should be kept in mind that the ICT industry is a fast developing industry, and developments take place at a rapid pace, as the fast growing numbers of mobile phone use show. Although usage of smart phones and Internet is still very low, uptake of these features might rise quickly as well and provide new opportunities like using visual helps or setting up networks where people inform each other. It might be that within the next decade(s) feasibility studies for such interventions are in place and more useful than looking at 'old-fashioned' phone applications like calling and texting.

8.4 Mobile phones: the solution for family planning?

This research made clear that the phone could play a useful role in increasing family planning uptake, even in a relatively rural population. However, it also showed that the problem is much more multidimensional and a variety of other things need to be done as well.

Many of the reasons for people to not use family planning can be addressed by informing them about the benefits, the different family planning options and the services available. Mobile phones are a popular way for people to get this information through. They make information easy to access at any time in any place, they are private and information can be shared easily, increasing the impact. From a provider point of view they are a cheap way to reach large groups of people.

Unfortunately, not everyone has access to a phone due to financial limitations, lack of electricity or literacy problems. For men, a group that increasingly receives attention in family planning because of their influence on the contraceptive use of their wives, phones could be very useful. Men are more likely to own a phone than women, and prefer the mobile phone as a communication channel, because they often do not have time to access other channels due to their long working days. The youth on the other hand, contrary to what is often thought, were not easier to target with a phone. Although the phone was popular, phone ownership was lowest in the 15-19 years old category.

Although it is obvious that with a phone not only the most privileged part of the population is reached, and that reach extends beyond the direct phone owner because information is shared, most likely there are still communities where phone access is so low that the impact will be minimal. Therefore other mass media communication channels like radio should also be used. It is also questionable whether text messages can contain sufficient information to extensively inform people and answer their questions. Benefits of family planning and information on the services can definitely be communicated, but information addressing misconceptions and on working mechanisms of methods might need more space. Text messages can be send cheaply to large groups of people and might trigger them to seek for more information. However, a place to get this information should be ensured. Adding a telephone number people can call for more information would increase the impact of an intervention, and otherwise people should be referred to formal health services. In connection to this, health services should be improved. Phones do not have an influence on the shortage of family planning services or their non- optimal quality. If an effort is made to increase education and thus demand for family planning, sufficient supply should be guaranteed first.

So yes, mobile phones could add value to current communication channels for increasing awareness on and acceptance of family planning and for advertising the available services, especially for men. However, their use needs to be combined with public education through other channels to make sure the entire population is reached, and at all times service providers should be easily accessible to provide people with personal information and contraceptive methods.

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Appendix 1: Topic list interviews health workers

Introduction about the research / informed consent

General:

- role in the hub
- explanation of the environment (rural/urban, numbers of patients, (non)religious, resources, staff, family planning)

Family planning

- knowledge on family planning in population
- use of family planning, which methods
- main reasons/barriers to not use family planning
 - financial
 - general lack of knowledge
 - desire high number of children
 - fear of unacceptance in community
 - fear / misinformation
 - no stocks in hospital/shop
- current actions to increase family planning / to address above barriers
- problems in implementing intervention
- important target groups + how to target
- influential groups in society / communal opinion on the topic

Mobile technology

- mobile phone use in the area
- usage patterns, what is it used for
- mobile phone intervention to increase family planning?
- why or why not; which problems

Any questions/additions?

Appendix 2: Survey

General information

Gender _____

Age _____

Marital status _____ * if married, ask mono/polygamous

Occupation/Job _____

Parish & Subcounty _____

Religion _____

Language(s) _____ *if more than one, which one is preferred?

1. What was the highest education you have had/ highest class in school
2. Can you read this? (*appendix 3*)
3. How many pregnancies have you had?
4. How many miscarriages?
5. How many live children do you have?
6. What is your ideal number of children? (*Would you have liked to have had less children?*)
7. How high is your average monthly household income (estimate) in UGX?

Information on family planning methods

8. Which family planning methods do you know? (*ask explicitly: traditional methods and condom*)
9. Of which methods can you explain how they work, do you know how to use them?
10. Is there any method you would never want to use or you would never want your partner to use? Any method you have heard bad things about?
11. If yes, why? Or: what have you heard?
12. Are you or your partner currently using a family planning method?
 - Yes (*continue to question number 14*)
 - No (*ask explicitly traditional methods*)
13. If no, what is the most important reason for you not using a family planning method?
 - Financial costs of the method

- Transport costs
- It takes too much time to get them
- Desired pregnancy
- Partner does not accept it
- Religious objections
- Fear of side effects
- *What are you scared of?

-
- Experienced side-effects
 - No stocks in the hospital/shop
 - I don't know where to get them
 - I don't know how they work
 - Other reason, namely
-

(Try to categorise reason in one of the above)

Continue to question 16

14. If yes, what kind of method?

15. Why did you choose this method?

16. Have you used another method before?

17. What were your experiences?

18. Does your partner know of and agree with your contraceptive use? *(in case of using)*

19. Where do you obtain the method? *(in case of using)*

20. Where did you hear about family planning? *(more answers possible)*

21. What is your preferred way of being informed about family planning? *(list number 1, number 2, number 5)*

- Face-to- face
- Radio
- Television
- Mobile phone
- Posters/leaflets

22. Why is your favourite?

Why is your second favourite?

Why do you like the least?

(categorise according to often given answers)

Information on radio / mobile phone use:

23. Do you have access to a radio?
24. If yes, how frequently do you listen to it?
25. Do you have access to a mobile phone?
- Yes (*continue to question 27*)
 - No
26. If no, what is the main reason you do not have a mobile phone (*try to categorise*)
Continue to question 33
27. Is it your own phone or do you share it?
28. With how many people do you share it?
29. Whom do you share it with?
30. What do you use your phone for? (*more answers possible*)
- Calling
 - SMS
 - Mobile money
31. Do you experience any problems with the network, and how often?
32. Do you have access to electricity to charge your phone?
- Yes, free access
 - Yes, but I have to pay
 - Yes, but I need to travel for > 2km
33. Would you want to receive SMS with information on family planning and its services?
34. Why or why not?
35. Would you show / recommend such a message to other people?
36. If yes, to whom?

Appendix 3: Visual aids survey

Survey question 2: Can you read:

‘Uganda is a country in the east of Africa. It has about 35 million inhabitants’

‘Uganda liri ihanga eriri bugwaizooba omunsi yafrika. line abantu obukaikuru asatunabatanu abaikazi’

Survey question 21: Which is your preferred communication channel for family planning information?

Face to face / in person

Radio

Television

Mobile phone

Posters/ leaflets

Appendix 4: Question ‘ideal type of text message’

Age _____

Date _____

Gender _____

Position _____

Institution _____

If there would be a SMS service, providing people with text messages around the topic of family planning. Which of the options listed below would do you think would be most effective? Give number 1- 5 from most to least effective.

This is an informational service, please send back 01 for information on injection, 02 for information on implants, 03 for information on pills, 04 for information on condoms, etc.

Information on different family planning methods: how they work, how to use them, side effects

Spacing of children is better for the health of mother and child. Don't get pregnant too soon after delivering a baby!

Fewer children will give you financial benefits. It will be easier for you to feed them and pay for their school fees.

Information about the benefits of family planning

Next Wednesday at 10.00 AM there will be a session on family planning in the health centre of your village. Family planning methods are available for free.

After being out of stock, implanons are now available at the regional referral hospital in Hoima

Information about how and where to access family planning services

It has been almost three months since your last depo provera injection, please visit the clinic within 14 days to get a new one, otherwise you are not protected against pregnancy

Reminder on coming back to the services

Appendix 5: Topic list in-depth interviews

Demographics

Gender

Age

Occupation

Marital Status

Religion

Highest education

Number of children + ideal number of children

Monthly household income

Family Planning

- opinion; 'what do you think about it?'
- knowledge: definition, which methods
- use: now and before; why(not)
- what do you want to learn about it, what information are you missing
- what is the main reason for people to not use family planning?
- what needs to change? How can we do that?
- what should we do? / what would you do in ideal situation?

Mobile communication

- phone ownership; why (not). Sharing?
- electricity/network/usage
- Do you think a phone would be a good channel to give people information through?
 - positive effects
 - problems / reasons why it would not work
- if we could send text messages on family planning, what should we send?
- timing: how often / when / repetition
- which language, and for reading?
- how much would you be willing to pay?
- is a message enough? What else should we do? How can we combine it?
- interaction? Calling/messaging?
- Quiz / joke / straightforward? Why?
- Sharing of message. With whom and why
- What kind of text message would you think would be most effective (*see appendix 4*)