**Being pregnant and displaced:
does self efficacy matter to go safely through
pregnancy and delivery?**

Self efficacy and displacement as additional factors to understand the
utilisation of maternal health services and family planning methods of
women living in conflict affected areas in Sri Lanka

Master thesis Research Master Regional Studies
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September 2006 – January 2007

Summary

Nowadays conflicts with the aim to political control the population within states become more prevalent. In these type of conflicts mass exclusion is often a strategic goal. In addition, migration policies of governments increasingly restrict displaced people to cross their borders to find security, resulting in a growing number of vulnerable people who cannot leave their country (Castles, 2003; Esscher, 2004). At the beginning of 2006 the UNHCR estimated 8.4 million refugees and 23.7 million internally displaced persons (UNHCR, 2006).
These so called internally displaced persons face particular reproductive health risks due to a complex set of factors of which the disruption of health care systems and life trajectories, loss of income and social networks, changing population structure and power relations are some examples (Esscher, 2004; Krause et al., 2000).
The importance of treating and preventing poor reproductive health outcomes and risks of people who face emergency and displacement is acknowledged at the International Conference on Population and Development of 1994, after which a broad set of interventions is designed and implemented to improve the situation of these populations (Esscher, 2004; Krause et.al., 2000; UNHCR, 1999).

This thesis aims at getting insight in some aspects of the reproductive health situation of populations living in conflict affected areas in Sri Lanka. Due to the long lasting conflict, few is known about the living and health situation of these populations, in particular those living in the Northern and Eastern regions. This information gap is a consequence of the fact that (national) surveys and censuses are not able to cover these areas due to problems in access and safety.
Another reason for studying these utilisations in particular, is that knowledge about maternal health and its determinants, as well as the reproductive health situation of displaced persons is known. In addition, theories concerning individual motivation and decision making processes are widely used in understanding human behaviour, together with the observation that more models are provided to study the utilisation of (health) services.
Nevertheless, it is difficult to find studies that focus in particular on the utilisation of health services of displaced persons.

The overall objectives of this research are to explore the extent to which internally displaced persons living in different settings are underserved in maternal health and family planning services, and how these possible found equalities or inequalities in utilisation of maternal health care services and family planning methods can be explained, thereby including two additional explanatory factors to the analyses, i.e. self efficacy and displacement related factors.
These insights are needed because the utilisation of these services are necessary in the contribution to the (maternal) health situation of women. Having insight in the situation and the factors that determine the utilisation of these services and family planning methods, interventions can be developed and resources might be better allocated in order to improve or change the situation, if needed.

This research is different from other investigations that are done on the utilisation of services, because in addition to the most commonly used demographic and socioeconomic factors to explain these utilisation, some displacement and psychological related factors are incorporated in the analyses. The objective of the inclusion of the psychological factor self efficacy is to get some insight in the predictive value of this factor that captures a crucial part of individual motivation and decision making processes, as well as personality traits. Nowadays the concept is acknowledged to be of importance in studying human behaviour, because it captures processes of individual motivation and decision making. This process has to be taken into account when studying individual behaviour, like utilisation of maternal health care services and family planning methods. The perceived ability of individuals to perform the behaviour needed to get access to these services is of importance in the understanding of utilisation of services, because it are not only demographic or socioeconomic factors that contribute to this understanding, but also psychological processes play a role in this.
For the reason that especially the situation of internally displaced persons is of concern in this research, it is of interest to understand whether and how this displacement contributes to the explanation of the utilisation of selected services.

In this study, it becomes clear that socioeconomic and health policies of Sri Lanka led to an overall improvement of health circumstances. An outcome of these policies is that the crude birth rate decreased considerably since 1940 and has reached a level of 19 births per 1000 inhabitants; the crude death rate is at a low and constant level since the eighties, i.e. approximately 6 deaths per 1000 inhabitants. Then, Sri Lankan life expectancy increased from 55 years in 1950 to 72 years in 2000.
In relation to maternal health, the total fertility rate is below replacement level since 2000, and maternal mortality has reached a relatively low level of under five maternal deaths per 10,000 live births.
The Demographic and Health Survey of 2000 showed that in Sri Lanka 97 percent of pregnant women receive antenatal care. Skilled attendance during delivery increased from 27 percent in 1939 to 89 percent in 1996 and is currently at a level of 98 percent (World Bank, 2005). Then, over 70 percent of women in their reproductive age use, modern or traditional, family planning methods (World Bank, 2005).

Unless these positive indicators, it is also a fact that this development does not equally occur within the country. When exploring Sri Lankan studies and statistics concerning population and development, it becomes immediately clear that in the majority of studies the Northern and Eastern regions are not taken into account since the 1980s. The country is affected by the already two decades lasting conflict between the Sri Lankan government and the Liberation Tigers of Tamil Eelam resulting in a disruption of (health) infrastructure, but also leading to large scale and long term displacement. Consequently, of this situation, an estimated 800,000 people have been forced to move once or more during this already two decades lasting conflict. In Northern and Eastern provinces 80 percent of the population has faced displacement at least once in his or her live (Skinner, 2005). Especially these Northern and Eastern regions show relatively high maternal mortality rates, as far the situation enabled to evaluate maternal deaths.

For getting insight in a set of factors that might cause these high maternal mortality rates, it is chosen to explore and analyse the utilisation of maternal health services. The three services, known as being the most powerful predictors of maternal health are the number of antenatal checks, the attendance of a skilled assistant at delivery, together with the number of visits of a midwife at home. In addition, utilisation of modern family planning methods gives information whether individuals are able to plan their fertility in order to avoid unwanted or unplanned pregnancies, increasing the risk of complications.

Recently collected data resulting from the project *"Millennium Development Goals; A multi-country research into the living conditions of refugees, asylumseekers, and internally displaced persons"* of the UNHCR is available and used for this research. As mentioned, due to the unstable situation in the Northern and Eastern provinces of Sri Lanka, most of the surveys held in the country do not cover (parts of) these areas. To overcome this information gap individual information about the living conditions of refugees and internally displaced persons is collected for this project in three countries, of which one is Sri Lanka.

The main conclusions that can be drawn from the first data exploration are that the number of antenatal checks, together with the number of visits of a midwife at home are seem to be lower for displaced women than for non displaced women. Concerning the attendance of a doctor at birth the same observation is made. But for the reason that the majority of deliveries is attended by a skilled assisted, i.e. if not a doctor, then a nurse or midwife, it must be kept in mind that utilisation of this maternal health indicator does not seem to have important differences between non displaced and displaced women. Thus, the majority of women were adequately skilled attended at delivery.
Regarding the utilisation of family planning methods, frequency distributions showed that the utilisation of modern as traditional family planning methods is low, i.e. 20 percent of all respondents aged 15-54 used a modern method the past 12 months. In comparison with the national statistics reporting that at least 70 percent of the population used family planning methods, this is an important finding for this population under study. When distinguishing this use for displacement status, displaced women have the highest utilisation, while returned displaced women have less often used a modern family planning method.

In order to get insight whether these differences can be attributed to displacement, or that it are other factors causing these differences, further analyses is needed to get insight in this. For this reason, quantitative analyses are conducted by applying logistic regression in which the four utilisations are dichotomously constructed. In addition, the contributions to the scoring level of self efficacy is analysed.

The first important conclusion that can be drawn in relation to the research interest is that above differences found for displaced and non displaced women are partly attributed to displacement. This can be concluded because when controlling for other factors no significant differences are found for the different displacement statuses and their prediction of the dependent variables, except for one. It are the appropriate number of four antenatal checks which are provided significantly less often to displaced women.
Of these other independent variables ethnicity and place of residence seem to be the most important explanatory factors for the utilisation of maternal health services, while for family planning it are marital status, parity, and ethnicity contributing most to the explanation of use.
For the reason that almost no differences are found concerning age, wealth, and education, it can be confirmed that the Sri Lankan health system does not discriminate for these features. Also in those areas affected by conflict the aim of Sri Lankan policy to provide an egalitarian health system is more or less fulfilled.

Then, self efficacy is the factor to which most attention is given in the research design in order to include individual processes of behaviour into the analysis. Interestingly the concept has predictive value in all four models, although its effect is not consistent. Self efficacy has a positive impact on the attendance of a doctor at delivery, as for the number of visits of a midwife at home. The ability of women to receive the care they need is therefore an important finding in the research, contribution to the explanation of found differences in utilisation.

Another aim of the research is to get insight in the factors contributing to the prediction of this self efficacy itself. Although the constructed model has a very low predictive power, displacement related factors do make a difference in the prediction of self efficacy. When controlling for various factors, displaced persons have a higher self efficacy than those non displaced, and being displaced more than two times results in an even higher level of self efficacy. In addition, duration of stay at place of residence make displaced persons have a higher likelihood to score above the average level of self efficacy. Reflecting these results on theory it can be concluded that displacement enforces one's ability to perform specific behaviour. By overcoming barriers and challenges during tensions, displacement, and building a new life, it seems that persons become more self efficacious.

Recommendations that can be made from this research in order to improve the situation of displaced women in Sri Lanka can be made for policy as well as scientific level.
First, within the design and implementation of health policies it has to be taken into account that it are especially Muslim women, either displaced or not, who are underserved in the number of antenatal care checks. It can be recommended that programs should especially target on the women.
Then it has to be kept in mind that after the 2002 ceasefire (displaced) women remain (more) underserved in the number of antenatal checks, which is an unexpected and important finding.
Concerning the utilisation of family planning methods, overall utilisation is very low, especially when comparing with national statistics. This indicates that the population which is poorly covered in national statistics has a deviant outcome comparing to the general statements made about the Sri Lankan situation.
It is clear that the problems in measuring and monitoring the living and health situation in conflict affected areas lead to bias results of the national situation. Therefore, it is recommended to retrieve more information about the living and health situation of the population difficult to reach. Only then this population can be served more adequately, because based on the national information Sri Lanka seems to be doing well.

Recommendations that can be made in relation to further research are that this research proved that in addition to the commonly used factors to explain utilisation of health care services, self efficacy has a clear and strong predictive effect. Then it is found that that

displaced persons have a higher self efficacy, possibly through overcoming complex obstacles and experiences relating to this event. Therefore, it is recommended that this concept, as possibly other psychological aspects, has to be taken into consideration in understanding health care seeking and utilisation in relation to maternal or reproductive health. Because the concept has a strong effect it is of interest to explore its determinants more carefully in order to understand which particular (displacement related) factors do make a difference.

Acknowledgements

This thesis is the final outcome of my five years of studies at the University of Groningen. After finishing the Bachelor Human Geography in 2004, I registered for the Master Population Studies. For the first time I came in touch with international students and a very diverse set of courses and teachers.

Within that year, reproductive health of refugees caught my attention. While deciding to register for an additional master, Inge Hutter asked me whether the European Doctoral School of Demography would be an option for me. I decided to apply, got accepted, switched to the Research Master Regional Studies, and finally moved to Germany.

I experienced a great year at the Max Planck Institute for Demographic Research in Rostock. The various courses, students, and researchers gave me new insights in science. And again, many different teachers came along to share their knowledge. Bart de Bruijn was one of those. I knew he was working on a project for the UNHCR when I approached him after one of his lectures on fertility theories. Later that year he offered me an internship at the Netherlands Interdisciplinary Demographic Institute (NIDI) where I was able to work on the topic I was interested in.

Thus, after finishing the European Doctoral School of Demography I directly moved to The Hague, where I worked on this thesis for five months. As I enjoyed being in Groningen and Rostock, I enjoyed being at NIDI.

Especially during my master studies I have lived and studied in several places. For this I would like to thank Inge Hutter for introducing me to this field of research, for stimulating me to apply for the European Doctoral School for Demography, and for supporting me in submitting a PhD proposal to the Netherlands Organisation for Scientific Research.

Furthermore, I would like to thank Bart for being my supervisor. Besides the fact that I have learned a lot from his lectures, I also enjoyed his supervision for this individual work. He guided me in the process of formulating clear research questions and objectives, and kept me on the right track during the whole process. I appreciate the fact that he had always time to read and discuss my work and to my answer questions. I hope we can collaborate further on this research field in the near future.

Besides Inge and Bart I want to thank NIDI for inviting me. Then, I would like to thank Beata and George for helping me with the data analyses, Mieke for introducing me to the NIDI and the Resource Flows Project, and of course all my family and friends to whom I often had to apologise for being away for such a long period. Probably they have to get use to that.

This thesis is the end of my studies and the beginning of something else. This something else has already started. For some months I will be part of the Resource Flows Project at NIDI, after which I will hopefully start a PhD at the Population Research Centre in Groningen. For this PhD project my aim is to get more insights in the underlying mechanisms of the reproductive behaviour and needs of displaced persons. Exploring and understanding the role of self efficacy and empowerment in individual decision making processes of displaced people in relation to their reproductive behaviour and health outcomes will play a major role in my future work.

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AIDS	Acquired Immunodeficiency Syndrome
CBR	Crude Birth Rate
CDR	Crude Death Rate
CPR	Contraceptive Prevalence Rate
DHS	Demographic and Health Survey
TFR	Total Fertility Rate
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
HPRA	Health Policy Research Associates
ICPD	International Conference on population and Development
IDP	Internally Displaced Persons
IMR	Infant Mortality Rate
IPKF	Indian Peace Keeping Forces
LTTE	Liberation Tigers of Tamil Eelam
MCH	Mother and Child Health
MDG	Millennium Development Goal
MMR	Maternal Mortality Rate
NIDI	Netherlands Interdisciplinary Institute
PCA	Principal Component Analysis
PoA	Programme of Action
STD	Sexual Transmitted Diseases
STI	Sexual Transmitted Infections
TBA	Traditional Birth Assistant
UNDP	United Nations Development Programme
UNHCR	United Nations Higher Commissioner for Refugees
WB	World Bank
WFP	World Food Programme
WHO	World Health Organisation

" Sri Lanka, a kind of Darfur"

……..is written on the front page of an opinion magazine in December 2006. The article gives on overview of the situation two years after the Tsunami hit the Island. Increasing tensions between Tamil Tigers and the government disrupt the reconstruction work within the Tsunami affected areas. Because of safety reasons humanitarian aid organisations have to leave again. For already more than two decades Sri Lanka suffers from an internal war. Consequently an estimated 800,000 people have been internally displaced. Unfortunately, this overwhelming number of people is a very small proportion of the total number of people being displaced every year worldwide, all trying to live a life as every human being tries to do, including to love and raise their children………..………

Today forced migration has to be seen as both a result and a cause of global and social transformations. New type of conflict, violence, and mass flights emerged from the 1960s, in the context of struggles of decolonization, state formation, and the incorporation into the bipolar world order of the Cold War. The context of this trend is the inability of these regions to achieve economic and social development after failing to build legimate and stable states (Castles, 2003). Up to the Cold War conflict was mainly common on a large political scale aiming to control territories on inter-state level. Nowadays conflicts with the aim to political control the population within states are more prevalent, in which mass exclusion is often a strategic goal. In addition, migration policies of governments increasingly restrict affected people to cross borders to find security, resulting in a growing number of vulnerable people who cannot leave their country to find security (Castles, 2003; Esscher, 2004). Although exact numbers are difficult to obtain due to restrictions in definition and registration, the UNHCR estimated 8.4 million refugees and 23.7 million internally displaced persons (IDPs) worldwide at the beginning of 2006 (UNHCR, 2006).

These so called internally displaced persons, often already marginalized groups within their society, face particular reproductive health risks due to a complex set of factors of which the disruption of health care systems and life trajectories, loss of income and social networks, changing population structure and power relations are some examples (Esscher, 2004; Krause et al., 2000). Resulting reproductive health risks are gender and sexual based violence, increasing vulnerability of adolescents due to instability in sexual and reproductive development, rising number of unwanted pregnancies due to forced and unprotected sex, limited or interrupted access to contraception, and growing number of (unsafe) abortions with subsequent mortality, morbidity, stigmatizing and social exclusion. Also, lack of adequate nutrition, together with the increase of infectious diseases affect the overall health status indirectly affecting reproductive health status of the population. Finally, the disruption of health care systems lead to underprovision and difficulties in accessing care needed. (Krause et.al, 2000; McGinn, 2004; McGinn et.al, 2004; UNHCR, 1999). Discrimination and social exclusion might play another role in this accessibility.

In addition to these observations, theory states that fertility is decreasing during crisis due to decrease in (marital) fertility due to the absence of spouses or postponement of marriage, but also resulting from decreasing fecundity caused by stress and malnutrition (Palloni, 1990). Consequently fertility is rising after stabilisation of the situation, exposing more women to above reproductive health risks.

The importance of treating and preventing poor reproductive health outcomes and risks of people who face emergency and displacement is acknowledged at the International Conference on Population and Development of 1994, after which governments and organisations increasingly implemented reproductive health interventions within humanitarian assistance programs in order to provide reproductive health facilities (Esscher, 2004; Krause et.al., 2000; UNHCR, 1999). Although these interventions within basic humanitarian aid save a lot of lives and morbidities, disparities in reproductive behavior, need, risks and outcomes exist within and between displaced populations (McGinn, 2000).

This thesis aims at getting insight in some aspects of the reproductive health situation of the population living in conflict-affected areas in Sri Lanka. Because of the long lasting conflict, few is known about the living and health situation of the population living in these areas, which are in particular the Northern and Eastern regions. This information gap is caused by the fact that (national) surveys and censuses do not cover these areas because of safety reasons.

Another reason for studying these utilisations in particular, is that knowledge about maternal health and its determinants, as well as the reproductive health situation of displaced persons is widespread. In addition, theories concerning individual motivation and decision making processes in relation to behaviour are widely used, together with more models that are provided to study the utilisation of (health) services.
Nevertheless, it is difficult to find studies that focus in particular on the utilisation of health services of displaced persons. No clear findings are formulated that summarise the most important determinants of the utilisation for this population in particular. As mentioned before, this research tries to find some of them.

For attaining this insight, the focus is laid on the utilisation of most important maternal health services (antenatal care checks, skilled attendance during delivery, and visits of a midwife at home), as well as on the utilisation of modern family planning methods. The population under study are displaced and non displaced persons, both living in the same areas under study, of which the former are living in either welfare camps or elsewhere, possibly with relatives or friends.

This quantitative research aims at finding an explanation for similarities or differences in the utilisation of maternal health services and family planning methods among people living in conflict affected areas in order to contribute to the understanding of the establishment of these similarities or disparities, as to contribute to existing knowledge of health behaviour of this population.
Anticipating on this aim, the following research questions, subsequently their objectives are covered in this research:

1. How often do displaced and non displaced women living in conflict affected areas make use of reproductive health facilities in order to attain a healthy reproductive status?
1a. How often do displaced and non displaced women living in conflict affected areas in Sri Lanka make use of maternal health services (antenatal care, skilled attendance during delivery, visits of midwife at home) in order to go through safe pregnancy and delivery?
1b. How often do displaced and non displaced women (and men) in their reproductive ages and living in conflict affected areas make use of modern family planning methods in order to plan, space, or prevent pregnancy, but also to avoid STIs and STDs?

The objective of these first explorative questions is to get insight in the overall use, but also in the frequency and quality of selected maternal health services of the last pregnancy since 2000 of women living in conflict affected areas in Northern and Eastern districts of Sri Lanka.
In addition, an explorative overview of the utilisation of modern family planning methods of women in their reproductive age is provided. Having this overview, something can be said about the reproductive health situation and behaviours of a population, which is not, or partly covered in censuses, Demographic and Health Surveys (DHS), and other country statistics. When comparing two living situations, i.e. those either displaced or not, something can be said about the (under) utilisation of these health services for these particular populations in order to improve their reproductive health situation.

2. Which factors contribute to the explanation of found similarities of disparities in the utilisation of maternal health services and family planning methods of displaced and non displaced women? Do self efficacy and displacement have an additional contribution to this explanation?
It is known that socioeconomic (household wealth, education and the status of women), and demographic characteristics (age, marital status, parity etc) are important factors that affect the utilisation of health services and family planning methods, as well as their proximate determinants.

In addition to this knowledge, this research incorporates two factors, namely self efficacy and displacement related factors. These factors might play an additional explanatory role in the analyses on the utilisation of health services. Self efficacy determines the 'construction' of actual behaviour for a large extent. The reason for taking the influence of this psychological concept into account is that in existing studies and models concerning the utilisation of health services no or few attention is given to the individual decision making processes that are related to the performance of behaviour in which self efficacy plays an important role.

Then, displacement related factors are taken into account for the reason that displacement impacts individual life in several manners, by for example the disruption of life course careers impacting the sequence and timing of reproductive events, i.e. nuptiality and fertility, indicating that the reproductive health status might also be influenced.

Then, displacement can have a significant impact on psychological factors, in this study conceptualised as self efficacy. For the reason that self efficacy determines how a person feels, thinks and acts, it might partly explain how people make use of health care services and family planning methods.

This second question has an explanative function and tries to get insight in the factors that explain or predict the use of maternal health care services and family planning methods of women living in the conflict affected areas under study. Thereby this question aims at getting insight in the found similarities or disparities of the explorative first research question.

Understanding why and which women are at risk facing complications during pregnancy and delivery due to (under)utilisation of maternal health services, or who face risk at unplanned, unwanted or short spaced pregnancies, and being more susceptible attaining STIs/STDs, can contribute to better allocation of services to this particular population. In these analyses, the influences of self efficacy and displacement on the dependent variables receive more attention in order to get insight in their impact on utilisation, probable previous health seeking behaviour. It is important to have some insight in the impact of self efficacy because it indicates in addition to socio economic and demographic indicators, if and how psychological factors can contribute to the explanation of utilisation of maternal health services and family planning methods. The same goes for displacement related factors, which are important events that took place in the lives of the persons affected by conflict.

Because of the incorporation of self efficacy and displacement related factors, an additional research question within this explanatory part is:

2a. Do demographic, socioeconomic, and displacement related factors contribute to the predictive value in understanding the level of perceived self efficacy at the time of interview?
As said, by mastering events, (seeing others doing and explaining, as emotional experience) over the life course develops a person's way in approaching and dealing with the world. Impact, storage, and reflection of this social learning differ over the life course. Stress or deviant situations (like conflict and displacement) at particular stages in their lives might have impact on the development of self efficacy. Therefore, it is of interest to know whether displacement and the number of displacements have affected (current) self efficacy in a particular way.

This question has the objective to get insight in the impact of conflict and displacement at different stages in life on (perceived) self efficacy of affected persons. It is useful to have some insight in this, because then can be anticipated on the mechanisms that underlie decision making and behaviour of individuals that have been affected by these experiences during their lives. In addition, the influence of the predictive value of self efficacy on the utilisation of maternal health services and family planning methods can be taken into consideration when understanding better how self efficacy is affected by displacement or other factors.

Summarising, the overall objective for finding answers to above two research questions is twofold; firstly 'to explore the extent to which internal displaced persons living in different settings remain underserved in maternal health and family planning services'. Secondly 'how equalities or inequalities in utilisation of maternal health care services and family planning methods can be explained' by including two explanatory variables to the analyses, i.e. self efficacy and displacement factors in addition to the usual demographic and socioeconomic factors, like for example age, marital status, place of residence, wealth, and education. The frequency and quality of maternal health services and family planning methods utilisations

have implications for the general health situation of the population, but mainly that of women and mothers. Having insight in the situation and the factors that determine the utilisation of these services and family planning methods, recommendations can be developed and resources might be better allocated in order to make interventions to improve or change their situation, if needed.

The thesis is structured in such a way that background information is given in subsequent three chapters that cover a) reproductive and maternal health, both in relation to emergencies situations and displacement, b) the Sri Lankan health care system, policies and demographic change related to maternal health, and c) an historical overview of the conflict situation and its consequences. Because the first research question requires exploration of the data, its results and interpretations are presented in chapter four, covering also maternal mortality and health in the conflict affected areas under study.
Then, an overview of applied theories is given in chapter five, followed by the construction of the conceptual model to give guidance in answering the formulated research questions, followed by the hypotheses.
Chapter six covers the operationalisation of this model after giving an overview of the possibilities and limitations of the used dataset and the applied methods.
The results of the data analyses concerning the second research question are covered in chapter seven in which different sections discuss the five dependent variables under study. Finally conclusions are drawn and recommendations are made in chapter eight. Reflection on the process of this research is given in chapter nine.

2. Maternal health and its determinants

This thesis aims at getting insight in some aspects of reproductive health, focusing on women living in conflict affected areas in the Northern and Eastern regions of Sri Lanka. Reproductive health is a broad concept that covers various aspects; i.e. fertility and family planning, maternal health and child survival, safe abortion, sexual health and HIV/AIDS. Reproductive health not only concerns women and children, but also adolescents and men. Access, knowledge, information, and choice are essential concepts within reproductive health in order to give people the opportunity to make their own choices regarding sexual and reproductive behaviour and to go safely through pregnancy and delivery. According to the formal definition resulting from the International Conference on Population and Development;

"Reproductive health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health therefore implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. It also includes sexual health, the purpose of which is the enhancement of life and personal relations, and not merely counselling and care related to reproduction and sexually transmitted diseases" (Cited from the International Conference on Population and Development, Cairo, 1994; Programme of Action, Paragraph 7.2).

Although there are many indicators to measure maternal health, the most commonly used indicators are maternal mortality rates, together with the proportion of deliveries attended by a skilled assistant[1]. A maternal mortality rate is defined as the number of maternal deaths[2] per 1,000 10,000 or 100,000 live births (in this thesis 10,000 life births is the denominator). When nothing is done to avoid maternal deaths, 'natural' maternal mortality is estimated to be 150, meaning that 150 women die out of 10,000 live births (Van Lerberghe en Brouwere, 2001).

Nowadays developed countries have reached stable and low maternal mortality rates, i.e. approximately five maternal deaths per 10,000 live births. In developing countries instead, on average around 50 women per 10,000 live births die (Thonneau, 2001). Consequently, an estimated 529,000 women die each year from preventable complications of pregnancy and delivery, of which 99 percent occur in developing countries (UNFPA, 2006). Besides this, many more women face physical and psychological problems after surviving the termination of their pregnancy. The Safe Motherhood Initiative estimates that for every woman who dies resulting from pregnancy, 30 to 50 women experience temporal of chronic disabilities (UNFPA, 2006). This means that 15 to 25 million women each year suffer from nonfatal complications of pregnancy, which include anaemia, infertility, pelvic pains, incontinence and obstetric fistula (UNFPA, 2003), thereby loosing a substantial number of healthy life years. In general 15 percent of all pregnancies are at risk of complications that require emergency obstetric care, which is an equal risk for all women worldwide (UNFPA, 2006).

Since the start of the Safe Motherhood Initiative in 1987, the reduction of maternal mortality and morbidity is put on the agenda of many organisations and world conferences. Nowadays , the reduction of maternal deaths and disabilities is recognized as a human right, as well as of great importance of international development, as formulated in the Programme of Action[3]. This programme prescribes that maternal health services should be expanded in the context of primary health care, together with the development of strategies to overcome underlying causes of maternal death and morbidity (UNFPA, 2006). Then, the improvement of maternal health conditions is the fifth goal of the Millennium Development Goals (MDG), aiming at a three-fourth reduction in maternal mortality rates of 1990 by the year 2015 worldwide.

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[1] 'The process by which a woman is provided with adequate care during labour, delivery and the early postpartum period' (Graham et. al, 2001)
[2] 'The death of a women while pregnant or within 42 days of the termination of a pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related, to or aggravated by the pregnancy or its management, but not from accidental or incidental causes' (WHO, 1992. International Classification of Diseases, 10th revision).
[3] Programme of Action is the final outcome of the International Conference on Population and Development (ICPD) held in Cairo, 1994.

Having the objectives of the Programme of Action and the Millennium Development Goals in mind, this research focuses on gaining insight in the utilisation of maternal health services (i.e. ante- and postnatal care and the attendance of a skilled assistant during delivery) and family planning methods, in order contribute to the understanding of one important aspect of maternal health.

General determinants and consequences of maternal health are discussed in this chapter. Concerning the research focus, a separate section is devoted to the impact of emergencies and displacement on maternal health.

2.1 Causes of maternal mortality and morbidity

The causes of maternal deaths are consistent around the world. The United Nations Population Fund (UNFPA) mentions that 80 percent of maternal deaths worldwide are caused by five, mostly preventable, direct causes, which are haemorrhage, obstructed labour, eclampsia, sepsis, and unsafe abortion, their distributions shown in figure 2.1. The remaining fifth part of the causes is indirect, i.e. caused by a medical condition that is worsened by pregnancy or delivery. These indirect causes are for example malaria, anaemia, hepatitis, and HIV/AIDS, but also chronic diseases like heart diseases fall within this category (UNFPA, 2003).

Figure 2.1: Causes of maternal mortality worldwide, 2000
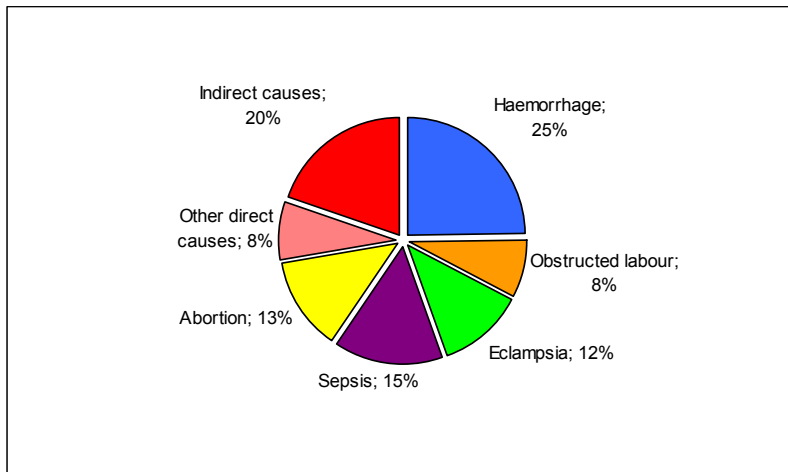
Source: Adapted from UNFPA, 2003

Haemorrhage, or acute severe bleeding is the leading cause of maternal death and is hard to predict, because of its possible occurrence before or between routine antenatal care visits. Emergency obstetric care is needed to treat this complication (Bergsjø, 2001).

Then, *obstructed labour* arises during delivery but can be predicted by having information about previous delivery circumstances or by checking the height of the mother to determine high risk deliveries. Usually, women who are selected to be at risk for obstructed labour are referred to a hospital to deliver (Bergsjø, 2001). Another intervention is to institutionalize deliveries, by making deliveries in clinics or hospitals the routine.

Third, *eclampsia* is defined as pregnancy induced hypertension, again difficult to prevent, but simple to treat successfully when occurring. By diagnosing pre-eclampsia through monitoring blood pressure and the detection of protein in the urine during antenatal checks, eclampsia can be predicted more carefully (Bergsjø, 2001).

Unclean (home) deliveries or other unhygienic circumstances can lead to infections, or so called *puerperal sepsis*. The main prevention to this complication is to assure a clean delivery, which can be assessed by the attendance of a skilled assistant during delivery (Bergsjø, 2001).

An important cause of maternal mortality that is addressed relatively recent (at the ICPD in 1994), and being a major public health problem in developing countries are *deaths resulting from unsafe abortion*. Worldwide 52 million of 190 million pregnancies are aborted (UNFPA, 2006), of which the majority under unsafe conditions. As shown in figure 2.1, 13 percent of all maternal deaths are attributable by this cause of death. Unsafe abortions are often a result of

the illegal status of abortion, in addition to poor provision, knowledge, and use of family planning methods, resulting in unplanned and unwanted pregnancies. Therefore, the unmet need of family planning methods is an important factor in this, because it does not enable women to plan and space their children according to their needs.

The first indirect cause of maternal deaths is *anaemia,* which increases women's risk of haemorrhage. Anaemia is highly prevalent among pregnant women; according to the WHO, every second pregnant woman is anaemic. Anaemia is caused by nutritional problems and worsened by worm infections, malaria, or other infectious diseases (WHO, 2006). Besides the increasing risk of complications due to severe bleeding, anaemia may also result in low weight babies (Kolsteren and De Souza, 2001).

Finally, *malaria* affects existing health conditions as anaemia, but also health status in general, because immunity to malaria is reduced as consequence of pregnancy, which increases the susceptibility for being infected. Malaria itself increases the risk of getting ill, anaemic and eventually death. Spontaneous abortions, stillbirths, premature deliveries, and low birth weights (cause of child mortality) are consequences of maternal malaria (WHO, 2003).

All the above causes put maternal health at risk, but can be detected and prevented by making use of antenatal care, skilled attendance during delivery, the availability of emergency obstetric care facilities, postpartum care, and family planning methods. These and other determinants of maternal health are discussed in the following section.

2.2 Determinants of maternal health

Over the years, it has been recognized that the approach to detect and prevent maternal deaths and morbidities by providing antenatal care and the training of traditional birth assistants (TBA) did not reduce maternal mortality. Therefore a paradigm shift took place among health professionals and policy makers, who concluded that maternal deaths result from complications that are hard to detect, but are always treatable if Emergency Obstetric Care (EOC) is available and accessible (UNFPA, 2006). In this research the utilisation of this service is not investigated, although it has to be kept in mind that it is assumed that ante- and postnatal care, as well as the attendance during delivery are performed by skilled doctors, nurses, or midwifes, all participating in a broader network, including an Emergency Obstetric Care, which can be referred to if complications emerge.

The provision, accessibility, and use (in time) of these services are important determinants that influence safe motherhood and health status of women. This section discusses the importance of these services, but also socioeconomic determinants as poverty, education and the status of women contributing to the improvement of maternal health.

2.2.1 Maternal health services

As mentioned, the Programme of Action prescribes that maternal health services should be expanded in the context of primary health care, together with the development of strategies to overcome underlying causes of maternal death. There the Programme of Action also formulated how maternal health services should look like;

"Maternal health services are based on the concept of informed choice and should include education on safe motherhood, prenatal care that is focused and effective, maternal nutrition programmes, adequate delivery assistance that avoids excessive recourse to Caesarean sections, and provides obstetric emergencies, referral services for pregnancy, childbirth and abortion complications; post-natal care and family planning" (cited from ICPD Programme of Action, paragraph 8.22).

This implicates that besides education and nutrition, antenatal care, skilled assistance at delivery, emergency obstetric and postpartum care, as well as family planning are essential factors contributing to maternal health. Due the fact that this the data used for this research enables to focuses on utilisation of antenatal care, skilled attendance during delivery, and family planning methods, these issues are discussed, as the others are toughed upon briefly.

A major determinant of maternal health is the provision and use of *antenatal care*. Antenatal care is an important entry point for women to the health care system (UNFPA, 2006). The goal of antenatal care is to prevent, detect, and treat problems that can cause above mentioned complications during pregnancy and delivery (Bergsjø, 2001). Many of the

described causes can be detected and prevented by using this service. The World Health Organisation recommends at least four antenatal checks as appropriate (UNFPA, 2006).

An important aspect of antenatal care is to address the medical needs of pregnant women. Examples are services like tetanus toxoid immunization, information about nutrition, and the distribution of iron and folic acid tablets, the determination of blood group type in order to save time in an emergency situation, counselling and testing for syphilis and HIV, and the provision of medicines to prevent vertical transmission of the HIV virus to the child (Bergsjø, 2001).

In addition to prevention, detection, and treatment, antenatal care has an important educational function. By making use of antenatal care, pregnant women get in touch with the health system, where they and their families can be reached for information and educational means. For example, to prevent women to die from haemorrhage, information and education may induce women and their surroundings to seek medical care when they start bleeding (Bergsjø, 2001). Antenatal care can also inform about family planning methods and the dangers of (unsafe) abortion. Finally, malaria can be prevented or treated by the provision of treated bed nets and medicines (Bergsjø, 2001).

As mentioned before, antenatal care does not have a significant impact on maternal death risks when no referral exists with delivery and obstetric care. Nevertheless, good quality of antenatal services improves women's health before and after birth and make women more likely to have a skilled attendant at delivery (UNFPA, 2006).

In the developing world, 58 percent of all deliveries take place with the *assistance of a trained or skilled attendant* (UNFPA, 2006). Because most complications occur unexpectedly during, and immediately after delivery it is of great importance that a person attends this vulnerable moment in order to prevent or treat complications. These attendants can be skilled (i.e. doctor, nurse or public midwife) or unskilled (i.e. traditional birth assistant (TBA), or other). The former refers to a professionally trained health worker, trained to manage normal deliveries and diagnose, manage or refer complications, while the latter is not (Graham, et al, 2001). In addition to training, skilled assistants are usually supported by a broader health care system, which makes referral to hospitals of emergency obstetric care easier and more effective, as this is not the case for TBAs (Bergstrøm and Goodburn, 2001). The presence of a skilled assistant could reduce an estimated 16-33 percent of deaths due to obstructed labour, haemorrhage, sepsis and eclampsia (UNFPA, 2006). Because the referral capabilities of skilled assistance within a health care network, (trained) TBAs are nowadays seen as inappropriate, because they do not have this connection. Nevertheless, TBAs are useful in a different way, because they can be a link between the health care system and the community within they can encourage women to use family planning and antenatal services (Bergstrøm and Goodburn, 2001). For the reason that a very low proportion of the deliveries under analyses are attended by a TBA it is decided that this research does not take into account these untrained assistants.

As mentioned, the paradigm shift in recommended interventions to reduce maternal mortality laid the focus on the provision and access to *Emergency Obstetric Care* (EOC), being a crucial factor to prevent maternal death together with the attendance of a skilled assistance.

It is known that 60 percent of maternal deaths occur in the days immediately after delivery. A skilled attendant during delivery and the immediate crucial hours after delivery contribute to the improvement in maternal and child survival and health in the postnatal period. Regular checks of mother and child in the period after delivery are needed in order to monitor the health of the mother and child.

Finally, the provision and adequate use of *family planning methods* play an important role in the prevention of maternal mortality and morbidity. Appropriate utilisation of family planning methods reduce (unwanted and unplanned) pregnancies, consequently unsafe abortions, increase the space between two pregnancies; and decrease the number of high risk pregnancies of young and older women (Safemotherhood.org, 2002).

Worldwide, one in six women who want to prevent or delay conception, are not able to do this due to absence of appropriate family planning methods. If the demand for these unmet methods would be met, the number of pregnancies will be reduced by 20 percent, together with a similar decrease in deaths and morbidities (UNFPA, 2006).

This relationship between family planning method use, fertility and maternal mortality and morbidity is more complex than above description seems to be. Even when family planning methods are widespread and have a high prevalence rate, failure rates can be very high in particular cases. This can be explained by the fact that women have to control their childbearing years for 25 to 30 years successfully when they want to avoid abortions and limit their number of children. Failure rates vary for each method, and discontinuation increases the risk of conception (Thonneau, 2001).

Besides provision and failure risks, the decision that has to be made whether to use, or not to use family planning methods depends on a complex set factors, of which perceived risk, communication between the partners, support of parents, family and peers, attitude of the community towards sex education, and the influence of health staff are some examples (Thonneau, 2001). This means that access to and provision of family planning methods does not guarantee a decrease in unplanned and unwanted pregnancies, spacing, and a lower number of births, but also other factors determine maternal health. These factors are discussed in next sections.

2.2.2 Socioeconomic determinants of maternal health

In addition to the introduction of above services and family planning methods, demographic, social and economic factors play an important role in maternal health. It is known that improvements in hygiene, education, the status of women, and accessibility to health services, reduce maternal mortality rates considerably (Van Lerberghe and De Brouwere, 2001).

In addition, poverty, wealth, and nutrition are other aspects that contribute to improvements in maternal health. *Poverty* increases a women's chance of dying because of pregnancy and childbearing. In many countries, gaps exist between wealthier and poorer women and their utilisation of maternal health services (UNFPA, 2006). Costs of transportation, use of health services as well as medicines become an important barrier for women if poverty increases. Poverty also affects the status of living and adequate nutrition intake, which directly affects the general health status of the women and therefore the risk of complications, and poor women are far less likely to receive antenatal care, as other health services (UNFPA, 2006).

Educational status of women contributes to the knowledge and information women receive and have about health in general, the risks and complications that belong to pregnancy, the (access to the) health care system, rights, and their family planning method knowledge. Increasing knowledge influences their power and beliefs about being able to deal with particular situations. By increasing education, status of women changes, consequently their influence on health and other conditions. Then, education affects lifestyles and decision making processes of both women and men, and due to prolonged education, marriage and childbearing are postponed, thereby reducing the number of young mothers and number of children.

It is known that of half of all women in the developing world receive the recommended minimum of four antenatal visits, in which women with low education are underrepresented. Women with secondary schooling are two or three times more likely to receive antenatal care as women without education are (UNFPA, 2006).

Since the International Conference on Population and Development (Cairo 1994), it is recognised that maternal deaths and morbidities are violations of women's human rights and are strongly tied to *women's status* in society and economic independence (UNFPA, 2006). The promotion of gender equality and the empowerment of women is therefore the third Millennium Development Goal.

The status of a woman is of importance in relation to her maternal health on different levels in society. Status of women is On national level, many governments do not give priority to the need of women and therefore they might lack the ability to choose and access the care they want and need (UNPFA, 2006). On household level, low status of women might lead to the situation where low or no priority is given to investments in pregnancy and delivery care, because they are too costly in money as well as in time. These gender inequalities within society or the household can affect the nutritional status of the women when food and resources are not equally distributed. Thus, often women are seen as less worthwhile to invest in, which can have severe consequences for their maternal health (UNPFA, 2006). On

individual level, women might lack the power to discuss reproductive needs (i.e. planning and spacing of children), as utilisation of family planning methods with their partner.

2.3 Maternal health and emergency induced displacement
As described in above sections, maternal health status is highly depended on the provision and access to services that support reproductive health. In the (Sri Lankan) case of emergency and displacement, provision, access, and utilisation of these services might be distorted, together with worsening health conditions of the affected population. In addition, emergency and displacement situation disrupt life course careers, leading to changing patterns of fertility, nuptiality, and mortality, indirectly influencing maternal health status. For investigating the utilisation of maternal health services of women living in conflict affected areas in Sri Lanka, it is of importance to have insight in these changing demographic patterns for the reason that it gives a broader understanding of the impact on maternal health. Therefore this section gives a short overview of the relationship between maternal health and emergency induced displacement, thereby focusing on the causes of the changing pattern of fertility during and after an emergency.

2.3.1 Impact of emergencies on fertility
Palloni (1990) discusses the impact of emergencies on demographic indicators. As mentioned, concerning the fact that maternal health is closely related to reproduction it is important to have some insight in the changing pattern of fertility and nuptiality during and after an emergency, because these do not remain the same within and after this situation.

According to Palloni, fertility responses in two ways to emergencies, namely by reactions of nuptiality and marital fertility patterns. Changes in the nuptiality pattern during emergency periods occur due to several reasons. First, marriage rates decrease consequently from increasing transaction costs. Households have to reallocate recourses due to food shortages or loss of income, resulting in a decline of marriages that depend on dowry contracts. Other aspects that reduce marriage rates are the absence of potential spouses due to war or displacement and general uncertainty.
Marital fertility is affected by emergency in several ways. As a result of stress, poor physical condition, physical separation due to war and displacement, or deliberate abstinence, the frequency of intercourse, the length of postpartum amenorrhoea and fecundity are affected, which has a direct impact on fertility. Women's fecundity decreases due to stress or malnutrition, affecting normal amenorrhoea and ovulatory cycles. Controversially, in situations where infant mortality is high, the period of postpartum amenorrhoea is shortened, increasing the risk of conception (Palloni, 1990).

These two examples show that emergencies influence the fertility status of the affected population, and explain why fertility is lower during, for example conflict, and higher after stabilisation. Underlying figure 2.2 shows the development of the Total Fertility Rate[4] (TFR) and the Crude Birth Rate[5] (CBR) over stages of crisis. It is clear that they both decline before the onset of crisis due to migration, a growing lack of resources and food, and a tighter nuptiality regime. The lowest levels are reached around nine months after the beginning of the crisis, because of lower conceptions since the onset.

Fertility increases around nine months after the stabilisation due to catching up of postponed marriages and restoration of pre-conflict marital fertility. The level of the increase in nuptiality depends on the composition of the marriage market; conflict that caused high mortality rates among young men can result in a smaller marriage market, the same as displacement of potential spouses has (Palloni, 1990).
Excess in TFR can be explained by the unusual composition of the female population who are at risk to become pregnant; depending on the length of the crisis infant mortality and the impact of changing nuptiality and marital fertility patterns, the number of women who are

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[4] The average number of children a woman would bear if she survived through the end of the reproductive age span and experienced at each age a particular set of age specific fertility rates (Preston et.al, 2001).
[5] The number of birth in the population between time 0 and T, by the number of person-years lived in the population between time 0 and T (Preston et.al, 2001).

susceptible for conception increased after the stabilization of the crisis. The increase of the CBR is a direct consequence of increased TFR as well as compositional changes Thus, even when a population does not intend to replace the lost population, fertility will rise, especially the situation affected the population structure in such a way that a young females are highly represented (Palloni, 1990).

Figure 2.2: Ratios of fertility measurements during crisis to fertility measurements during normal periods, CBR and TFR.
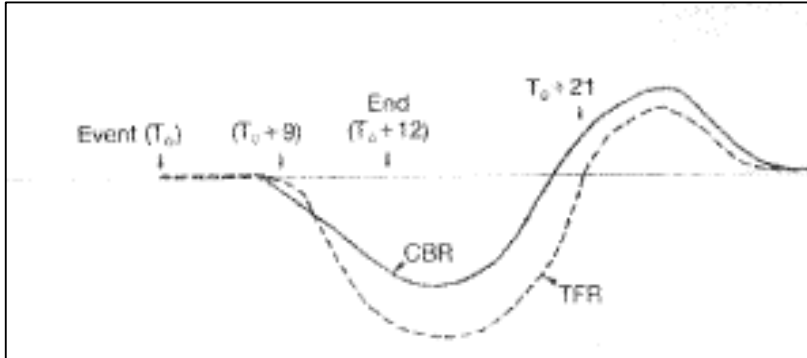
Source: Adapted from Palloni, 1990, pp. 207

2.3.2 Impact of emergencies on maternal health

As discussed above, women in their reproductive age are a vulnerable group concerning their health, especially in crisis situations. It are often women who have to flee from conflict and violence in order to find a safer place to live with their children. These women become a vulnerable group concerning their increasing risk of sexual and gender based violence, but also the break-down of families and relations, and the general safety situation lead to their increasing vulnerability. Due to changes in the age and sex composition, displaced women are at risk of rape and sexual assault. In addition to reduced access to and provision of services, they have to deal with the consequences of these risks, as well as with their changing fertility and fecundity status, being different from the normal situation. As stated above, fertility might increase after (re)settlement, but due to lack of services, nutrition, and hygiene, these women have to deal with additional complications resulting from pregnancy, delivery, and abortions. Poor nutrition, lack of resources and the prevalence of infectious diseases due to epidemics and poor sanitation might lead to a worsening of the maternal health situation.

Displaced women are at higher risk to get anaemic due to deficiencies of nutrients and malnutrition. As said, anaemia worsens maternal health and increases the risk of severe bleedings. Poor hygiene in displaced circumstances increases the risk of infections, which are unfavourable for pregnant women.

Lack in the provision of family planning methods, increase the number of unwanted and unplanned pregnancies, as well as the risk of attaining STD and HIV/AIDS. Besides this, women face more difficulties to space their births. The increase of unsafe abortions, consequently maternal mortality and morbidity can be a result of a lack of family planning methods for those who are living in emergency affected areas.

A maternal death or morbidity has implications for different levels in society. Families, communities, but also the countries are affected. Because (very young) children are less protected and are confronted with more extensive health problems due to lack of care, their risk of getting sick or facing death increases due to the loss of care and protection of the died or sick mother (Campbell, 2001). They may suffer prolonged homelessness or might become orphans. Relatives or friends become responsible for taking over the household. Then, the loss of production and resources lead to increasing poverty, and for families that are already displaced due to emergency these consequences might be even more complex. Malnutrition might increase resulting from possible increasing poverty due to this loss.

On country level, high maternal mortality generates high social and economic cost due to the loss of a person within her (re)productive years. Then high mortality in reproductive age decreases life expectancy of women, but also that of their family, especially their children.

This chapter gave insight in maternal health and its determinants, the importance of maternal health, and the causes and consequences of emergencies in which women become more vulnerable to poor maternal health and other reproductive health outcomes.

This knowledge, as the observations done concerning the reproductive health situation of displaced persons is widely described in the literature, project programmes, and presented in the different media sources. In addition, theories dealing with migration and displacement, processes of individual behaviour and decision making, as well as the determinants of the utilisation of (health services) are widely used in science.

Nevertheless, it is difficult to find studies that focus on the utilisation of health services of displaced persons. No clear findings are formulated that summarize the most important determinants of the utilisation of health services for this population in particular. As mentioned before, this research tries to find some of them.

But before going into more detail on the maternal health situation of the population under study, i.e. people who are living in Sri Lankan conflict affected areas, together with their utilisations of maternal health services and family planning methods, next chapter provides background information on situation and developments concerning health, policies, and demographic change in Sri Lanka, in which the focus is laid on fertility and maternal health issues. In addition an historical overview of conflict and displacement is given.

3. Health, policies, demographic change, and conflict in Sri Lanka

Because the determinants of maternal health described in previous chapter are very context specific, this chapter gives an overview of Sri Lankan policies and services. For example the health and educational system, followed by more specific information on the maternal health (care) policies and situation of the country is given. In addition, a short overview of demographic changes of indicators in relation to maternal health is given in order to get some insight in the impact of described implemented policies on demographic on aspects of the population, in this case especially for maternal health indicators.

Finally, a short historical overview is given on the conflict and its consequent (long term) high number of displaced persons, together with the contribution of the Tsunami that hit the island at the 26th of December in 2004.

3.1 Sri Lankan health policies and services

Sri Lankan policy, irrespective of the government in power, has always regarded education and health as crucial factors contributing to socioeconomic development. A feature of Sri Lankan state policy is the concept of equity and social justice in favour of the underprivileged, resulting in high literacy rates (males 92.4 percent; females 89.7 percent in 2001) (Department of Census and Statistics, 2005), and life expectancy at birth (males 68 years; females 75 years) (WHO, 2006), both being relatively high within the region.

Health care in Sri Lanka is delivered through a network of hospitals and outpatient care centres throughout the whole island. Public services are (almost) free of charge and fall under the responsibility of the Central Ministry of Health and the eight provincial councils (WHO, Regional Office for South-East Asia, 2006). Until the 1920s, modern health facilities were restricted to urban or military centres, while rural communities were responsible for their own health care needs where medical problems were mainly treated by traditional practioners (Somanathan et.al, 2002).

Since the 1930s, governments started to expand their public health systems into rural areas, as well as to train traditional practioners. This was also applicable for Sri Lanka, where maximisation of social welfare became an ultimate governmental goal since then. Since the 1940s, three other goals have been of main importance in the formulation of policies. The *provision of insurance* through hospital inpatient services in order to prevent the poverty-inducing impact of high expenditures caused by sickness being the first. (Somanathan et.al, 2002). To reach this goal, a taxation system to fund and maintain an expanded hospital infrastructure that was established, which enabled the creation of an extensive network of public facilities throughout the island organised into a referral system of facilities ranging from maternity homes and dispensaries upwards to teaching hospitals and other national hospitals (WHO, Regional Office for South-East Asia, 2006).

Nowadays, this public health network consists of 500 hospitals, which provide in- and outpatient services. Figure 3.1 shows the development of the number of hospital beds and physicians per 1000 inhabitants since 1981.

Figure 3.1: Number of hospital beds and physicians, Sri Lanka 1981-2004
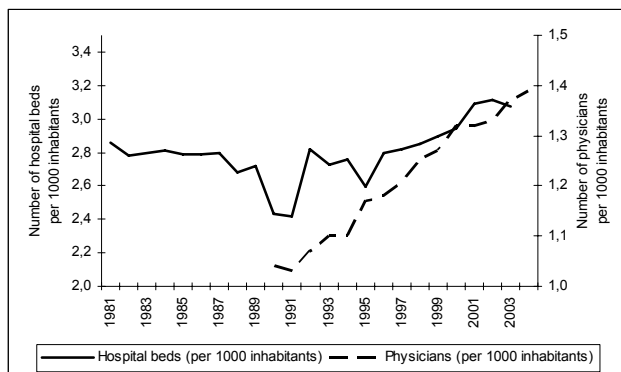
Source: Own calculations based on Department of Census and Statistics, 2006

Although during the 1990s, the number of hospital beds fluctuated between 2.4 and 2.8 beds per 1000 persons, over the whole period the number of beds slightly increased to around three beds in 2003. For physicians information is only available since 1990, but since then the number increased gradually over the years from one physician in 1990 to 1.4 doctors in 2004 per 1000 inhabitants.

The second focus of the government is *equity of access*, incorporating access to a minimum level of services as a basic right of citizenship. Therefore, the reduction of barriers to access health services is assessed by avoiding fees, but also by reducing the distance to services. Fees are avoided by making health care almost free available for all people. Almost, because sometimes additional costs are demanded for the purchase of supplies and medicines, although the poorer part of the population is protected from these extra charges in government hospitals. In general, these additional costs are higher in urban areas and for wealthier patients (Somanathan et.al, 2002).
Keeping the financial burden low for poor people does not mean that the costs for receiving medical treatment and care are nihil. Transportation and opportunity costs might be a barrier to the utilisation of health care facilities. But in Sri Lanka travelling costs are minimal due to the high density of medical facilities (most people live within one kilometre of government health facilities), and state policy providing cheap bus connections to rural areas. Thus, most inhbitants have easy and cheap access to (urban) health centres (Somanathan et.al, 2002).
Another important aspect that contributes to equity of access is the fact that health services are continuously provided by the government in areas that are controlled by the LTTE[6]. This indicates the importance of this goal, concerning the fact that the costs of providing these health services are high and not necessary beneficial for the government (Somanathan et.al, 2002).

Finally, health and tax systems that *redistribute resources* contribute to the reduction of social and economic inequalities. The established government health services act as a major mechanism of resource distribution from the more developed estate sector to rural areas. Since the 1970s, the system continued to have a net transfer of resources to poorer households (Somanathan et.al, 2002).

This extended and good working public sector does not mean that the private sector does not exist. The Sri Lankan government permits private health facilities and overcrowding and long waiting lines have created incentives for patients to seek health care from the private sector if they can afford this. Around 3,000 to 4,000 medical government doctors are working in their private time provide the private sector, together with some 850 full time doctors that run private clinics. There are approximately 100 private hospitals in the country of which most can be found in the Western province, as well as in urban areas.

The implementation of these policies and services contributed to the substantial decrease in maternal mortalities and morbidities, as discussed in the following section.

3.2 Maternal mortality changes in relation to the implementation of maternal health related policies and services
As above makes clear, Sri Lanka is an example that shows that the combination of professionalisation of delivery care together with a strong public commitment leads to a decrease in the number of maternal deaths (Van Lerberghe and De Brouwere, 2001). This section gives an overview of the development of Sri Lankan maternal mortality over time, together with the implementations of several policies and services that are direct or indirectly related to these developments.
Concerning the research focus, it is of importance to have insight in these developments, for the reason that if objecting to understand the utilisation of maternal health services, contextual information is needed. When knowing the Sri Lankan status of maternal health makes it more easier to reflect and interpret the situation of displaced person in relation to the overall population.

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[6] LTTE = the Liberation Tigers of Tamil Eelam (overview of Sri Lankan conflict is given in chapter section 3.4).

3.2.1 Development of Sri Lankan maternal mortality rates and causes of death
Underlying figure 3.2 presents the time trend of maternal mortality since 1922[7] up to 1996 in Sri Lanka. The figure presents the number of maternal deaths per 10,000 live births. Although antenatal care was available in the first half of the twentieth century (midwifes were introduced in 1906), maternal mortality rates where above 150 until the end of the first half of this century (210 in 1881). Between 1922 and 1947, maternal mortality rates declined gradually, to which malaria epidemics contributed to peaks (as the great malaria epidemic of 1934 and 1935). As mentioned, since the 1940s public health policies where introduced and from 1947 onwards maternal mortality rates started to drop more rapid (Van Lerberghe and De Brouwere, 2001).

Figure 3.2: Maternal mortality rate, Sri Lanka 1922-1996
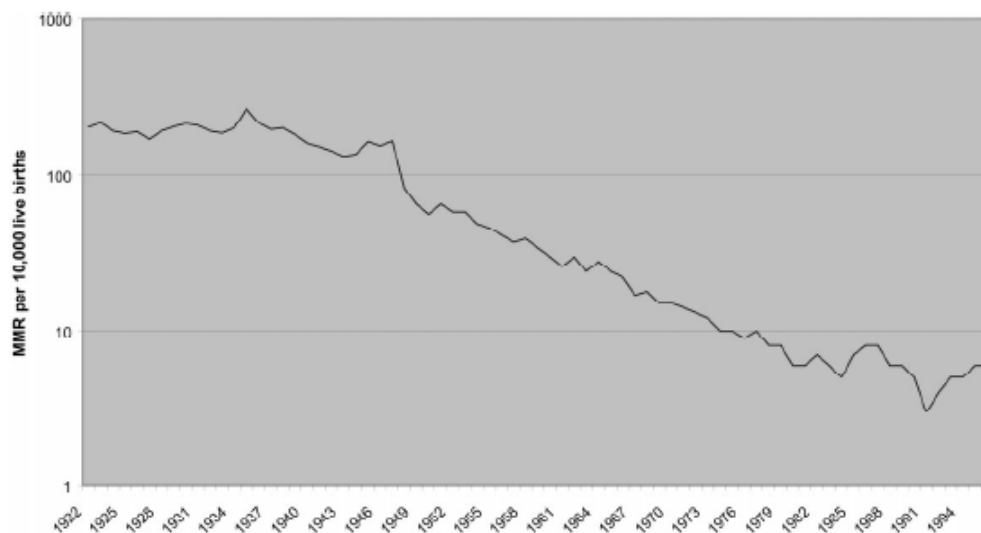
Source: Adapted from Seneviratne and Rajapaksa, 2000, pp. 116

The steep mortality decline in 1947 and 1948 can be explained by the implementation of activities to control malaria, public health measures, and the expansion of Mother and Child Health (MCH) services. Underlying figure 3.3 shows that since 1945 the proportion of deaths attributable to eclampsia decreased from 46.2 percent in 1945 to 28.7 percent in 1950, which is an outcome of above intervention.

The figure also shows a decline over the whole period in the proportion of deaths caused by sepsis, consequently of the improvement of general health care, sanitation and hygienic circumstances during delivery. The steady decline of maternal mortality after 1950 can be contributed to technological developments in health care (i.e. blood transfusions), the availability of health care, and the decline in fertility. During the mid-1950s fertility mainly declined due to increasing age of marriage, subsequently increasing age at childbearing. The use of family planning methods caused a decline in marital fertility since 1975 (Seneviratne and Rajapaksa, 2000).

An increase in the relative contribution of maternal deaths caused by unsafe abortions is shown since the 1970s. It is not clear if this cause of death really increased, or that better registration and increased reporting might explain this increase. Nevertheless, in Sri Lanka abortion is illegal except for cases where the life of the woman is at risk, but is used as a mean to interrupt pregnancies that are unplanned of unwanted. In Sri Lanka 7-10 percent of maternal deaths can be contributed to complications of unsafe abortion (Family Care International, 2002). Again, awareness about the interpretation of these figures is needed.

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[7] Since 1897 births and deaths were registered; in 1921 a section on maternal mortality was included in this registration (Family Care International, 2002)

Deaths caused by health conditions worsened by pregnancy, i.e. indirect causes, increased since the mid-1990s to which heart diseases are the most important one, contributing to one third of the deaths in this category (Fernando, 2005).

Figure 3.3: Contribution of selected causes to maternal mortality, Sri Lanka 1930-2000
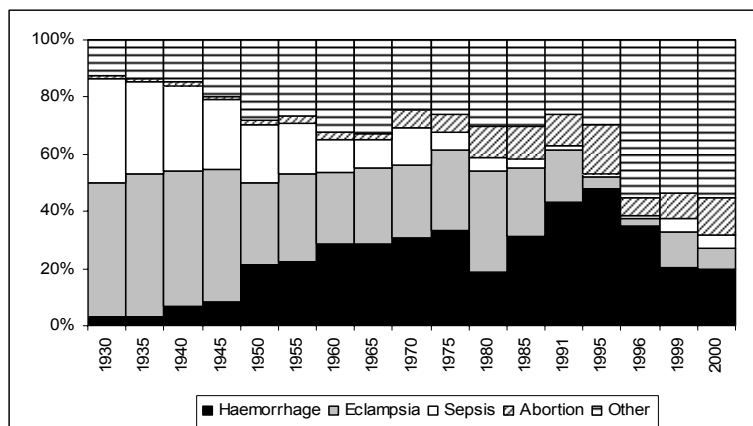
Source: UNFPA, 2002

Although Sri Lanka eradicated smallpox and has immunization policies that almost cover the whole population, prevalence of malaria is still high, especially among the displaced population in the Northern and Eastern regions (NCED and UNDP, 2005). Besides the increase of other causes, haemorrhage is still prevalent. Malnutrition followed by high prevalence of anaemia among Sri Lankan women can be the explanation of this.

3.2.2 Sri Lankan maternal health policies and services

Above changes in maternal mortality followed the implementation of maternal health care facilities closely. The first antenatal care clinic was established in 1921, succeeded by the Health Unit System in 1926, having as main activity the provision of maternal and child health care through domiciliary as well as clinic based services. Later this Health Unit System initiated community based Mother and Child Health care throughout the country. These latter services provide out-patient antenatal care through health centres and field clinics, trained assistance during delivery through institutions or at home, and postpartum and infant are during the early months (Seneviratne and Rajapaksa, 2000). The objective of the Health Unit system was, and is, to introduce a preventive program at community level. A health unit is defined as a geographical area were several categories of field level workers are present. A Public Health Nurse (PHN), a Public Health Inspector (PHI) and a Public Health Midwife (PHM), together with a Medical Officer of Health (MOH) are responsible for the promotion and delivery of health services at community level. The Public Health Midwife (PHM) is responsible for antenatal, natal, and postnatal services. Care to pregnant women is provided through home visits and field based clinic services. In addition, this Public Health Midwife is responsible for providing other services to women in their reproductive ages. Thus, information about and provision of family planning methods are offered along this line (Fernando, 2005).

In 1960 maternal deaths received more attention on national level. A special committee and a full time MCH medical officer were appointed to investigate maternal deaths (Van Lerberghe and De Brouwere, 2001). In 1968, a separate organisational structure, the 'Maternal and Child Health Bureau' (later the Family Health Bureau) was established, aiming on the reduction of maternal mortality, followed up by maternal morbidity (Fernando, 2005).
Then, a referral system of primary, secondary, and tertiary health care units was established. A first level unit exists of rural hospitals, central dispensary, and maternity homes where facilities of uncomplicated deliveries are available. Secondary health care units are district hospitals, which have more facilities for in-patient care as well as natal care. Then, specialist services are available in tertiary health care units, which are general as well as teaching hospitals (Fernando, 2005). During recent years, more emphasis is laid on the availability of

specialist services and improved provision of facilities for Emergency Obstetric Care relating to the paradigm shift in maternal health (Fernando, 2005). In 1997 an integrated reproductive health care policy was adopted which is nowadays still the source out of which maternal care is provided (Seneviratne and Rajapaksa, 2000). This network of institutions, together with a referral system and the presence of a relatively satisfactory infrastructure improved physical access to maternal health. The fact that all services are free of charge diminishes the economic burden on households and people (Fernando, 2005). Above factors contribute to the decrease in deliveries attended by TBAs, consequently an increase of deliveries that are attended by a skilled assisted, resulting in an overall improvement of maternal health, subsequently decrease in maternal mortality and morbidity.

The Demographic and Health Survey of 2000 showed that in Sri Lanka 97percent of pregnant women receive antenatal care. Skilled attendance during delivery increased from 27percent in 1939 to 89 percent in 1996 and is currently at a level of 98 percent (World Bank, 2005). Then, it has been estimated that 3-4 percent of deliveries do not receive any skilled assistance, and 3 percent of the deliveries take place at home (NCED and UNDP, 2005). Mainly remote areas, the plantation sector, as well as conflict affected areas are subjected to this under coverage (Family Care International, 2002). According to the NCED and UNDP, postnatal care is weak in Sri Lanka and has to be improved; in 2000, a Public Health Midwife visited 77 percent of the women at home and women are discharged from the hospital 24-48 hours after a normal delivery (NCED and UNDP, 2005).

Over time the Family planning method Prevalence Rate[8] (CPR) increased from 57.8 percent in 1982 to 66 percent in 1993 to 70 percent in 2000 (Department of Census and Statistics, 2006). Nowadays, over 70 percent of women in their reproductive age use family planning methods, either modern or traditional (World Bank, 2005).

3.2.3 Socioeconomic policies and services

Not only the establishment of widespread maternal health facilities contributed to a decline in the number of maternal deaths and the overall improvement of maternal health, also economic, social, and psychological developments affected maternal health status of the country. Most important aspects of these developments in Sri Lanka are described in this section.

Sri Lanka achieved great improvement in the reduction of non-income *poverty* by the redistribution of public expenditure (around 4 percent of the GDP) to households by offering free education, health services, food subsidies and the insurance of minimum consumption levels. The country has less success in reducing poverty that directly relates to income. In the period 1953-1985 poverty declined significantly, after which stagnation took place. About 23 percent of the total population lives below the poverty line[9], varying by province and sector. Within the Northern and Eastern provinces (46 percent), as within the estate sector higher poverty rates exist (World Bank, 2005).

Non income related poverty is reduced by the implementation of several policies of which a few are mentioned here. The first being the Samurdhi Programme, a safety net program implemented by the government in 1996 aiming at the improvement of nutritional status of poor communities by providing direct financial assistance and the implementation of programs to enhance their income levels (HPRA, 2006). A household is selected to receive benefits from the Samurdhi Programme if the monthly income is below Rs. 1,500 (=USD) (HPRA, 2006). In 2005, nearly half of the household in the country received some benefit of this program, but the World Bank evaluated that 36 percent of the poorest consumption quintile are not reached. More than 40 percent of the transfers go into the richest 60 percent of the population, together with a bias towards ethnic minorities (Tamils and Moors) being less likely to receive benefits than the Sinhalese are (World Bank, 2005).

A consequence of this high proportion of households living below the poverty line is that malnutrition rates are high, and therefore a problematic issue affecting the whole country.

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8 CPR: Family planning method prevalence rate is the percentage of women between 15-49 years who are practicing, or whose sexual partners are practicing, any form of contraception.
9 The poverty line is determined by a consumption level that a person meets a certain minimum nutrition intake (2030 kilocalories). In 2002 this was a monthly income of Rs. 1,423 per month, in 2006 this was Rs. 2,100 per month (HPRA, 2006).

Malnutrition increases the risk of infant and child deaths, but also increases the susceptibility to diseases later in life (World Bank, 2005). The Demographic Health Survey of 2000 indicated that 29 percent of all children between 3 and 59 months are moderate or severely underweight. Although this indicator declined substantially last decade (38 percent in 1993; 29 percent in 2000), it remains an important national problem (World Bank, 2005). Malnutrition put not only children at health risks, also (pregnant) women have to suffer from the consequences of malnutrition. Maternal health becomes at risk when the prevalence of anaemia increases consequently of under nourishment.

Programs aiming at the reduction of malnutrition are the provision of food assistance to conflict affected populations (the value of this food assistance ranges between Rs.336 for families with one member to Rs. 1,260 for families with five members (World Bank, 2005)).
Then the Thriposha (triple nutrient program) aims at maternal health by focusing on pregnant and lactating women who are nutritionally vulnerable, as well as children between 12 and 60 months who are at risk of growth faltering. These women and children receive pre-cooked cereal based food designed to supplement energy, protein, and micronutrients (World Bank, 2005).

Finally, the last important intervention against malnutrition is a school-feeding program where children receive hot meals in school, aiming at the attraction of poor children to attend school as to provide them with adequate nutrition (World Bank, 2005).
Since 1945 *education* is free accessible for the whole population from primary to tertiary level. In 2003, 98.4 percent of the children were enrolled in primary education (HPRA, 2006). The free and accessible education resulted in increasing literacy rates as presented in table 3.1.

Table 3.1: Literacy by sex, Sri Lanka 1901-2001

Census year	Male	Female	Total
1901	42.0	8.5	26.4
1911	47.2	12.5	31.0
1921	56.3	21.2	39.9
1946	70.1	43.8	57.8
1953	75.9	53.6	65.4
1963	85.8	67.5	77.1
1971	85.6	70.9	78.5
1981	91.1	83.2	87.2
2001	92.4	89.7	91.1
2006	94.5	90.6	92.6

Source: Seneviratne and Rajapaksa, 2000, pp.114 (1901-2001) and HPRA, 2006 (2006)

Increased education and literacy impact knowledge and behaviours women have concerning health, nutrition and how to deal with pregnancies and deliveries. Higher educated women are more likely to receive antenatal care, to have a more adequate nutrition intake during pregnancy, and to seek medical care if needed (World Bank, 2005). Increasing educational level of women also increases the demand for health care, and it is known that child malnutrition declines by increasing maternal education level (World Bank, 2005).

Another outcome of the Sri Lankan educational system is the improvement of nutritional status of children. The provision of mid-day meals, the supply of free books and uniforms to children give parents the incentive to send their children to school. This increases education as well as nutritional status of the children. The provision of scholarships, books, and uniforms do not lay an economic burden on the household to send their children to school.
As mentioned, *status of women* is another factor in improving maternal health. In Sri Lanka, equality between the sexes is guaranteed in the national constitution since 1978. Human rights and freedoms of women suppose to be on an equal basis with men; this means that women have equal rights in education, voting, and employment (Family Care International, 2002).
Indicators to measure the status of women are school enrolment rates and the share wages of women in non-agricultural employment (World Bank, 2005). Above table 3.2 shows that for primary and secondary education as for literacy, gender equality is reached. For tertiary education and the share of women in wage employment in the non-agricultural sector this is not reached. Information about the share wage of women in non agricultural employment is not presented here.

Table 3.2: Female education and labour force participation, Sri Lanka 1990 and 2001

	1990	2001
Education		
Ratio of girls to boys in Primary Education	93.1	95.3
Ratio of girls to boys in Secondary Education	104.0	104.2
Ratio of girls to boys in Tertiary Education	66.2	89.8
Ratio of literate women to men (15-24 years)	100.0	101.0
Labour force participation		
Share of women in wage employment in the non-agricultural sector	29.0	31.0
Total labour force participation	53.7	49.5
Male labour force participation	67.4	67.2
Female labour force participation	39.4	32.5
Female labour force in the total labour force	32.8	33.4

Source: Adapted from NCED and UNDP, 2005, pp. 43

The implementation of these policies are followed by an improvement in public health. Due to the free of charge provision and increasing educational levels of the population, utilisation rates are high, which has an immediate impact on the demographic characteristics, as well on the maternal health situation in the country. Next section gives an overview of the demographic changes that took place within the country, all in relation to maternal health.

3.3 Demographic change in relation to maternal health in Sri Lanka
As discussed before, Sri Lanka has recorded impressive achievements in health, nutrition and family planning, of which the implementation of a broad social development policy is a factor in its success. This second part of the chapter is devoted to demographic change of indicators that are related to the improvement of maternal health over time of the country, and is of importance for this study because it gives insight in how population change contribute to affected maternal health.

The Sri Lankan population is still growing due to positive natural growth as shown in figure 3.4. The crude birth rate (CBR) decreased considerably since 1940 and has reached a level of 19 births per 1000 inhabitants. The total fertility rate (TFR) is below replacement level since 2000. Then, the crude death rate (CDR) is at a low and constant level since the eighties. Life expectancy increased from 55 years in 1950 to 72 years in 2000. Figure 3.5 shows that life expectancy for females increased faster, and is somewhat higher than for males. After divergence in 1962, a converging pattern between the sexes is shown. (The fact that life expectancy for males is decreasing in 2001 might be due to the use of a different data source for that year).

Figure 3.4: Crude Death and Birth Rates, Sri Lanka 1948-2003
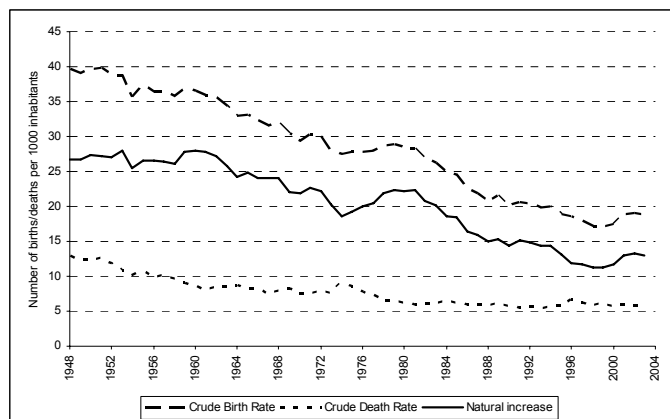
Figure 3.5: Life expectancy by sex, Sri Lanka 1948-2001
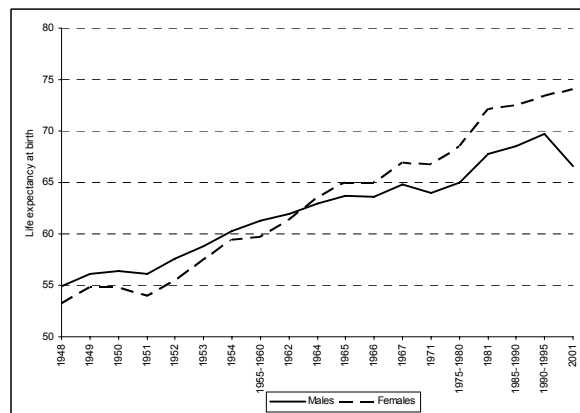
Source: Own calculations, based on United Nations: Demographic
Yearbook, 1997 Historical supplement

Source: Own calculations, based on United Nations: Demographic
Yearbook, 1997 Historical supplement

Next section shows that the improvement of overall life expectancy and the rapid increase in female life expectancy is partly contributed by the overall improvement of mortality in the ages under five years, but also within the reproductive ages, for which this research is particularly

interested, because it implies that some particular determinants of maternal health have changed, resulting in lower death rates.

3.2.1 Decomposition of average age at childbearing and average changes in crude death rates over time

In order to get a better understanding of the underlying mechanisms that explain changes in averages that contribute to the change in maternal mortality and health it is meaningful to have some insight in the underlying mechanisms of these changes. Therefore, attention is given to the relationship between the mean age at childbearing and age specific fertility rates. Then, crude death rates for females are decomposed by age and weighted by the population age structure[10].

It is important to have some insight in the contributions of direct and compositional effects on the changes of these demographic averages in order to something about the improvement of the situation. Especially because strong compositional effects, i.e. changing population structure, might hide the effect of the improvement or worsening of the indicator itself.

Although these insight do not directly deal with the situation of the displaced population in particular, it provides understanding of how population changes might have affected maternal health. These considerations have also to be taken into account when studying the situation of the population under study.

Decomposing age at childbearing

Besides the number of children per women (parity) and the interval between two succeeding births (spacing), maternal mortality and health are strongly related to the age at childbearing; having children too young or too old has implications for the health situation of the mother, because pregnancy and delivery at these extreme ages increase the risks of complication for the mother as well as the child.

Figure 3.6 shows that the mean age of childbearing is quite high in Sri Lanka. This can be due to the fact that the number of births per women is high, which increases the mean age at childbearing or simply to the fact that childbearing is postponed to later ages. For the reason that the TFR reached displacement level in 2001, this assumption is hard to defend for the last years, although it might be a reasonable for the period 1950-1880, where the TFR was higher. Unfortunately, it is not possible to distinguish mean age at childbirth by parity due to data restrictions. Average age at first birth would be a better indicator of the maternal health situation in the country.

Figure 3.6: Mean age at childbearing, Sri Lanka, 1952-1995   Figure 3.7: Age specific birth rates, Sri Lanka, 1955, 1963, 1984, and 1995
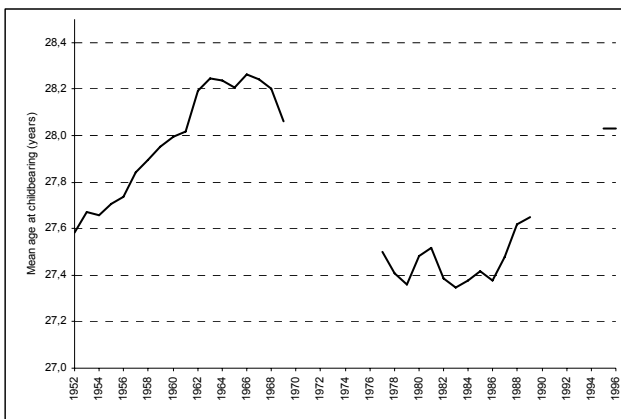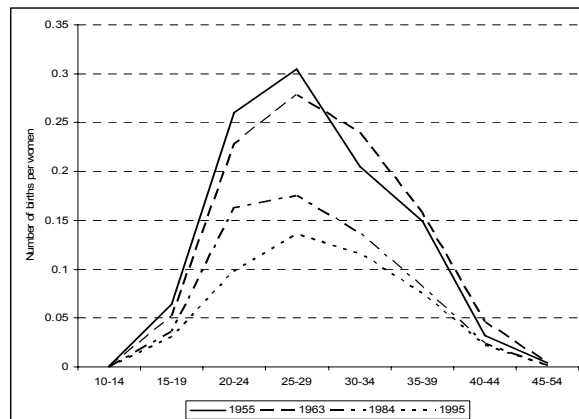
Source: Own calculations, based on United Nations: Demographic Yearbook, 1997 Historical supplement

Source: Own calculations, based on United Nations: Demographic Yearbook, 1997 Historical supplement

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[10] Appendix A covers the methodology of decomposition in general and the methods that are applied for the decompositions

For the decomposition the absolute number of births for each age group are weighted by the number of women within those age groups, thereby indicating that the decomposition is restricted to women within their reproductive age, for Sri Lanka women between the ages of 10 and 55 are selected to include very young and very old mothers.

Table 3.3 shows the results of the decomposition of the change in average age at child-bearing for Sri Lanka for 1955-1963, 1963-1984 and 1984-1995 resulted from the decomposition. These results reflect the changes that in age-specific birth rates that are shown in figure 3.7.

For the period 1955-1963, the mean age of childbearing was increasing by 26 days each year. This increase can be contributed to a slight increase of age specific births rates, and a very small ageing of the population. As said, figure 3.7 shows this graphically. The difference in mean age between 1955 and 1963 show that age specific birth rates are decreasing below age 30. After this age, fertility rates are increasing. These effect result in a very small decrease in TFR and together with a very small effect of an ageing population, the mean age at childbirth is increasing for this period.

Table 3.3: Average age at childbearing $\overline{a}_B(t)$: decomposition of the annual change over time for the periods 1955-1963, 1963 - 1984 and 1984 – 1995

	1955 - 1963	1963 - 1984	1984 - 1995
Mean age at childbearing (t)	27.670	28.247	27.376
Mean age at childbearing (t + 1)	28.247	27.376	28.030
Average change per year	0.072	-0.041	0.059
Direct effect	0.064	-0.032	0.059
Structural effect	0.009	-0.01	0
Both effects	0.072	-0.041	0.059

Source: Own calculations based on United Nations: Demographic Yearbook, 1997 Historical supplement

The decrease of the mean age of childbearing within the period 1963-1984 can be explained by a decrease in age specific birth rates, a shift to the left and a small change in the composition of the population, which became a little bit younger.

For the last period, 1984-1995, mean age is increasing due to a strong decrease in birth rates for women in their twenties as shown in figure 3.7. Consequently of this strong decrease, the TFR decreased is reduced by 50 percent, i.e. from 5.11 to 2.34 children per women in respectively 1955 and 1995. Clearly this contributes to an overall improvement in maternal health conditions.

For studying maternal health conditions, these results are important because they show that the number of births per women is reduced, as well the age at childbearing is shifted towards older ages. Young women who are more at risk have lower rates of childbearing, thereby reducing the risk of complications.

Decomposing crude death rates
Figure 3.8 shows the pattern of crude death rates (CDR) of males and females in Sri Lanka over time. For females the CDR decreased somewhat earlier and more rapid than for males. In the period 1980-1987 males show an increase in crude death rates.

Figure 3.8: Crude death rates by sex, Sri Lanka 1956 - 1995
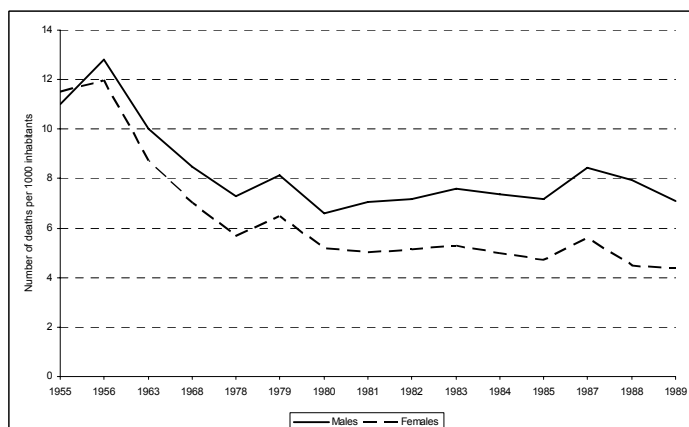
Source: Own calculations based on United Nations:
Demographic Yearbook, 1997 Historical supplement

As said, the crude death rate is an average of the age specific death rates d (a,t), and can therefore be decomposed in the force of mortality (µ), weighted by the total population or by the age specific population, starting with the equation of the former:

$$d^F(t) = \frac{D(t)}{N(t)} = \frac{\int_0^\infty \mu^F(a,t)N^F(a,t)da}{\int_0^\infty N^F(a,t)da} = \bar{\mu}^F(t),$$

After decomposing the female crude death rate by the total female population, the direct and compositional part of this decomposition do not sufficiently contribute to the explanation of how the change in survivorship is established, because age-specific information is not available in the results[11]. For this reason, the crude death rates are decomposed by time and age to get a better understanding of the change of this average.

Underlying figure 3.9 shows the improving force of mortality by age for females for four selected years within the period 1956-1995. The figure shows that the force of mortality (µ) is improving for all age groups over time, but the strength of improvement varies by age, being the largest within the youngest and reproductive ages.

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[11] The results for this decomposition can be found in Appendix A3

Figure 3.9: Force of mortality (log dx) for females, Sri Lanka 1956, 1968, 1978, 1988, and 1995
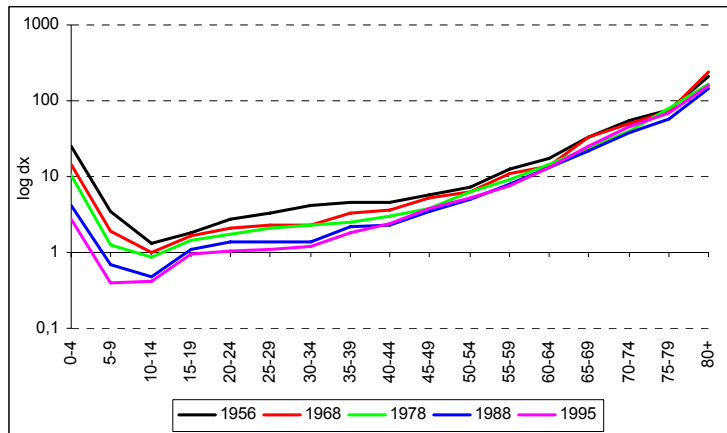
Source: Own calculations based on United Nations:
Demographic Yearbook, 1997 Historical supplement

To get more insight in the impact of the direct and the compositional contributions to the changes, age decomposition of the crude death rate is conducted according to the same procedure as before, by decomposing the two terms further by age (see appendix A4 for more details concerning the establishment of underlying equation):

$$\dot{\bar{\mu}} = [\dot{\bar{\mu}} + \bar{\mu} \cap r]_0^{x1} + [\dot{\bar{\mu}} + \bar{\mu} \cap r]_{x1}^{x2} + ... + [\dot{\bar{\mu}} + \bar{\mu} \cap r]_{xn}^{\omega}$$

This decomposition allows for estimating the contribution of each age group to the total change over time of the crude death rate, together with the estimation in each group of the direct (level 1) and structural (level 2) effects. As said, the direct effects represent the changes in the indicator itself, here the worsening or improvement of mortality. Structural effects are caused by changes in the population structure, e.g. it might seem that mortality is worsening because the crude death rate is increasing. This can be a misleading interpretation because the increase can be explained by a growing population in the older age groups, which have a mortality rates.

The results of this age decomposition for all age groups can be found in Appendix A4 and A5, which shows that most improvement in survival is contributed to the youngest age groups and that for the last period this contribution by young ages is much less than for the previous periods. For these younger age groups the contributions of direct changes always offset structural changes for all periods. This is due to the fact that infants and young children benefit most from the improving health situation, because they are the most vulnerable group in the population. Therefore, this group shows great improvement in mortality itself, while structural changes are lacking, referring to decreasing fertility. When less children die at very young ages, they will not be replaced, implicating that reproduction declines, as the TFR does. Thus, for these age groups compositional changes are an outcome of the direct change in mortality, as shown in the figures.

It is also known that the Sri Lankan population has been growing fast, and ageing rapidly (see figures A2 in Appendix A). This structural contributions to the total change are clearly visible in the figures. For all period structural changes contribute most to old ages, representing population ageing.

Because this research is interested in maternal health, figures 3.10 shows the age decomposition of annual change over time in crude death rates for females in their reproductive ages (15–49 years) for the above mentioned periods. Improvement in mortality for women in their reproductive years exists in all the four periods, although this improvement is sometimes offset by the structural changes that contribute to the explanation.

Figure 3.10: Age decomposition of annual change over time in crude death rates for females aged 15 and 49 in Sri Lanka for the periods 1956-1968, 1968-1978, 1978-1988 and 1988-1995
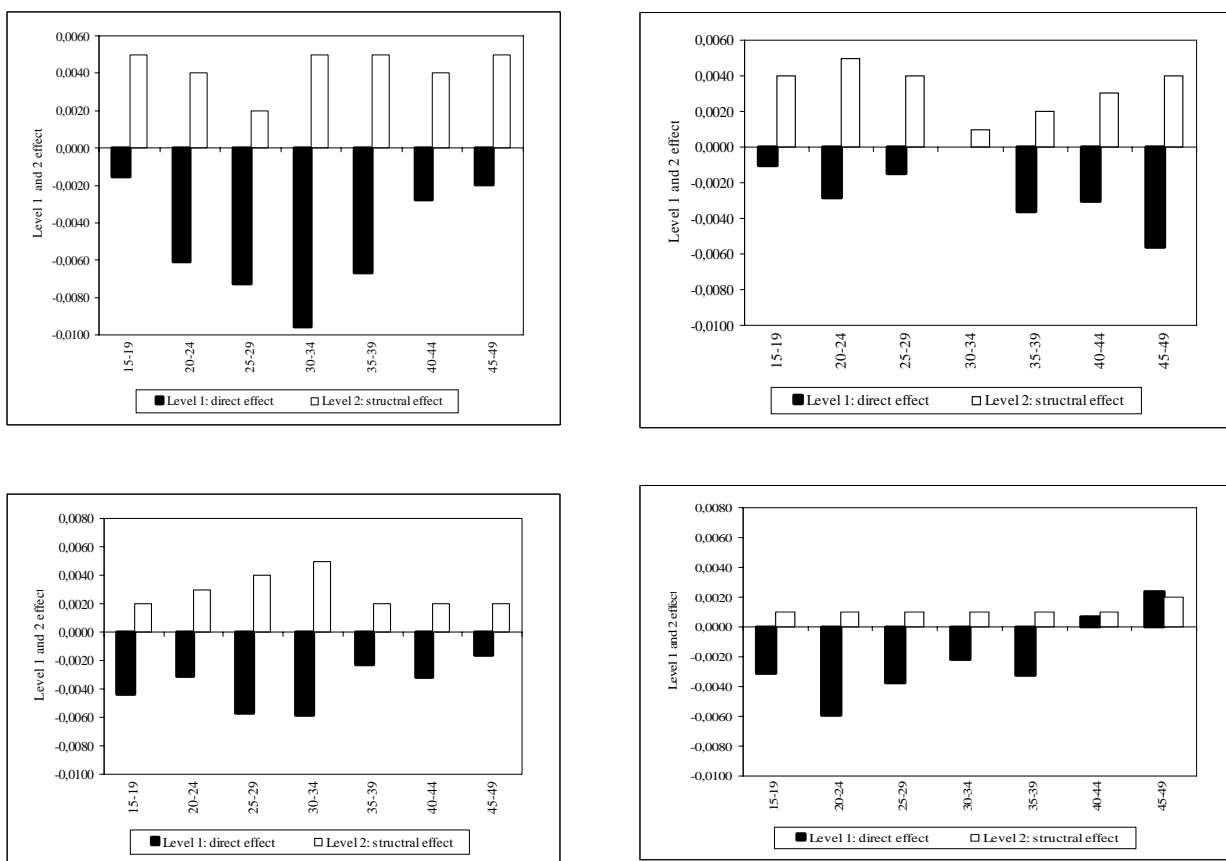
Source: Own calculations based on United Nations: Demographic Yearbook, 1997 Historical supplement

For the period 1956-1988 is it clear that for females direct effects, level 1, contribute to the improvement in survival. Striking are the direct contributions in the middle age groups. Structural changes, level 2, in the youngest and oldest age groups offset the direct improvement of mortality. In the period 1968-1978 these structural effects offset the direct changes for more age groups, in addition to lower direct effects. Here, improvement in mortality is present in the three oldest age groups. In the third period it are the younger age groups again that benefit more from the improvement in mortality, but they also show a structural change. In the last period structural changes have less effect on the total change, as the direct change do. This last figure shows that the youngest age groups benefit from improvement in mortality, while for the older women the situation is worsening.

It can be concluded that if looking at the improvement of the mortality situation of Sri Lankan females over time, maternal health improved due the fact that mortality rates decreased directly in the reproductive ages, i.e. improvement in mortality in these reproductive age groups contributed to the reduction in crude death rates for females. Besides these direct effects, structural changes do not reveal these direct changes and even offset the impact of the direct change in some cases.

Of course, this improvement in mortality is not the same for the whole population within the country. Next chapter focuses on the maternal health situation of populations living in conflict affected areas, together with the utilisation of services under study. But first a short historical overview of the conflict and its consequent displacement is given in succeeding section.

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3.3 Conflict and displacement in Sri Lanka; implications on reproductive health
Forced migration, or displacement, in Sri Lanka is the result of three causes; developmental projects, i.e. dams, airports, roads, luxury housing and conservation areas force people to move, then natural disasters, i.e. earthquakes, volcano outbreaks and tsunamis, and conflict that forces people to move to safer areas. The latter causes the highest number of displaced persons in the country, and will be toughed upon more deeply in this section.

3.3.1 Historical overview of the Sri Lankan conflict
As mentioned in the introduction, since four decades the type of conflict is changing worldwide. When up to the Cold War conflict was mainly common on a large political scale aiming to control territories, nowadays aim to politically control populations are more prevalent. Dealing with decolonization and state formation lead to for example identity struggles, ethnic division, problems of state formation and competition of economic assets. In this, mass exclusion is often a strategic goal, which has led to an increasing number of forced migrants (Castles, 2003; Esscher, 2004).

The implications of these global transformations partly explain the causes of the conflict in Sri Lanka. Most displacement took place since the start of the conflict between the LTTE and the Sri Lankan government in 1983, but the roots of the conflict lie before that.
Colonialism introduced beliefs about racial superiority and identity which resulted in two opposed nationalisms (Sinhala and Tamil), which laid the foundation for the present ethnic conflict between these two groups (Norwegian Refugee Council, 2005).
After independence of England in 1948 (England occupied the country since 1830), the Tamil community and its politicians faced constant marginalization. In 1956 a coalition of Sinhala dominated parties were elected, making Sinhala the official language. This government implemented policies that limited Tamil to access university education and government jobs (Skinner, 2005). Then, large scale political violence appeared for the first time in 1971. In the following years, the continuation of marginalization and social tension frustrated young Tamil youth, and the first armed groups by Tamil youth were established in 1972 resulting from this situation. The Tamil United Liberation Front was created in May 1976 and advocated a separate Tamil State in Sri Lanka. In the same period, the Liberation Tigers of Tamil Eelam (LTTE) was created. The LTTE also aimed to create a separate homeland for the Tamils known as the Tamil Eelam in the Northern and Eastern provinces of Sri Lanka. Riots across the whole country and organized violence against Tamils in the South emerged. In 1983, the LTTE began their armed fight with a mine attack on government forces. Since then the LTTE control most of the northern and eastern areas of the island, but have also conducted operations throughout the country (Norwegian Refugee Council, 2005).

In the years after 1983, the conflict between the Tamil groups and the government escalated into a civil war. In 1987 Indian Peace Keeping Forces (IPKF) were sent to Sri Lanka to enforce a peace settlement, but the LTTE attacked the Indian troops in the north, while in the southern state of India a revolt took place against the government, because of the presence of the Indians in Sri Lanka, instead of peacekeeping their own problems. In 1990 the IPKF left the northern region, after which the LTTE continued their, more intensive, war against the government (HPRA, 2006). In this period, the so called Eelam War II, around 80 percent of the population in the north-east became displaced. Due to organized ethnic cleansing of non-Tamils by the LTTE, all Muslims were expelled from this region by October 1990 (Skinner, 2005). Fighting and mass displacement continued until late 1999.

In February 2002 a ceasefire was agreed upon by signing a memorandum of understanding between the Sri Lankan government and the LTTE. Until the end of 2005 this ceasefire remained, except for some violations that caused displacement. An example of these continued violations are the split of the LTTE with its Eastern component in 2004, resulting in the Karuna fraction that represents the eastern areas of the LTTE. The LTTE accused the government for supporting this fraction and this lead to increasing tensions and fights between the two fractions and the government.
In the beginning of 2006, the situation intensified and escalated after the presidential elections in November 2005. Before these elections, Mahina Rajapakse's party who strongly represents the Sinhalese national parties, gained power. Reacting on this the LLTE restricted Tamils in their areas of influence to vote, which resulted in the loss of the moderate Ranil

Wickramasinghe, and allowed the Tamil Tigers to avoid engagement in the peace talks in which they believed to have gained little until so far (IDMC, 2006).

Above political tensions, violence and conflict, together with the Tsunami have lead to (long term) displacement of many Sri Lankans, as to be described in next section.

3.3.2 Conflict induced displacement in Sri Lanka
The violence during the 1980s and 1990s resulted in widespread displacement within the country itself, but also from the island to India and elsewhere. An estimated 800,000 people have been forced to move once or more during this two decades lasting conflict; in the Northern and Eastern provinces 80 percent of the population has faced displacement at least once in his or her live (Skinner, 2005).

As mentioned before, the main cause of displacement is the war between the Sri Lankan Government and the LTTE, to which forced recruitment by the LTTE, inter-communal violence in Eastern regions, and the abuse of human rights by ethnic cleansing, contribute to the displacement of people to safer areas. The establishment of army camps in or close to populated areas and the occupation of land and houses by armed forces for military camps motivate people to flee avoiding living in crossfire (Norwegian Refugee Council, 2005). Then, the establishment of High Security Zones, together with the shifting boundaries between the governmental and the LTTE controlled areas, forced people to leave their place of residence (HPRA, 2006). Finally, shortage of food and other essential resources in the conflict zone, succeeding from the economic blockade imposed on the north-east by the Sri Lankan government, are followed by displacement (Norwegian Refugee Council, 2005).

Although 358,759 people have returned home since the ceasefire in 2002 (Skinner, 2005), still 325,000 people (February 2005) remain displaced, some of them living in welfare camps, but most of them staining elsewhere, which can be at relatives or friends, or autonomously, shown in underlying figure 3.11 (UNHCR, 2005)[12]. Most affected ethnic communities are Muslim and Tamil populations. Out of the total number of IDPs 79 percent are Tamil, 13 percent Muslim and 8 percent Sinhalese (HPRA, 2006).
As said, more than half of the IDPs returned to their former place of residence in the period after the ceasefire and the end of 2005. Unfortunately, the ceasefire did not hold, and due to increased tensions and violence between the government and the LTTE in the north and east, new displacement evolved at the end of 2005 and the beginning of 2006. An estimated 200,000 additional persons are displaced in especially in Batticaloa, Killinochchi, Jaffna, Mallaitivu, and Vavuniya (IDMC, 2006).

Besides above described conflict induced displacement another 550,000 (February 2005) individuals are displaced as consequence of the Tsunami on 26th of December 2004 (UNHCR, 2005). Part of this population was already displaced due to conflict (mainly in the Eastern areas, see again figure 3.11), which means that a considerable proportion of the displaced persons are displaced multiple times (Norwegian Refugee Council, 2005).
Due to the fact that the heart of the conflict lies in Northern and Eastern provinces, the number of internally displaced persons are clustered in particular districts within conflict areas or along the borderlines of them.
This widespread and long lasting displacement lead to a set of problems concerning the provision and accessibility of health services, loss of income and social networks, consequently problems regarding reproductive health. The impact of conflict and displacement on these factors, consequently affecting maternal mortality and morbidity is therefore described in following section. Followed by an overview of the utilisation of maternal health services and family planning methods of the population under study, thereby answering the first research question.

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[12] UN figures are based on government statistics and only take into account those internally displaced persons that have been registered (Skinner, 2005).

Figure 3.11: Population displaced by ethnic conflict and Tsunami, Sri Lanka by district, 2005
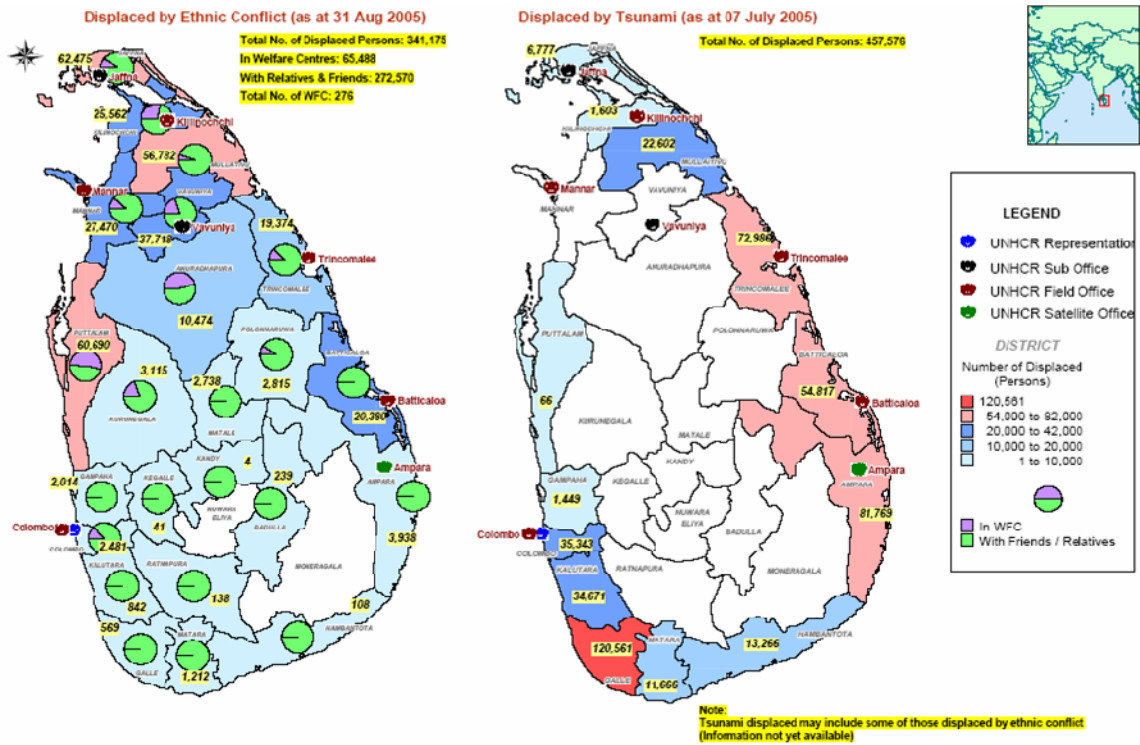
Source: Department of Census and Statistics, 2005

4. Impact of conflict and displacement on maternal mortality and health

Despite the success of described policy implementations that substantially improved the overall health and maternal health situation within Sri Lanka, access to services and health conditions are not always evenly distributed. Due to conflict and displacement health systems and living situations are disrupted, and especially those who are difficult to reach in Northern and Eastern provinces face a lot of problems.

This chapter describes the consequences of conflict and displacement on maternal mortality and health in Sri Lanka, and gives an overview of maternal mortality patterns in conflicted affected areas together with an overview of the impact of conflict on the (maternal) health care system.

First maternal mortality rates on province and district level are discussed, followed by some information about the disruption of the health care system, and its consequences. The fourth section focuses on the utilisation of maternal health services, as use of modern family planning methods as obtained from the surveyed population. This means that the first research question, i.e. *"How often do displaced and non displaced women living in conflict affected areas make use of reproductive health facilities in order to attain a healthy reproductive status?"* is covered in this section, thereby giving an explorative overview of the situation of the defined indicators which will serve as a basis for further analyses.
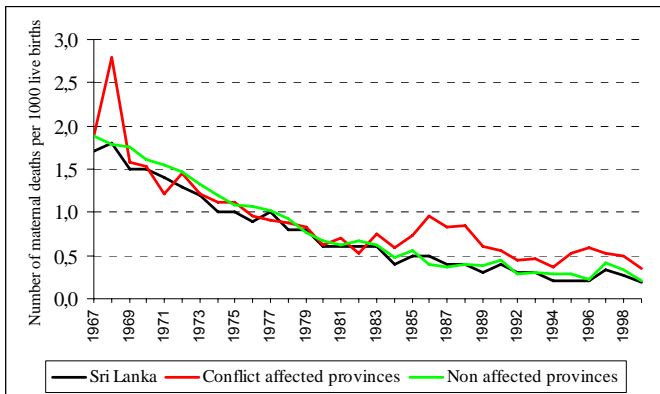
4.1 Maternal mortality in conflict affected areas

Regarding maternal health, available regional data show in figure 4.1 that maternal mortality rates within the more by conflict affected provinces are higher compared to the less affected provinces. In several years and in particular regions (especially the Northern Province) maternal mortality was even more than four times as high as the average of the country, as presented in figure 4.2 (Department of Census and Statistics Sri Lanka, 2005).

Reliability of this data can be questioned, because maternal deaths are difficult to measure due to underreporting, misclassification, and complex and costly methods to calculate maternal death rates (Safemotherhood.org, 2002). In addition, the registration system is in these areas is disrupted, which makes it more difficult to monitor the situation. Although this research does not have maternal mortality rates of the surveyed population for the reason that the sample is too small and the content of the questionnaire does not allow for this, it does provide information on the utilisation of the most important services contributing to an improvement of maternal mortality.

Nevertheless, available rates give at least some indication in the variability of maternal mortality rates within the country. The figures clearly show that since the onset of the conflict in 1983, maternal mortality rates increased for the provinces that are affected, and especially the Northern Province shows high maternal mortality rates.

Figure 4.1: Average maternal mortality rates by provinces most affected and those less affected by conflict, 1967-1999

Figure 4.2: Maternal mortality rates by most conflict affected provinces, 1967-1999
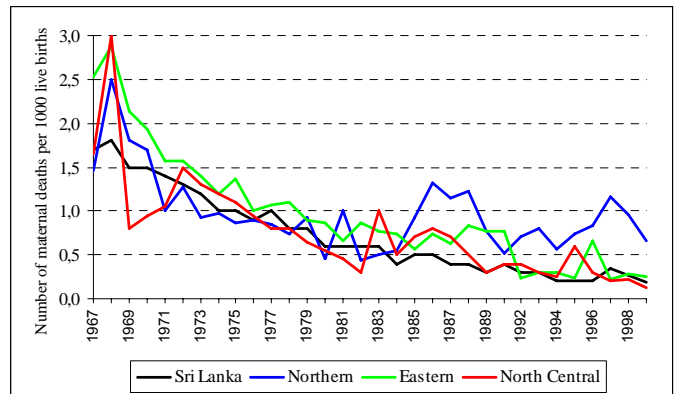
Source: Own calculations based on Department of Census and Statistics, 2005

Source: Own calculations based on Department of Census and Statistics, 2005

As maternal mortality rates vary within the country by province, this indicator also varies by district within each province. It is important to have some insight in this, because the scope of displacement and (re)settlement differs by district. Besides the mentioned fact that demographic data of these regions are of low quality, it is worthwhile to get some insight in the contributions to maternal mortality change of districts to provinces as a whole.

Underlying figures 4.3, 4.4 and 4.5 show maternal mortality rates by district for the three provinces where conflict and displacement are most prominent; for th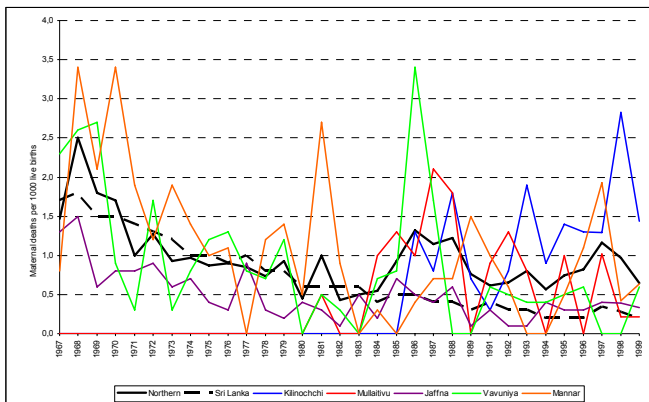e Northern Province high maternal mortality rates are found in Mannar and Vavuniya in the 1980s, while in the 1990s mortality rates where high in Killnochchi. The small population, together with a small number of maternal deaths and poor registration, can cause the irregularities shown in the figures. Within the other two provinces maternal mortality rates are at lower level, differences are smaller en less irregularities are shown.

Because displacement indicates the movement of people, districts are faced by an in- or outflow of persons over time. The selective effect of migration might have an influence on overall health status of the province, which can be partly be reflected in maternal mortality rates. Difficulties to get insight in this, due to lack of regional migration data.

Figure 4.3: Maternal mortality rates by district for the Northern province, 1967-1999

Source: Department of Census and Statistics, 2005

Figure 4.4: Maternal mortality rates by district for the Eastern Province, 1967-1999
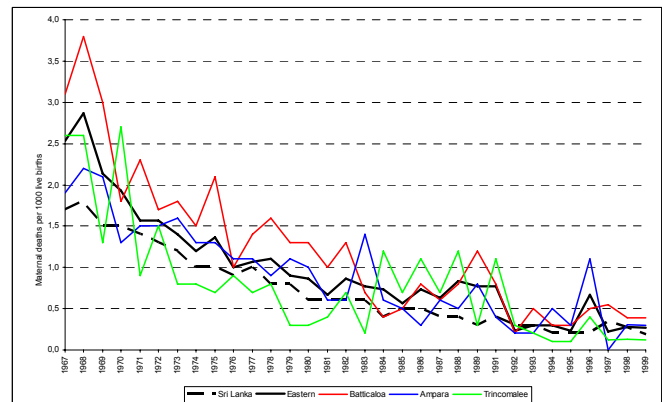
Source: Department of Census and Statistics, 2005

Figure 4.5: Maternal mortality rates by district for the North Central Province, 1967-1999
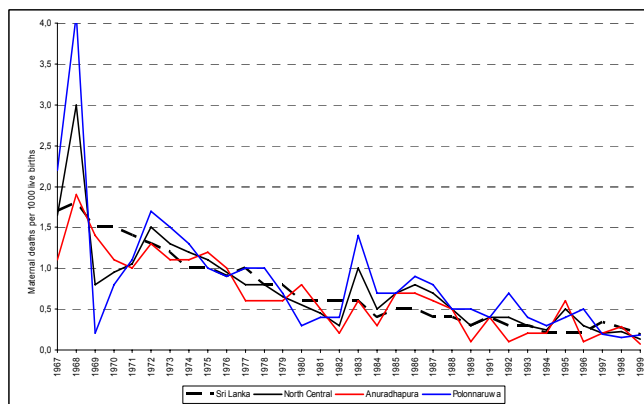
Source: Department of Census and Statistics, 2005

As above indicates, maternal mortality rates vary within and between provinces. The impact of conflict and displacement might be an explanation for this, but this does not certainly have to be the case, because especially for these regions reliable data do not exist. Next section goes into more detail on the disruption of and pressure on the health care system in conflict affected areas in order to see whether this could have impacted maternal mortality.

4.2 Disruption of, and pressure on the health care system
Higher (maternal) mortality among displaced populations can partly be explained by the fact that on the one hand, due to conflict, infrastructure and the provision of health services has been disrupted, which has implications for the access to health services of the population living in conflict areas (Krause et.al., 2000; McGinn, 2000; McGinn et.al., 2004), while on the other hand, high immigration of persons fleeing from conflict areas into safer areas put more pressure on existing health services. These migration flows, which might be selective, have consequences for the health situation of the population that has to make use of these services (Norman et al., 2005).

According to the Norwegian Refugee Council, the long lasting conflict has a destructive effect on the number of (accessible) health centres. In 2002, 55 out of 400 health institutions in the North East were completely destroyed and 49 were not functioning. Many others were in bad condition due to absence of maintenance. Then, 41 percent of the 11,132 posts in health care were vacant, mainly for skilled and professional positions (Norwegian Refugee Council, 2005), which indicates a significant lack of medical professionals available for the increasing vulnerable population with growing and changing health needs and risks.

Resulting from this disruption, the referral system has broken down, the disease surveillance system that existed before the conflict, collapsed, and the availability of basic health information that is needed to monitor health trends and promote appropriate healthy living and behaviour patterns is very poor, indication that few information is available about the (changing) needs and circumstances these people live in.
Although the government provided some basic services to the areas affected by the conflict (including the LTTE controlled areas), the health system suffered because of several restrictions that lead to a lack of medical supplies, medicines, equipment, human resources, and other necessities (Norwegian Refugee Council, 2005).

Then, the presence of high numbers of displaced persons and military personnel in conflict areas affect the already over-stretched and under-resourced health system, for the reason that these services have to cope with an additional demand for care. The workload of the health personnel has increased and the supply of equipment and management of logistics became more difficult (Norwegian Refugee Council, 2005).

Above disruption of, and pressure on the health care system has several implications for the health and living conditions of the affected populations, i.e. as the surveyed population. Later their utilisation of maternal health services and family planning methods is described and analysed. Next paragraph goes into more detail of above consequences on maternal health and other conditions in conflict affected areas in Sri Lanka.

4.3 Consequences of conflict and displacement on (maternal) health and living conditions in conflict affected areas in Sri Lanka
A review of the Norwegian Refugee Council mentions that the long lasting conflict in Sri Lanka has almost collapsed the whole health sector in Northern and Eastern provinces of the country. The achievements of good health care that were made before the early 1980s are completely reversed. According to this review, availability, accessibility, and quality of health care have all been severely affected leading to increased mortality and morbidity and rising infant and maternal mortality. Communicable and infectious diseases exist on higher level than the average. The incidence of vaccine preventable and communicable diseases (i.e. measles, TB, respiratory tract infections, diarrhoeal diseases, vector borne diseases, and infectious hepatitis) became prevalent again. The lack of family planning has led to an increase in fertility of very poor households (Norwegian Refugee Council, 2005). All these factors put maternal health at risk and contribute to the increase in maternal morbidity and mortality, as well as infant mortality.

Many displaced persons have been displaced several times, and are affected by various problems such as disability, loss of income and consumption (HPRA, 2006). Social status is worsened due to loss of productive assets, land, social capital and family and friends. According to the council and other sources, war-affected areas in the Northern and Eastern provinces are the most disadvantaged. Infrastructure, irrigation systems, and roads are destroyed, which make it difficult to obtain a secure livelihood and access to services. Sudden separation from traditional neighbourhoods, together with a new way of living can have a

traumatic effect on displaced persons, because normal daily routine of life and economic activities are disrupted, poor rural youth are faced with fewer opportunities, and ethnic minorities might face (real and perceived) discrimination (Norwegian Refugee Council, 2005). All this might affect decision making processes of individuals.

According to the report of the Norwegian Refugee Council, the main problems faced by displaced people are the inability to satisfy basic needs (i.e. food, water, shelter, sanitation, privacy, family life and medical treatment), the lack of educational facilities for children, and the burden placed on the existing schools in areas where welfare centres are established. Harassment and intimidation by the security forces and moral and cultural problems created in welfare centre areas is another problem. Also tensions between welfare centre dwellers and local inhabitants, psychological and psychiatric problems resulting from displacement have traumatic effects. Lack of communication (facilities) might cause a lack of information on events and the situation in home areas. Then, displaced persons are unable to obtain gainful employment competing with local residents. Finally, forced child labour and abuse of women and children put lives at risk (Norwegian Refugee Council, 2005).
Ferren (1999) refers to literature that mention that traumatized persons often isolate themselves, feel weak, passive, and have difficulties with concentration, which together with anxiety affect the processing of information. They also engage more often in self-destructive behaviours as a distraction from the anxiety of traumatic memories (Ferren, 1999).

It is clear that the long lasting conflict situation does not contribute to an overall improvement of the health situation of the country. Sri Lanka seems to develop in a positive way in many aspects, but consequently of conflict the situation of Northern and Eastern regions are often not encountered in census and surveys, and therefore excluded from the literature and rapports. This gives misleading information on the status of development of the country. Although the country seems to be doing well, many problems are neglected. Although a ceasefire stabilized the situation, many households are still living in poor conditions without concrete future improvement or return plans. The situation has consequences for the affected areas, but also for the country in general.

From previous given information, it became clear that maternal health services play an important role in preventing maternal morbidity and mortality, as to a lower infant mortality. Due to poor living conditions and limited provision and access to these services, maternal and infant mortality rates are high in areas where displacement occurs. These maternal deaths can be explained by lack of services, but also the non use of existing services due to several causes need to be understood. Being confronted with displacement demands a higher need for health care services. Lack of hygiene and sanitation, poor nutrition, the higher risk at infectious and communicable diseases put maternal health at higher risk. Gender and sexual based violence, like abuse, rape and discrimination of women increase the risk of unwanted pregnancies, often followed by an unsafe abortion. Therefore, the provision and use of adequate health care is of high importance to prevent and treat problems these women face.

To get a better understanding of the current situation of people living in conflict affected areas, next paragraph gives a descriptive overview of the utilisation of maternal health services, as of modern family planning methods, thereby answering the first research question *"how often do displaced and non displaced women living in conflict affected areas make use of reproductive health facilities in order to attain a healthy reproductive status?"*

4.4 Utilisation of maternal health services and family planning methods of the surveyed population
In this section, descriptive results from the survey held among displaced and non displaced households in five selected conflict affected provinces[13] are presented relating to the first research question. As said, the survey gives additional insight in the living conditions of populations of which few is known due to difficulties in implementing censuses and surveys in these areas. All shown frequencies are extracted or calculated from the resulting database by the author. The focus is laid upon the differences between displaced and non displaced women in utilisation of maternal health services and modern family planning methods in order to answer the first (explorative) research question aims at getting insight in utilisation of maternal health services, i.e. the number of antenatal checks, the type of assistance during

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[13] Chapter 6 provides more detailed information about this dataset

delivery, and the number of visits from a public midwife at home (assuming to cover postnatal care). This paragraph tries to answer this question by giving a descriptive frequency overview for these factors by displacement status, age, and need., where need is defined by maternal risk factors in three categories; firstly, need can be assessed by the age of the mother. According to the WHO a women has an increased risk of complications when she is younger than 18, or older than 35 years (WHO, 2006).

Second, need can be determined by the number of previous pregnancies a woman had, so called parity. Women with first, or sixth or higher order pregnancies are at higher risk according to the definition of the WHO (WHO, 2006).

Then, the WHO defines births that have a birth interval smaller than 24 months as high risk pregnancies (WHO, 2005). Thus, women who are in need should receive additional care services in the form of higher quality and frequency of ante- and postnatal care, as skilled attendance during delivery.

The first three subsections describe the utilisation of three selected health services of women who are currently living in conflict affected areas, giving birth to a child after 2000. It implicates that only information of the last born in this period is available, which means that the results are restricted somehow to somewhat younger women and circumstances that are more recent.

In addition, the last subsection describes the utilisation of modern family planning methods of surveyed women in the past 12 months, including the utilisation of their current and present partners, to get insight in the similarities or differences between displaced and non displaced persons. Eventually, these results serve as a basis for further analyses.

4.4.1 Number of antenatal care checks

This section gives an overview of the number of antenatal care checks received for the last pregnancy since 2000. Underlying table 4.1 shows whether women, being displaced or not, received a particular number of antenatal care checks or visits. The proportion of displaced women who did not have any antenatal check is more than twice as high as for non displaced women Then, the figures show that in general non displaced women have received more checks.

Table 4.1: % distribution of number of antenatal checks for the last pregnancy since 2000, by displacement status

	Displacement status at delivery			
	IDP	Non IDP	Total	N
Never	12.73	5.75	11.27	47
1-3 checks	26.97	18.39	25.18	105
4-5 checks	12.42	14.94	12.95	54
6-7 checks	34.85	41.38	36.21	151
8-9 checks	12.73	14.94	13.19	55
10 or more checks	0.30	4.60	1.20	5
N	330	87		417

Source: Own calculations based on data UNHCR MDG project, 2006.

If decomposing these results by age, table 4.2 shows that for both groups the age category 25-29 years received most often not any check, as for displaced women this is more than double the proportion of non displaced women. Concerning the oldest age group, displaced women received fewer check ups than non displaced women did. Further analyses have to find out whether it is displacement status or age that are the most probable explanations, or that other factors cause these found differences.

Table 4.2: % distribution of number of antenatal checks for the last pregnancy since 2000, by displacement status and age

	Displacement status and age at delivery							
	IDP				Non IDP			
Age (years)	14-24	25-29	30-34	35-54	14-24	25-29	30-34	35-54
Never	6.60	17.98	12.82	21.05	3.03	8.70	0.00	14.29
1-3 checks	28.30	16.85	34.62	28.95	24.24	13.04	28.57	7.14
4-5 checks	16.04	10.11	14.10	10.53	18.18	21.74	7.14	7.14
6-7 checks	36.79	47.19	26.92	26.32	36.36	39.13	35.71	71.43
8-9 checks	11.32	7.87	11.54	13.16	12.12	13.04	21.43	0.00
10 or more checks	0.94	0.00	0.00	0.00	6.06	4.35	7.14	0.00
N	106	89	78	38	33	23	14	14

Source: Own calculations based on data UNHCR MDG project, 2006.

If grouping above number of antenatal checks in binary categories of less than four, and four or more visits, an indicator is constructed that represents the minimum number of four antenatal checks being appropriate as defined by the WHO (UNFPA, 2006). The results in table 4.3 show that the proportion of displaced women who received less than the four required antenatal checks is higher compared to non-displaced women.

Table 4.3: % distribution of number of antenatal care checks for the last birth since 2000, by displacement status

| | Displacement status at delivery | | | |
	IDP	Non IDP	Total	N
Less than four checks	39.7	24.14	36.45	152
Four and more checks	60.3	75.86	63.55	265
N	330	87		417

Source: Own calculations based on data UNHCR MDG project, 2006.

Looking into more detail to the need of receiving additional attention during pregnancy resulting in an appropriate number of antenatal checks (table 4.4), displaced women received twice less often the appropriate number of checks when they are in need, than non displaced women did (respectively 40 and 21 percent). The smaller number of cases of non displaced women might disturb these results in some sense, but it remains clear that non displaced women seem to receive more appropriate care according to their needs. But again, further analyses has to confirm whether this finding is still obtained when controlling for other factors.

Table 4.4: % distribution of number of antenatal checks for the last birth since 2000, by displacement status and need

| | Displacement status and need at delivery | | | |
| | IDP | | Non IDP | |
Need (age, parity, spacing)	No need	Need	No need	Need
Less than four checks	40.00	40.16	32.14	21.43
Four and more checks	60.00	59.84	67.86	78.57
N	195	122	28	56

Source: Own calculations based on data UNHCR MDG project, 2006.

Besides having insight in the frequencies of antenatal checks, the quality of these checks is of importance. Due the fact that skilled providers have better knowledge and can anticipate more adequate on high risk pregnancies and complications, together with to the fact that they are linked to the health care system, the quality of received antenatal care can be evaluated by whom the service is provided, i.e. skilled or traditional.

For constructing this variable, the higher order assistant is selected in cases where multiple answers were given. Table 4.5 shows that the majority of antenatal care checks were provided by a skilled assistant (doctor, nurse, or midwife). For only two cases a traditional birth assistant (TBA) provided antenatal care. For 98 percent of the non displaced women antenatal care is provided by a doctor, for displaced women this is some 12 percent less, but skilled care is mostly received in the form of a nurse or midwife.

Table 4.5: % distribution of provider of antenatal checks for the last birth since 2000, by displacement status

| | Displacement status at delivery | | | |
	IDP	Non IDP	Total	N
Doctor	85.89	97.59	91.74	355
Nurse	9.72	2.41	6.07	33
Midwife	3.45	n.a	3.45	11
TBA	0.63	n.a	0.63	2
No one	0.31	n.a	0.31	1
N	319	83		402

Source: Own calculations based on data UNHCR MDG project, 2006.

When decomposing above values again by age as shown in table 4.6, it becomes clear that of the older age groups, fewer women received their antenatal checks by a doctor than non displaced women of the same age category did. The table also shows that antenatal checks received by a midwife increases by age for those being displaced. Thus, where it can be expected that older women make more use of the traditional assistance, this is not confirmed for non displaced women, while it is for older women being displaced, possible referring problems in accessing this maternal health care service, or their visibility within the health care network.

Table 4.6: % distribution of provider of antenatal checks, last birth since 2000, by displacement status and age

	Displacement status and age at delivery							
	IDP				Non IDP			
Age (years)	14-24	25-29	30-34	35-54	14-24	25-29	30-34	35-54
Doctor	87.74	88.64	86.84	75.68	100.00	95.65	93.33	100.00
Nurse	9.43	7.95	7.89	16.22	0.00	4.35	6.67	0.00
Midwife	2.83	3.41	3.95	5.41	n.a.	n.a.	n.a.	n.a.
TBA	0.00	0.00	1.32	2.70	n.a.	n.a.	n.a.	n.a.
No one	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
N	106	88	76	37	31	23	15	14

Source: Own calculations based on data UNHCR MDG project, 2006.

4.4.2 Skilled attendance during delivery

A second factor that determines maternal health is the type of attendance during a delivery. Due the fact that the proportion of deliveries attended by skilled assistant is high in Sri Lanka (97 percent in 2001), as well for the surveyed population (respectively 96 and 100 percent for displaced and non displaced women) (HPRA, 2006), disparities among the surveyed people exist in the type of skilled assistance attended, i.e. a doctor, nurse or midwife (see table 4.7) Because a lack of doctor might reflect a disrupted health system, it is of importance to know who are differently served in this aspect of maternal health. As the table makes clear, non displaced are more assisted by a doctor than displaced women are, who are more assisted by a nurse, although the differences are very small.

Table 4.7: % distribution of type of assistance during delivery of the last birth since 2000, by displacement status

	Displacement status at delivery			
	IDP	Non-IDP	Total	N
Doctor	74.61	78.31	76.46	303
Nurse	17.24	13.25	15.25	66
Midwife	5.64	8.43	7.04	25
TBA	2.51	0.00	2.51	8
N	319	83		402

Source: Own calculations based on data UNHCR MDG project, 2006.

Table 4.8 shows the same frequencies, but then decomposed again by age. Concerning displaced women, assistance by a doctor or nurse during delivery decreases by age. Assistance by a doctor for displaced women is lower than those non displaced, except for the youngest age group. Then, the table shows that the assistance by a traditional birth attendant is increasing by age, and does not occur among the non-displaced population.

Table 4.8: % distribution of type of assistance during delivery of the last birth since 2000, by displacement status and age

	Displacement status and age at delivery							
	IDP				Non IDP			
Age (years)	14-24	25-29	30-34	35-54	14-24	25-29	30-34	35-54
Doctor	80.00	72.73	75.00	68.42	71.88	86.96	80.00	76.92
Nurse	16.19	15.91	18.42	21.05	15.63	8.70	13.33	15.38
Midwife	2.86	7.95	2.63	7.89	12.50	4.35	6.67	7.69
TBA	0.95	3.41	3.95	2.63	n.a	n.a	n.a	n.a
N	105	88	76	38	32	23	15	13

Source: Own calculations based on data UNHCR MDG project, 2006

Because skilled attendance is high among both groups, it is of interest to determine who is assisted by a doctor, and who are not to get some insight in the quality of the health care system. Table 4.9 summarizes the same distributions as table 4.7, presenting that in total three quarters of the deliveries is attended by a doctor. By distinguishing for displacement status, a somewhat higher proportion of non displaced women were assisted by a doctor during the delivery compared to non displaced.

Table 4.9: % distribution of assistance by a doctor during delivery of the last birth since 2000, by displacement status

	Displacement status at delivery			
	IDP	Non IDP	Total	N
No doctor	25.39	21.69	24.63	99
Doctor	74.61	78.31	75.37	303
N	319	83		402

Source: Own calculations based on data UNHCR MDG project, 2006.

Table 4.10 shows some more detailed information concerning the need for skilled attendance because of the higher risk of facing complications when a woman is in need according to the definitions of the WHO. Here the difference between displaced and non-displaced women is less evident, some 4 percent of the displaced women in need were less assisted by a doctor than non displaced women in need were.

Table 4.10: % distribution of assistance by a doctor during delivery of the last birth since 2000, by displacement status and need

| | Displacement status and need at delivery | | | |
| | IDP | | Non IDP | |
Need (age, parity, spacing)	No need	Need	No need	Need
No doctor	23.28	26.45	21.43	22.22
Doctor	76.72	73.55	78.57	77.78
N	189	121	28	54

Source: Own calculations based on data UNHCR MDG project, 2006.

4.5.3 Number of visits of public midwife at home

The reason for investigating the number of visits of a midwife at home refers to the analysis of its effectiveness of the Sri Lankan health system (chapter 3) on studied populations.

In Sri Lanka, the Public Health Midwife is responsible for antenatal, natal, and postnatal services; care to pregnant women is partly provided through home visits. In addition, the Public Health Midwife is responsible for providing other services to women in their reproductive ages, i.e. information about, and provision of family planning methods (Fernando, 2005). This implicates that visits of a midwife at home refer to ante- as postnatal care. Due the fact that these visits are customary in Sri Lankan society, it is of interest to get insight in the situation of conflict affected persons. In what way are they served according to Sri Lankan policy, and does this differ by age, need or displacement status.

Table 4.11 shows the number of visits of a midwife at home by displacement status. It is clear that displaced women receive more often no, or only few (1-3) visits of a midwife at home than displaced women do.

Table 4.11: % distribution of the number of visits of midwife at home for the last birth since 2000, by displacement status

| | Displacement status at delivery | | | |
	IDP	Non IDP	Total	N
Never	15.71	12.50	15.04	63
1-3 visits	25.08	18.18	23.63	99
4-5 visits	15.71	22.73	17.18	72
6-7 visits	20.24	21.59	20.53	86
8-9 visits	19.94	20.45	20.05	84
10 or more visits	3.32	4.55	3.58	15
N	331	88		419

Source: Own calculations based on data UNHCR MDG project, 2006.

Investigating these numbers into more details again by age, table 4.12 indicates that for the youngest age group, non displaced women receive more visits of a midwife at home than young displaced women do. On the contrary, older displaced women receive more visits at home than their non displaced counterpart. Again, the small number of cases might disturb these results somehow. Later it becomes clear whether it is indeed the displacement status and age that make the difference, or whether it are other factors contributing to the explanation of these findings.

Table 4.12: % distribution of the number of visits of midwife at home for the last birth since 2000, by displacement status and age

| | Displacement status and age at delivery | | | | | | | |
| | IDP | | | | Non IDP | | | |
Age (years)	14-24	25-29	30-34	35-54	14-24	25-29	30-34	35-54
Never	15.89	17.98	14.10	18.42	15.15	8.70	6.67	21.43
1-3 visits	32.71	22.47	25.64	15.79	12.12	26.09	20.00	21.43
4-5 visits	14.95	19.10	11.54	18.42	24.24	17.39	20.00	35.71
6-7 visits	15.89	21.35	24.36	21.05	27.27	13.04	40.00	7.14
8-9 visits	16.82	17.98	21.79	18.42	15.15	30.43	6.67	14.29
10 or more visits	3.74	1.12	2.56	7.89	6.06	4.35	6.67	0.00
N	107	89	78	38	33	23	15	14

Source: Own calculations based on data UNHCR MDG project, 2006.

Table 4.13 shows binary grouped results for the number of visits. In referrence to the recommended four antenatal checks, it is chosen to split the number of visits of a midwife at home at five. Also for the reason that the average number of visits is 4.7. The table shows that a clear differentiation can be made between displaced and non displaced persons, where the latter received more often five or more visits.

Table 4.13: % distribution of the number of visits of midwife at home for the last birth since 2000, by displacement status

	Displacement status at delivery			
	IDP	*Non IDP*	*Total*	*N*
Less than five visits	51.06	39.77	48.69	204
Five and more visits	48.94	60.23	51.31	215
N	331	88		419

Source: Own calculations based on data UNHCR MDG project, 2006.

Focusing again on the need of women in table 4.14, displaced women who are in need received less often more than five visits than non displaced women do. Again, it is not clear whether most of the visits take place before or after the delivery of the child.

Table 4.14: % distribution of the number of visits of midwife at home for the last birth since 2000, by displacement status and need

	Displacement status and need at delivery			
	IDP		*Non IDP*	
Need (age, parity, spacing)	No need	Need	No need	Need
Less than five checks	50.77	53.28	42.86	41.07
Five and more checks	49.23	46.72	57.14	58.93
N	195	122	28	56

Source: Own calculations based on data UNHCR MDG project, 2006.

4.4.4 Utilisation of family planning methods

This final subsection gives a descriptive overview of the utilisation of family planning methods of displaced, non displaced and, displaced and returned people, both men and women, at the time of interview. Thus, the sample size is much larger than that of the maternal health services.

Underlying table 4.15 shows the use of family planning methods in the past 12 months. Here it must be mentioned that this represents a narrow 20 percent of the 1,855 persons being 15 years or older, i.e. 80 percent did not use any of the mentioned methods (modern or traditional) in the past 12 months. By displacement status, over 85 percent of returned displaced persons did not use any method, for displaced and non displaced this is both 78 percent. These outcomes are very low in compared to national statistics who claim that over 70 percent of the population of reproductive age used family planning methods, either modern or traditional.

The table shows that the majority of males, unless their displacement status did not use any modern family planning method in the past 12 months. For females this proportion is lower, but still the two third did not use any modern method.
An interesting result is that returned displaced persons made least use of modern family planning methods, while displaced persons show to have used modern methods most often.

Table 4.15: % distribution of utilisation of modern family planning methods, by sex and displacement status

	Displacement status and sex at interview						
	Males			*Females*			
	IDP	*Non IDP*	*Returned IDP*	*IDP*	*Non IDP*	*Returned IDP*	*Total*
No	92.90	94.59	96.80	67.60	69.89	79.41	83.53
Yes	7.10	5.41	3.20	32.40	30.11	20.59	16.47
N	493	185	219	534	186	238	1,855

Source: Own calculations based on data UNHCR MDG project, 2006.

Table 4.16 shows that if comparing utilisation of different types of mehods, condom use is the highest, as traditional methods are the lowest for displaced persons. The latter also shows to have the highest proportion of female sterilisation. Concerning other modern methods, displaced persons have higher utilisation than those non displaced. In general, female

sterilisation and other modern methods are the most used family planning method, each contributing to one third of the total use.

Table 4.16: % distribution utilisation of type of family planning methods, by displacement status for both sexes

	Displacement status at interview				
	IDP	Returned IDP	Non IDP	Total	N
Pill	18.92	14.93	26.58	19.84	73
Condom	9.01	5.97	3.80	7.34	27
Male sterilisation	1.80	1.49	1.27	1.63	6
Female sterilisation	31.98	29.85	25.32	30.16	111
Traditional	5.41	14.93	16.46	9.51	35
Other Modern *	31.98	31.34	26.58	30.71	113
Other	0.90	1.49	0.00	0.82	3
N	222	67	79		368

*IUD, injectables, implants, foam tablets, diagraph, jelly or female condom
Source: Own calculations based on data UNHCR MDG project, 2006.

Concerning utilisation by age, table 4.17 shows that female sterilisation increases rapidly with age, while at the same time utilisation of the pill decreases. Young women aged 15-20 show a high proportion of utilisation of oral pill, together with other modern methods. Remarkable is that among the ages 20-35 years traditional methods are higher than succeeding ages. This can be related to reproduction at younger ages, after which female sterilisation at older ages becomes more common.

Table 4.17: % distribution utilisation of type of family planning methods, by age for both sexes

	Age (years)								
	15-19	20-24	25-29	30-34	35-39	40-44	45-54	Total	N
Pill	66.67	37.14	28.57	16.88	18.75	19.70	3.13	19.84	73
Condom	0.00	8.57	8.93	10.39	9.38	6.06	1.56	7.34	27
Male sterilisation	0.00	0.00	0.00	3.90	0.00	0.00	4.69	1.63	6
Female sterilisation	0.00	5.71	8.93	20.78	35.94	39.39	60.94	30.16	111
Traditional	0.00	17.14	10.71	12.99	4.69	4.55	10.94	9.51	35
Other modern*	33.33	28.57	41.07	35.06	31.25	30.30	17.19	30.71	113
Other	0.00	2.86	1.79	0.00	0.00	0.00	1.56	0.82	3
N	6	35	56	77	64	66	64		368

*IUD, injectables, implants, foam tablets, diagraph, jelly or female condom
Source: Own calculations based on data UNHCR MDG project, 2006.

Because among males family planning method prevalence rate is very low, it is chosen to analyse family planning method use of women. To include males, couple family planning method prevalence is incorporated by linking the use or non use of modern methods of the husband to the wife, if this relation is known. For women of whom the partner cannot be extracted from the available information, utilisation of the woman only is taken into account. After the construction of this indicator the utilisation of males and females, including couple prevalence is equally distributed. Table 4.18 shows that for both males as females, three quarters of the individuals aged 15-54 did not use any modern family planning method the last year.

Table 4.18: % distribution utilisation of modern family planning methods including couple prevalence, by sex, including couple prevalence

	Sex			
	Male	Female	Total	N
No	75.43	74.23	74.81	1,642
Yes	24.57	25.77	25.19	553
N	1.058	1.137		2,195

Source: Own calculations based on data UNHCR MDG project, 2006.

For females the utilisation is presented by displacement status in table 4.19. Again is shown that displaced women show the highest utilisation, while returned women the lowest.

Table 4.19: % distribution utilisation of modern family planning methods including couple prevalence, by displacement status

	Displacement status				
	Non displaced	Displaced	Displaced and returned	Total	N
No	72.81	70.77	82.65	75.41	844
Yes	27.19	29.23	17.35	24.59	293
N	217	626	294		1,137

Source: Own calculations based on data UNHCR MDG project, 2006.

If decomposing these proportions again by age in table 4.20, displaced, and returned women aged 20-24 show a 10 percent less use of modern methods than the other two groups do. For displaced women, utilisation is increasing faster by age than for the other two groups. A remarkable result is that displaced and returned women show very low utilisation at older ages.

Table 4.20: % distribution utilisation of modern family planning methods including couple prevalence, by displacement status and age

	Age (years)							
	14-19	*20-24*	*25-29*	*30-34*	*35-39*	*40-54*	*Total*	*N*
Non displaced								
No	100.00	82.05	71.05	70.83	69.57	59.70	72.81	158
Yes	0.00	17.95	28.95	29.17	30.43	40.30	27.19	59
N	26	39	38	24	23	67		217
Displaced								
No	94.59	82.00	71.43	64.13	57.29	65.00	70.77	443
Yes	5.41	18.00	28.57	35.87	42.71	35.00	29.23	183
N	74	100	84	92	96	180		626
Displaced and returned								
No	94.12	93.02	78.57	70.18	86.05	81.33	82.65	243
Yes	5.88	6.98	21.43	29.82	13.95	18.67	17.35	51
N	34	43	42	57	43	75		294

Source: Own calculations based on data UNHCR MDG project, 2006.

Summarising this section of which the objective is to get insight in the overall use and the differences in this between displaced and non displaced women, it is shown that concerning antenatal care services disparities exist between displaced and non displaced women.
Especially when focusing on their needs, displaced women seem to be underserved in the utilisation of maternal health care services.
Concerning the utilisation of modern family planning methods, non displaced and returned women show the lowest utilisation, while displaced women show the contrary.
Although having the answers to the first research question, conclusions about these obtained results can not be drawn from this descriptive information for the reason that it might be other factors contributing to the explanation of these differences.

Therefore above studied indicators are used as dependent variables in following chapters in order to get insight in the underlying mechanisms that might give some explanation of above disparities in utilisation.
But before conducting these analyses, a conceptual model has to be constructed from appropriate theories in order to validate the utilisation of these specific explanatory factors. Thus, theories and the construction of the conceptual model(s) are described in subsequent chapter first, after which the above found differences are explained in chapter 7.

5. Theoretical framework and conceptual model

Before conducting analyses on the utilisation of maternal health services and modern family planning methods, theoretical background is needed to serve as basis for defining the appropriate explanatory variables in order to get insight in underlying mechanisms that explain disparities within the three types of utilisations described in the previous chapter. A theory can be defined as "a coherent set of propositions that define relevant variables, the relationship between them and the mechanism through which they influence each other" (De Bruijn, 1999). For this research, several theories are used to explain and conceptualise the mechanisms within the so called conceptual model that guides the analyses for this research.

This chapter gives first a short overview on appropriate existing theories and approaches for this research. Due to the incorporation of self efficacy in addition to existing explanatory factors in the explanation of health care utilisation, together with trying to get insight in how displacement affects this utilisation, a major part of the discussion on the theoretical framework is devoted to psychological processes of decision making and performance of behaviour in order to understand the importance to include self efficacy as additional explanatory variable in the model. Then, these theories are implemented and schematised in a conceptual model for answering the research questions which is the basis for the formulation of hypotheses.

5.1 Theoretical framework
As said, for constructing a conceptual model that gives guidance in answering the formulated research questions, theories are needed in order to define relevant variables, the relationship between them and the mechanism through which they influence each other. Existing theories that are appropriate for this research are subsequently, the process-context approach (Willekens 1991; De Bruijn 1999), a framework for the explanation of socioeconomic inequalities in health service (Kunst and Houweling; 2001), and theories and models dealing with behaviour and decision making (Bandura 1977; Ajzen and Fishbein 1980; Ajzen 1991; Schwarzer; 1995).

5.1.1 Process-Context Approach
For understanding the impact of conflict, together with other contextual factors on macro level on the background of the individual, respectively his or her behaviour, the process-context approach serves as a basis for the construction of the conceptual model. This approach integrates both macro as micro level based on methodological individualism by Coleman presented in figure 5.1. Besides, the notion of time, e.g. the life course and social change constitute the process context approach as shown in figure 5.2. As this figure shows, the approach treats individual demographic behaviour as an outcome of a process under influence of economic, social, cultural, political, and historical structures (De Bruijn, 1999).

Figure 5.1: Methodological individualism by Coleman (1990)
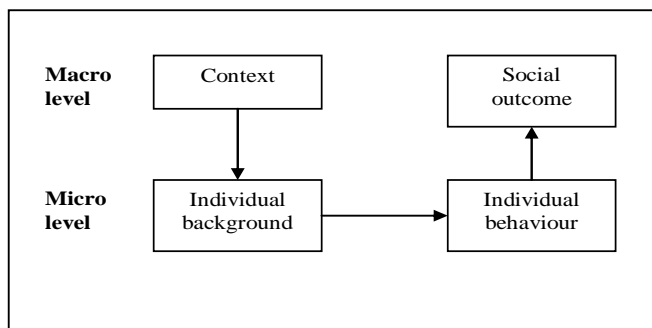
Source: Adapted from De Bruijn, 1999, pp. 18

Figure 5.2: Process-Context approach
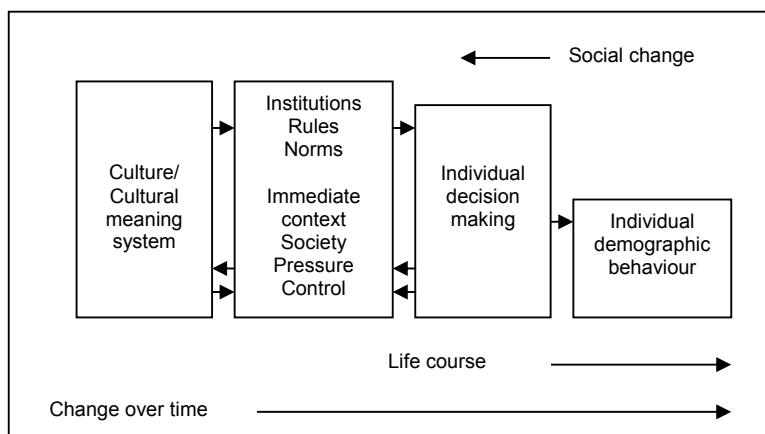
Often social outcomes at macro level refer to the aggregation of individual behaviour of the population under study, where the context refers to the construction of society determined by institutions and social systems (e.g. McNicoll 1994). At micro level, it are individuals whose choice, emotions, motivation, and interactions play a substantive role in the process of individual behaviour. In addition to the interaction between structure and agency, time plays a crucial role in the approach, due to the fact that processes as well as contexts are changing over time. Different behaviour within a changing life course results in the idea that generations or cohorts are the mechanism of social change (e.g. Giele and Elder 1998).

Changes over the life course, as well as social change are important aspects within the research, because changing life course patterns of reproductive indicators as fertility and nuptiality (marriage), but also of the context, i.e. education, employment, and health structures on macro level, indicate that conflict and displacement play a role in the disruption of careers and social constructs that might have implications concerning reproductive needs and risks of individuals, but also their decision making processes referring to the utilisation of health care services and family planning methods. As time refers to duration, duration since displacement might result in different behaviour due to integration and adjustment to new circumstances, subsequently social change.

5.1.2 Utilisation of health services
In addition to the process-context approach, insight is needed in the factors that can be applied within this approach concerning the research topic that treats health care utilisation as dependent variable. A broad variety of research is conducted on explaining health care utilisation, of which the approach of Kunst and Houweling (2001) is very useful for this research, because it covers the main determinants, and can be placed within the process context approach.

Kunst and Houweling show that inequality and underutilisation of maternal services are likely to be a factor contributing to maternal mortality among social-economically disadvantaged women (Kunst and Houweling, 2001). The authors propose a conceptual framework for the explanation of socio-economic inequalities in health service utilisation (Kunst and Houweling, 2001, p 302). This framework is based on a previous research conducted by Barthélémy Kuate Defo (1997) on the effects of socio economic status on women's health in Cameroon. Defo found that long term effects of social disadvantages are apparent in the excess of mortality among women who were not employed during childbirth, women who were living in poor neighbourhoods and those living in households without modern assets (Defo, 1997). Kunst and Houweling conceptualised individual socio-economic status, proximate determinants, and demographic characteristics in order to understand their relationship to the utilisation of health services, as shown in figure 5.3.

Figure 5.3: Conceptual framework for the explanation of socio economic inequalities in health service utilisation

```
┌─────────────────────────┐        ┌─────────────────────────────┐        ┌──────────────────────────────┐
│ Socio economic status   │        │ Proximate Determinants      │        │ Health service utilisation   │
│                         │        │                             │        │                              │
│ - Income, wealth        │        │ - Need (health status)      │        │ - Frequency of visits        │
│ - Education             │───────▶│ - Perception health problems│───────▶│ - Type of facility           │
│ - Employment, occupation│        │ - Autonomy, social support  │        │ - Quality received           │
│ - Land ownership        │        │ - Purchasing power          │        │                              │
│ - Women's status        │        │ - Insurance coverage        │        │                              │
│                         │        │ - Duties, opportunity costs │        │                              │
└─────────────────────────┘        │ - Tendency to consult,      │        └──────────────────────────────┘
            ▲                       │   beliefs,                  │
            │                       │ - Distance transport        │
            │                       └─────────────────────────────┘
            │                                   ▲
┌─────────────────────────┐                     │
│ Confounders, modifiers  │                     │
│                         │─────────────────────┘
│ - Women's age           │
│ - Place of residence    │
│ - Ethnicity, religion   │
└─────────────────────────┘
```

Source: Adapted from Kunst and Houweling, 2001, pp. 302

Associations concerning utilisation of services and family planning methods are found for socio-economic status (measured in terms of household wealth and educational level of the woman). Concerning delivery care, Kunst and Houweling found a consistent relationship between wealth and utilisation, but with high variations among the countries under study (Kunst and Houweling, 2001). They concluded that several barriers that make these services inaccessible, unaffordable, or unacceptable for women with few economic resources (Kunst en Houweling, 2001) could construct the explanation for the underutilisation of health services and family planning methods.

As mentioned, this framework is appropriate for this research because of its coverage of main determinants of health care utilisation, as it is possible to place within the process-context approach. Although the framework does not distinguish between the factors on macro and micro level, it is still clear that most of the concepts are an outcome of the impact of the social context on individual background. The main contextual factors that affect the individual background within the framework are cultural (ethnicity, religion and beliefs), economical (income, wealth, employment, duties and opportunity costs), social and political (education, health, women's status and autonomy). It are these contextual factors that determine demographic and socioeconomic background factors, indirectly the proximate determinants, to explain the utilisation of health care services.

5.1.3 Processes of individual behaviour
What the model of Kunst and Houweling does not incorporate are the mechanisms that explain the process between individual background and actual behaviour. The proximate determinants in the model are separated from actual behaviour by individual processes of behaviour formation, which deserve attention for a full understanding and explanation of behavioural outcomes.
For the reason that this process is often neglected in these kind of frameworks, in addition to the fact that decision making processes are nowadays very important explanatory factors in understanding actual individual behaviour, this research tries to incorporate the role of self efficacy in this part of the model. Thereby an important aspect of these human behavioural decision making processes are taken into account in the analyses on the utilisation of maternal health services and modern family planning methods of women living in conflict affected areas in Sri Lanka.

As said, the measurement of utilisation of maternal health methods and family planning methods on societal level is an aggregated result of individual behaviour, which is again the outcome of a complex set of antecedent factors that determine the actual behaviour. One of these factors is the process of decision making and behaviour performance. Various theories and models provide insight into these processes. One of the most prominent is the Theory of Planned Behaviour (Ajzen 1991), as presented in figure 5.4. Most of Kunst and Houwling's background factors and proximate determinants could directly be fitted into this model, where most these concepts would fall under the external variables, but where some fit within the behavioural process, i.e. tendency to consult and beliefs. At the end, the measured utilisation of health services is an outcome of individual behaviour.

The Theory of Planned Behaviour captures most important antecedent factors of individual behaviour, by describing individual readiness, willingness, and ability to perform particular behaviour. The model shows that three concepts are distinguished that influence the intention to perform behaviour, i.e. the attitude towards the behaviour, the subjective norm, and perceived behavioural control.

Figure 5.4: Theory of Planned Behaviour
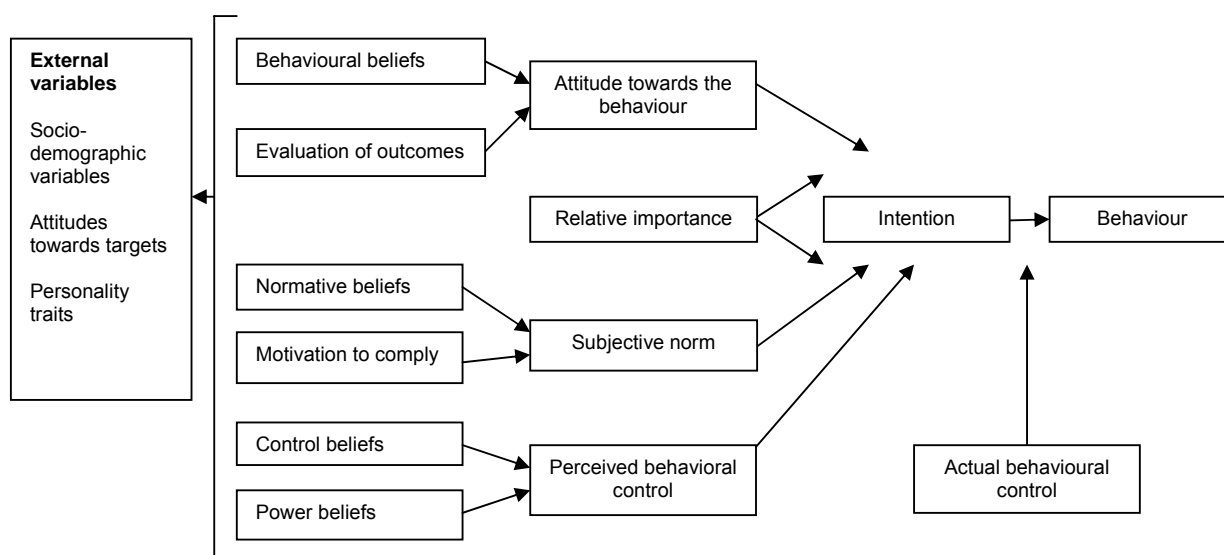
Source: Ajzen, 1991

The *attitude towards the behaviour* is determined by behavioural beliefs and the evaluation of outcomes. Humans internally organise available and meaningful information into knowledge structures, e.g. cognitive schemes by interpretation and constructs of (subjective) reality give meaning to objects, events and situations. These meanings create outcome expectations and standards against which behaviour is evaluated and choices are made (De Bruijn, 1999).
Due to the fact that individuals are part of a larger social environment, the immediate individual context is of importance in the formation of intentions; the normative *beliefs a the person has about the opinion important others* have of the intended behaviour or its alternatives, together with the motivation to comply to these beliefs, determine partly whether a choice is translated to an intention, or not.
Finally, the concept of *perceived behaviour control* is determined by control and power beliefs. When decisions and intentions to particular behaviour are made, this intended behaviour is not always performed. Concerning health issues and behaviour (change), the role of behavioural control is of essence to incorporate, because its contribution to the explanation why particular persons with the same intentions do not perform the intended behaviour, while others do. Efficacy beliefs, or in this case perceived behavioural control, affect the intention to perform behaviour, the amount of effort spent to reach this performance,

and the persistence to continue striving to reach the goal aiming at by performing behaviour (Schwarzer and Fuchs, 1995).

Although the importance of the concepts like intentions, attitudes and subjective norms is acknowledged for this research the incorporation in the conceptual model is outside the scope of this thesis due to data limitations. However, self efficacy, closely related to behavioural control can be incorporated. In fact, many behavioural theorists claim that self efficacy merits study in its own right and even may have more explanatory power than attitudes (Bandura, 1977; Schwarzer, 1995).

The concept of self efficacy origins from the psychologist Albert Bandura, who mentions the concept for the first time in his article *"self efficacy: towards a unifying theory of behaviour"* in 1977. The concept can be defined as "beliefs in one's capability to organize and execute the course of action required to manage prospective situations" (cited Bandura, 1995 pp. 2). This means that a person who beliefs in being able to cause an event, can conduct a more active and self determined life course. Over the years, it has been found that a strong sense of personal efficacy is related to better health, higher achievement, and more social integration (Schwarzer and Fuchs, 1995).
Self efficacy determines the way people feel, think, and act. Persons with stronger perceived efficacy are more optimistic and choose to perform tasks that are more challenging. Higher goals are set, to which a higher efficacious person also sticks to easier. Thus, once an action has been taken, persons with higher self efficacy invest more effort and persist longer in finalising the action than persons with lower self efficacy do (Schwarzer and Fuchs, 1995).
In contrast, a low sense of efficacy is related with depression, fear, and helplessness. Low esteem and pessimistic thought hinder accomplishments and personal development. Low self efficacious persons rely more on the (subjective) meaning of important others to form intentions than higher efficacious persons do (Schwarzer et.al., 1992). And, persons with low self efficacy anticipate more on failure scenarios, which makes it more likely to fail the action (Schwarzer and Fuchs, 1995).

For this research, this knowledge is of importance, because it gives insight in why individuals use particular maternal health facilities or family planning methods, and while others do not. Of course, availability and access are of additional importance in this case, but the essence of information, knowledge, and outcome expectancies of these services, together with the subjective norm and perceived behavioral control must not be neglected in the explanation of utilisation of health services. Because even when these services are free available and equally accessible (as in the case of the Sri Lankan health care system), it are individuals themselves who decide to make use of them or not, based on their mental schemes, thereby aiming at reaching their subjective goals or needs.

Besides the fact that self efficacy plays a role in above processes of decision making and behavioural performances, it also determines other aspects of human functioning. According to Luszczynska, Gutiérrez-Doña, and Schwarzer (2005), self efficacy is especially related to psychological related constructs, e.g. personality (self-esteem, optimism, future orientation, self regulation, and social comparison orientation), stress appraisals, well being, achievements, and social relations. As shortly mentioned before, self efficacy influences optimistic or pessimistic ways of thinking, goals, motivations and future expectations, perception of positive and negative experiences and problems, sense of competence and social relations (Schwarzer et.al., 1992).
For the reason that the provision of health care can be seen as a form of social support, for this research the association between self efficacy and social support is relevant to mention. Recipient as well as provider factors determine whether this social support is given or not. The kind of problem and attitude of the person in need of social support are of importance in the determination to receive support or not. Controllable causes are related with lower social support, because the person is regarded to be a victim of his own decisions and behaviors. On the contrary, people in need for help by suffering from non controllable causes are more likely to receive support from others (Schwarzer et.al., 1992). Because this study focuses on populations affected by conflict induced displacement, above idea of social support is essential because it relates to (international) humanitarian aid programs, as to the support of the surrounding environment to which the displaced individuals are subjected. Thus, it can be

expected that people suffering from non-controllable displacement might be provided with more assistance than the people suffering from controllable displacement do. Over time, this idea of social support and its relation to controllable and uncontrollable problems might be reduced when the situation stabilises and people are supposed to have own control and responsibility of their situation again. This association is not further explored in this research, although it has to be kept in mind when interpreting the results. Especially when higher utilisation of services of displaced person is found. Then the provision of humanitarian aid might play a role in the explanation.

It must be mentioned that the best type of self efficacy indicator to be used, i.e. general or domain specific, is under discussion in the literature.
According to the ideas of Bandura (1986, 1977) the incorporation of a general self efficacy indicator creates problems in is predictive relevance, because an indicator of general self efficacy provides a global score that decontextualised self efficacy behavior by transforming self efficacy into a generalized personality trait rather than a context specific judgment about one domain of behavior (Pajares, unknown) This implies that if asking individuals to assess their general confidence in the ability to succeed tasks or situations without the specification what these exactly are, individuals will generate this judgment by aggregating related perceptions that they hope that will be related to imagined tasks. They do this because they have to judge their ability in performance a tasks, without having a clear task in mind (Pajares, unknown).
In addition, Luszczynska et.al (2005) showed that general self efficacy could be used for some universal human traits.
For this research, it is chosen to use a general self efficacy indicator, because the construction of a domain specific indicator that refers to maternal health care seeking abilities, and family planning method use, are difficult to operationalise due to data limitations.

This section discussed theories, approaches, and concepts relevant for this study. In relation to this study, the relevance of the concepts is discussed in next section, where the conceptual model is constructed. Together with this model, hypotheses are formulated on the expected influence of the concepts on the utilisations of the services under study.

5.2 Conceptual model and hypotheses

Having the process-context approach in mind, together with the objective to understand the effects of various factors that contribute to the explanation of the utilisation of maternal health services and family planning methods of women living in conflict affected areas in Sri Lanka, a model is constructed that conceptualises above theories and the research problem in order to give guidance in answering the research questions. Underlying figure 5.5 shows the final conceptual model of which each aspect is described in this section, starting with the context and social outcome at macro level.

At macro level, one important contextual factor is the already more than two decades lasting ethnic tensions that has affected, or still affects the reproductive health status of the population living in those areas where conflict is most severe. Besides these ethnic tensions, other contextual factors described in chapter three are of importance in understanding and explaining the utilisation of maternal health services and family planning methods.
It are especially social, economic, political, and cultural factors that determine employment, wealth, educational and health systems that determine the background characteristics of each individual. An example of these contextual factors are the national policies aiming at an egalitarian health care system, freely and easily accessible for inhabitants, which is expected to show a quite homogeneous health status of the population.

This research does not allow for aggregation of individual behaviour to the macro level because data limitations do not allow for that. Also studying the direct social impact of conflict and displacement and other contextual factors on the individual background is difficult due to data and time limitations.
As became clear in previous chapters the analyses are conducted on individual level, where the utilisation of four types of services are the dependent variables to explain.

Figure 5.5: Conceptual model for the analysis on utilisation of maternal health services and family planning methods
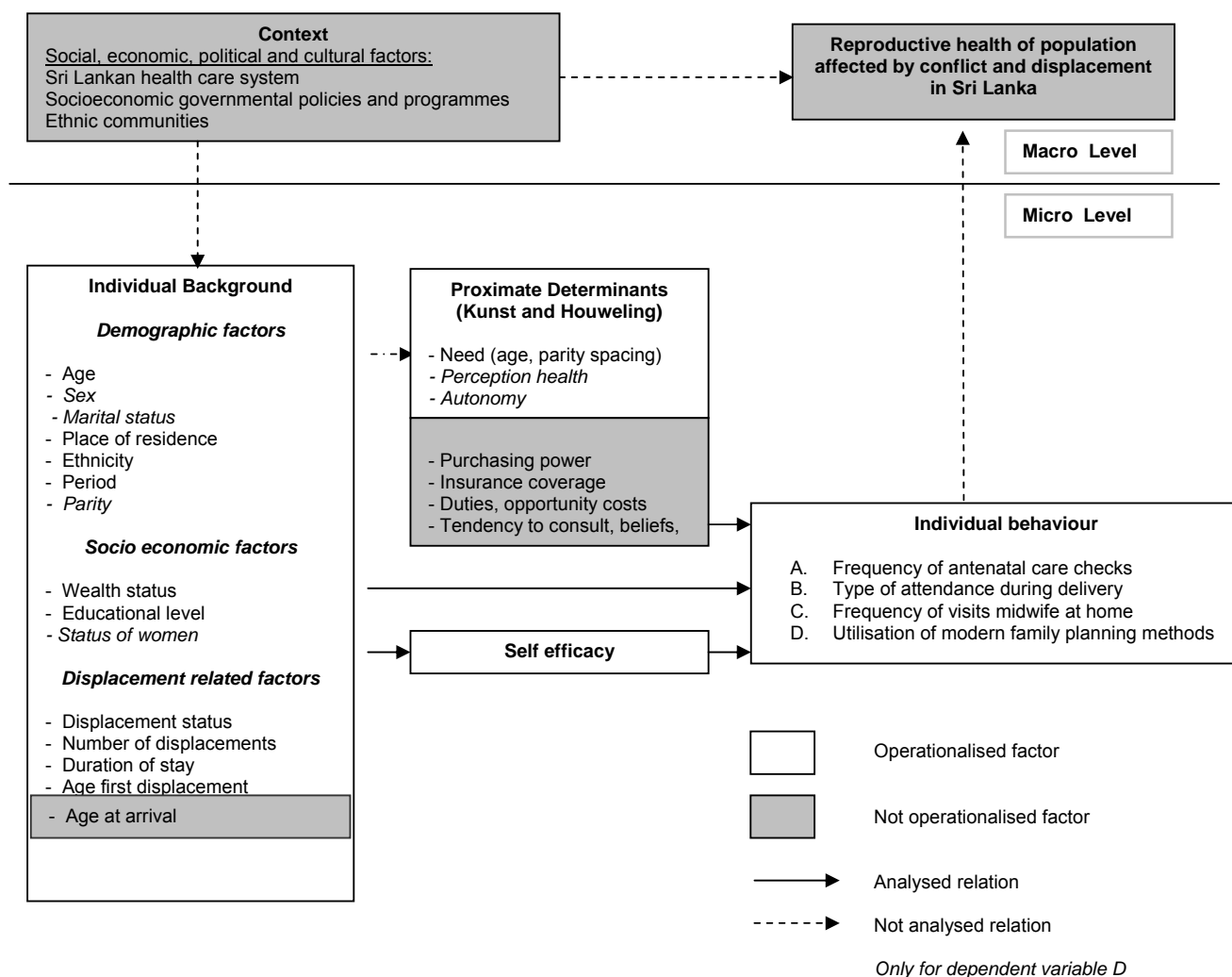
Determinants of the reproductive health situation of the affected population are studied by analysing four dependent variables concerning individual behaviour of which seemingly different and similar utilisations for displaced and non displaced women are given in previous chapter. Thus, the utilisation of maternal health services (number of antenatal care visits, type of attendance during delivery, and the number of visits by a midwife at home) for the most recent birth since 2000, together with the utilisation of modern family planning methods by women are investigated.

The conceptual model shows that it are three broad concepts that influence the utilisation of these four services, i.e. the individual background, covering demographic, socioeconomic as well ass displacement related factors, the proximate determinants described by Kunst and Houweling, and self efficacy capturing some aspects of individual behaviour processes.

It must be mentioned that in this description only those concepts and relations are discussed which are also analysed. This means that all dotted relationships, together with the grey concepts are not analysed and therefore not discussed in detail in this section, although some are discussed descriptively in previous chapters as well while interpreting the outcomes.

First, the individual background is determined by the contextual influence of the macro level. Then, it is expected that this individual background directly influences the utilisation of

maternal health services and family planning methods, as it does indirectly through the proximate determinants and self efficacy.
These proximate determinants and self efficacy directly influence the utilisation of the four services under study.
Finally the conceptual model shows that the factors within the individual background directly influences self efficacy, being analysed separately in order to see how and which individual background factors predict this characteristic.

Starting with the conceptualisation of the individual background, some of the independent variables of the model of Kunst and Houweling are selected for answering the second research question *"which factors contribute to the explanation of found similarities of disparities in the utilisation of maternal health services and family planning methods of displaced and non displaced women? Do self efficacy and displacement have an additional contribution to this explanation?"*

It is evident that demographic characteristics like age, sex, marital status, parity, ethnicity and place of residence are implemented in the model, together with the variables wealth, education, and status of women, which represent socioeconomic status. Common knowledge, the findings of Kunst and Houweling, together with the information given in chapter 2.2.2 tells that these factors are of importance in explaining similarities or differences in the utilisation of maternal health services and family planning methods.
Starting with the demographic factors, age informs about the stage in life and relates to particular reproductive and sexual behaviour as well as needs, the same does marital status. Ethnicity covers cultural beliefs and behaviours, and place of residence refers to the institutional context, possibly in this case the severity of the conflict, and the state of the health care system.

The hypotheses that can be formulated for demographic factors are;
H1.a Based on the equalitarian health care system, utilisation of maternal health services does not differ by age, ethnicity and place of residence.
H1.b Based on different needs, beliefs and values, utilisation of modern family planning methods does differ by age, marital status, parity, and ethnicity.
H1.c Based on the equalitarian health care system, utilisation of modern family planning methods does not differ by place of residence.

Concerning socioeconomic status, wealth is a variable that covers long term economic status (Filmer and Pritchett, 2001), respectively social status and purchasing power (due to underreporting of income, resulting from dependencies on benefits, e.g. the Samurdhi programme, income is not a good proxy for economic status in this research). Wealth might directly contribute to the accessibility of services, as it might indirectly determine the general health status of a person, because it enables the provision of basic needs, e.g. nutrition, shelter, and clothing.
Then educational level is another indicator that reflects socioeconomic status. It covers the knowledge a person has about the process of selecting, attaining, and processing new information. For many behaviours it is known that higher education leads to more information about opportunities and how to overcome barriers. In relation to maternal health higher (and therefore longer) education increases the age of marriage, followed by a higher age at childbearing, resulting in lower risks of complications, subsequently different needs concerning the utilisation of maternal health care services and family planning methods.
Finally, status of women is incorporated in the model because it is an important factor contributing to the understanding of opportunities and power of women within the decision making process and the performance of behaviour. Status of women influences the equality status within the household concerning for example the distribution of resources like food, thereby influencing health as nutritional status. In addition it enables women do have control over her own fertility, as to negotiate within sexual relationships.

The hypotheses that can be formulated for socioeconomic factors are;
H2.a Based on the equalitarian health care system, utilisation of maternal health services does not differ by wealth, education, and status of women.

H2.b Based on differences in knowledge and accessibility, utilisation of modern family planning methods differs by wealth, education, and status of women.

Concerning displacement related factors four features are conceptualised, i.e. displacement status, number of displacements, duration of stay at the place of residence, and age at first displacement. These factors give information in which way conflict has affected life. Then, the number of displacements might affect someone's (subjective) ability to seek health care, or to use family planning methods for the reason that previous (traumatic) events might demotivate individual behaviour, or affect the goals that were strived for. The duration since displacement might refer to how well a women is integrated in her new place and whether she attained the knowledge where and how to make use of (provided) health facilities and family planning methods needed. Finally, age at first displacement might tell something about the disruption of life course careers, having different implications on the maternal health situation because of possible disrupted sexual, marriage, educational, and employment careers.

The hypotheses that can be formulated for displacement related factors are;
H3.a Based on the disruption of lives, utilisation of maternal health services differ by displacement status, the number of displacements, and duration of stay.
H3.b Based on differences in provision and accessibility, utilisation of modern family planning methods differ by displacement status, the number of displacements, and duration of stay.

Some proximate determinants of the framework of Kunst and Houweling are taken into account in the analyses. It are only need, perceived health and autonomy for which the data allows to operationalise. As described in next chapter, need is operationalised according to WHO defined demographic features of a woman in relation to her higher risk of complications. According to this organisation, women in need are expected to receive more attention before, during and after delivery.
Then perceived health status influences the utilisation of health services, although for this research it is a complex factor because it is difficult to determine the causality of its possible effect. For the analysis on the utilisation of modern family planning methods perceived health might relate to the level of awareness of vulnerability of a woman's own health condition in order to protect herself from unwanted or unplanned pregnancy or STI/STDs by making use of appropriate family planning methods.
Finally autonomy refers to a woman's control of decision making. Autonomy influences the utilisation of maternal health services and family planning methods in such a way that the outcome would be according her wishes and needs.

The hypotheses that can be formulated for the proximate determinants are;
H4.a Based on the egalitarian health care system, utilisation of maternal health services differ by relative need.
H4.b Based on needs, values and beliefs, utilisation of modern family planning methods does differ by perceived health and autonomy.

Then the concept of self-efficacy has a central position in the model because of its focus within the research questions. As mentioned, self efficacy indicates how well a person feels able to perform (intended) behaviour, as how this is related to someone's personality. For explaining the differences in utilisation of maternal health services and family planning methods, self efficacy might be an explanatory factor with high predictive value. For the reason that the concept reflects a woman's ability to perform specific behaviour, it is assumed that this ability (beliefs) contribute to the utilisation of health services and family planning methods.

The hypotheses that can be formulated for self efficacy are;
H5.a Based on different abilities, utilisation of maternal health services differ by self efficacy.
H5.b Based on different abilities, utilisation of modern family planning methods differ by self efficacy.

As said, it is of additional interest to get insight in the factors that explain the level of self efficacy. Therefore the conceptual model shows that the relationship between the individual background on self efficacy is investigated in order to answer the research question *"do*

demographic, socioeconomic, and displacement related factors contribute to the predictive value in understanding the level of perceived self efficacy at the time of interview?"

The socioeconomic factors wealth, education, and status of women influence a person's level of self efficacy because it are in particular these features that enable person to learn from experiences. All three provide a larger range of opportunities, and with broader means and resources these factors enable individuals to experience or challenge these opportunities. Therefore it can be assumed that increasing socioeconomic status has a positive effect on self efficacy. It has to be taken into account that the causality of this relationship must be taken in consideration when interpreting the results of the analysis.
Through traumatic experiences caused by conflict an displacement, it is expected that displacement has a negative impact on self efficacy. In addition, the number of displacements are assumed to strengthen this negative effect on self efficacy. Duration of stay at the place of interview might influence the knowledge, experiences, adjustment and integration in the new (social as physical) environment. Therefore it assumed to have a positive effect on self efficacy. Finally, age at first displacement incorporates experiences (social learning) in different stages in the life course. When individuals have experienced single or multiple war related traumatic events in which a death or injury is experienced directly, witnessed or learned, many individuals suffer from stress reactions, which might impact their self efficacy in particular way, possibly different for the timing in life individuals are exposed to this (Ferren, 1999).

The hypotheses that can be formulated for self efficacy are;
H6.a Based on opportunities, level of self efficacy differs by wealth, education and status of women.
H6.b Based traumatic experiences, level of self efficacy differs by displacement status, the number of displacements, duration of stay, and age at first displacement.

Before starting to investigate these hypotheses, the used dataset and methods are described in next chapter, in which also the conceptual model is operationalised.

6. Data, methods, and operationlisation

After the conceptualisation of the theoretical framework, this chapter gives short description the used data and applied methods within this research. After this overview, the operationalisation of the conceptual model for this particular dataset is discussed.

6.1 Data
For getting insight in the underlying mechanisms of the utilisation of maternal health services and family planning methods, individual information is needed. As mentioned, data that provides insight in demographic, health and socio-economic situation of displaced persons are scarce and incomplete. Due to the unstable situation in the Northern and Eastern provinces of Sri Lanka, most of the surveys held in the country do not cover (parts of) these areas. To overcome this information gap, the UNHCR conducted a survey in order to obtain individual information about the living conditions of refugees and internally displaced persons in three countries.
The objectives and content of this dataset are discussed in previous section after which its possibilities and limitations in relation to this research are shortly discussed.

Additional contextual data are obtained from the Sri Lankan Department of Census and Statistics, the United Nations Higher Commissioner for Refugees, the World Health Organisation, the World Bank, and other institutions. This contextual information is especially used for the chapters that contain demographic and socioeconomic background information.

6.1.1 "Millennium Development Goals; A multi-country research into the living conditions of refugees, asylumseekers, and internally displaced persons"[14]
Recent collected data resulting from the project *"Millennium Development Goals; A multi-country research into the living conditions of refugees, asylumseekers, and internal displaced persons"* of the UNHCR is available and used for this research. Access to this dataset is possible for the reason that the UNHCR has commissioned this project to the Netherlands Interdisciplinary Demographic Institute, who coordinated the project. The data is collected in the first half of 2006. Within this project, similar surveys are conducted in Armenia and Ecuador. For Sri Lanka, the districts Mannar, Vavuniya, Trincomalee, Anaradhapura, and Polonnaruwa were selected. The selection of households, including the displaced, comes from official government registration, in which the internally displaced persons are assumed to be adequately covered.
Unfortunately the target of 1,500 households is not reached due to increasing tensions at the beginning of 2006. Nevertheless, 1,064 households are included in the final dataset. Of this amount, individuals within 873 households are displaced (living in welfare camps or elsewhere), as the remaining 191 households are not.
Of the total sample aged 15 years and older, 10, 14, 24 and 41 percent are respectively the ethnicities Sinhalese, Indian Tamil, Muslim, and Sri Lankan Tamil.

The content of the survey is related to the measurement of relevant Millennium Development Goals indicators. The main goal of the project is to contribute to fill up the information gap that exists between the relatively well documented living conditions of refugees and internally displaced persons living in established refugee camps, and those who live outside these camps. Therefore, living conditions and well being are measured in terms of Millennium Development Goals indicators in this survey.

6.1.2 Reflection on the data
As all dataset have, this used dataset has a lot of possibilities but also its limitations in regards to this research. Starting with the former, it is a huge advantage that the dataset provides a very broad insight in the living and health circumstances of the population living in the five selected districts. The data provides household as well as individual information for all members of this household. Information on migration histories, income, employment, education, (reproductive) health, gender questions, and vulnerability and coping are captured.

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[14] See appendix D for the complete questionnaire used for the Sri Lankan study

Concerning health, aspects of (perceived) health status, use of medicines and health care services are included. In addition a special child module is incorporated in the survey.

Concerning this research, aspects of reproductive health are widely incorporated in the dataset. Knowledge and perceptions of HIV/AIDS and family planning methods, the actual utilisation of these methods, and the provision of maternal health services are registered. Then, birth history and immunisation information, as well the health status of each child is taken into account.

Limitation of the data set, especially for the research question dealt with in this research, are that for the information of utilisation of maternal health services, only the circumstances of the last child since 2000 are given. For this reason, the number of cases to be studied is relatively small, for each maternal health service approximately 400 cases are present. And because only this limited information is available, it has to be taken into account that it is difficult to generalise the maternal health circumstances for all women under study. Nevertheless, this information is very useful to get insight in the current situation.

Then, it has to be considered that those women who died (possibly in relation to their pregnancy) are not covered in the data. This means that the outcomes can underestimate the situation, because there where the services where lacking women could have died.

Then it is reasonable to assume that the most wealthiest and healthiest households or persons have been displaced further than this survey covered. Selection effects of migration play an important role in this.

Other limitations of the dataset are that it does not contain information about the (lacking) health care system and other infrastructure. Therefore it is difficult to draw conclusions whether utilisations are affected by individual behaviour or the absence of adequate services, of which the latter is most probable because of the good working and egalitarian Sri Lankan health care system.

To avoid anticipatory analyses, circumstances at interview can not be applied for past situations. For example it can not be assumed that wealth status or educational level at the moment of interview is the same as 10 years before.

Nevertheless, the dataset contains a broad set of information and is a very rich source for further exploration, especially because it covers that population which is normally neglected in statistics.

6.2 Methods
6.2.1 Logistic regression

Because the sample size is too small to conduct multivariate regression analyses, it is decided to construct dichotomously dependent variables on which logistic regression can be applied. Logistic regression is used when categorical dependent variables are modelled (Norušis, 2000). The (dichotomous) dependent variables for the regression are A. receiving at least four antenatal care visits (1) or less (0), B. attendance at delivery by a doctor (1), or not (0), C. receiving at least five visits of a midwife at home (1) or less (0), and D. the use of modern family planning methods in the last year (1) or not (0).

Logistic regression implies a transformation of the dependent variable. This transformation is necessary, because with normal (linear) regression the dependent variable y can become bigger than one, or smaller than zero, which is not possible in the case of dichotomous variables (Allison, 1984). By transforming the dummy variable into a continue variable the regression model becomes linear according to the following equation, where p is the probability of success:

$$P = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X)}} \longrightarrow LN\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 X$$

This logit transformation does not use probabilities, but odds, which is a ratio of probabilities:

$$odds = \frac{P(y=1)}{P(y=0)} = \frac{P(y=1)}{1-P(y=1)} = \frac{p}{1-p} \qquad \frac{p}{1-p} = e^{\beta_0 + \beta_1 X} = e^{\beta_0} e^{\beta_1 X}$$

In this function β_1 is the change in the log odds (logit) if x changes one unit, and e^β is the change in the odds if x changes one unit. The higher the value of the odds, the larger the probability of success. This means that odds between 0 and 1 refer to probabilities between 0 and 0.5. Odds of 1 and higher refer to probabilities between 0.5 and 1. Above implies that changes in x do not have a constant effect on y, or P (Allison, 1984).

The final results resulting from this regression can be interpreted by odds ratios or coefficients. The odds ratio describes the likelihood to experience the event for the level of interest compared to the reference group of this variable, like:

$$odds\_ratio = \frac{odds\_category\_of\_\mathrm{int}erest}{odds\_reference\_category}$$

The results obtained from this analysis can also be interpreted by coefficients, thereby including an intercept. These coefficients, or probabilities are most useful when the purpose of the analysis is to forecast the probability of an event (Norušis, 2000). But because this research is interested in the impact of the independent variable it is not useful to present this in coefficients.

The models are constructed by stepwise inclusion of the explanatory variables after checking their predictive power and significance of each explanatory variable separately.
For testing model improvement, the Likelihood Ratio (LR) test is used. This test uses the ratio of the maximized value of the likelihood function for the full model (L_1) over the maximized value of the likelihood function for the simpler model (L_0). The likelihood-ratio test statistic equals:

$$-2\log(\frac{L_0}{L_1}) = -2[\log L_0 - \log L_1] = -2(L_0 - L_1)$$

This log transformation of the likelihood functions results in a chi-squared statistic that is tested with a 95 percent confidence interval. The significance levels of the resulting odds ratios are tested for three levels, i.e. *** : $p < 0.01$ ** : $p < 0.05$ * : $p < 0.1$

6.2.2 Construction of indexes by principal component analysis
For the construction of the four indexes used in the analyses (wealth, status of women, autonomy and self efficacy), principal component analysis is applied. The details of these constructions are described separately for each index in Appendix B.
The idea behind principal component analysis is to discover linear relationships among the selected variables in order to discover whether the variables can be explained by a much smaller number of variables, so called factors, or components.

For the calculation of the indexes, the first component is the one that is used to represent the concept. Because the approach captures the common information by the extracting orthogonal (unrelated) linear combinations of a set of variables, this first component is the linear index of all variables that captures the largest amount of information that is common to all of the variables (Filmer and Pritchett, 2001).
Shortly the approach works as follows:
1. A set of N variables a_{lj}^* to a_{Nj}^*, represent the value of these N variable of each case j.
2. Each variable is normalized by its mean and standard deviation: $a_{lj} = (a_{lj}^* - a_l^*)/(s_l^*)$.
3. These selected variables are expressed as linear combinations of a set of underlying components for each case j. Principle components find the linear combination of the variance with maximum variance (which is the first principal component) and then finding the second linear combination of the variables. As said, the components are orthogonal, i.e. unrelated to each other and variance is decreasing by each

component. Estimates of coefficients and variables are made for each of the principle component, of which the first looks like:

$$A_{lj} = f_{11} \cdot (a_{1j}^* - a_1^*)/(s_1^*) + ... + f_{1N} \cdot (a_{Nj}^* - a_N^*)/(s_N^*)$$

This first component can be used as an index under the assumption that the index explains that maximum variance (and covariance) in the selected variables.

Besides the first component, other components have a specific meaning that might disturb the interpretation of the first one. This means that the first component never reconstructs the index perfectly. For the reason that often a number of components result from the analysis, some rules are needed to decide which components need to be interpreted, and which not. One rule is to retain those components that have an eigenvalue greater than 1. Due to the fact that an eigenvalue is the amount of variance that is explained by one or more component, it makes no sense to add a component that explains less variance than is contained in one variable, i.e. that has an eigenvalue smaller than 1.

Uniqueness is the part of the variance of the variable that cannot be explained by the common factors (1-communality), where communality is the sum across rows of the squared loadings, which is the percentage of the variability for each asset explained by the new variable. Values of uniqueness that are greater than 0.6, are considered as high (Stata Press, 2005).

6.3 Operationalisation conceptual model

This section describes the operationalisation of the constructed conceptual model (see figure 5.5 on page 57) given the available dataset and used methods. Because different analyses are conducted, the different frequencies of the constructed independent variables are given for each dependent variable to be analysed in Appendix C. Here is reflected on the decisions made in the construction of the dependent and the independent variables.

6.3.1 Dependent variables

As stated in the research questions and the conceptual model, four concepts of reproductive health are explored thereby distinguishing between three maternal health services and family planning methods. All dependent variables are binary grouped as presented in table 6.1. In addition, self efficacy levels of men and women are analysed.

Table 6.1: Dependent variables of the research

	Dependent variables	Labels	N	Proportion
A	Number of antenatal care visits N= 417	0: Less than four visits	152	36.36
		1: Four or more visits	266	63.64
B	Delivery attended by doctor N=402	0: No	99	24.57
		1: Yes	304	75.43
C	Number of visits of midwife at home N= 419	0: Less than five visits	204	48.69
		1: Five or more visits	215	51.31
D	Use of modern family planning methods* females aged 14-54 years N=1,137	0: No	844	74.23
		1: Yes	293	25.77
E	Self efficacy N= 2,619	0: Mean and lower score	1,355	51.74
		1: Higher than mean score	1,264	48.26

*Modern methods: pill, IUD, male and female condom, male and female sterilisation, injectables, implants, foam tablets, diaphragm, and jelly.
 Non modern, or traditional methods: rhythm, natural family planning, withdrawal, abstinence, and other.
 Source: Own calculations based on data UNHCR MDG project, 2006.

As described in chapter four, the motivation to split the number of antenatal checks at four is based on the recommendations made byt the WHO, where at least four antenatal check are seen as adequate.

For the number of visits of a midwife at home, which is split at at least five visits, above recommendation is taken into consideration, thereby adding up one visit to take into account postnatal care.

Concerning the analysis to be conducted on the utilisation of family planning methods, the listed methods in the survey are grouped into utilisation of modern methods (1), and traditional methods or non use (0). This analysis is conducted on only women, but the utilisation of their husbands, if known, is taken into account. This means that couple

prevalence is incorporated in the construction of the variable, i.e. if either the wife or the husband used a modern method within the past year, both are labelled as users. For the women of whom the partner could not be extracted from the survey, only her utilisation is taken. Because in Sri Lanka it are in general females who use family planning methods (condom use is rare), the incorporation of couple prevalence does not lead to a biased variable.

For predicting the level of self efficacy it is chosen to conduct another logistic regression analysis (mainly due to restrictions in time). The constructed binary dependent variable is whether a person scores average or lower self efficacy (0), or scores above this average (1). Here, self efficacy is again determined by factor analysis, but in this case men are also incorporated in the construction, thereby providing insight in the possible different contributions of both sexes in the explanation of self efficacy.

6.3.2 Independent variables
6.3.2.1 Individual background

Most variables that are conceptualised in the *individual background* are obvious to construct. Although it has to be mentioned that instead of extracting the reported value for *age* directly from the dataset, the indicator is calculated by extracting the century month of birth of the respondent from the century month of the birth of the last child since 2000, or century month at interview to prevent heeping. For missing values on month, six is given in order to keep the case within the sample.

Parity is constructed on the basis of of the total number of births given, in which the children who died are included. *Parity at last birth* is constructed from above parity at interview, minus one, because it is dealt with the last pregnancy since 2000.

Place of residence at last birth is constructed on basis of the available information about the timing of previous displacements.

Then, *period of birth* is split at the moment the ceasefire was signed, i.e. 22.02.2002. All births within February 2002 are coded as having occurred before the ceasefire, while births since the 1st of March occurred after this event.

6.3.2.2 Socioeconomic status

Socioeconomic status is measured by three variables, i.e. wealth status of the household, educational level, and status of women. The used methodology for the construction of the former and the latter are described in Appendix B1 and B2.

The reason for constructing a *wealth index* is that information about income and expenditures of individuals and households it not always reliable due to under - or over reporting for several reasons. For Sri Lanka, questions concerning income and expenditures in the survey are probably underreported due to fear of loss of benefits (i.e. The Samurdhi programme) when reporting the real, probably higher, income and expenditures. Therefore, it is useful to use another indicator that represents the economic situation of the household.

An indicator that represents the economic status of a household within the sample is wealth. Wealth is a theoretical measurable quantity when information about income and expenditures is lacking, difficult, or poor to measure. The concept can be considered as an underlying unobserved variable, which represents the economic status of the household on the long run (Filmer and Pritchett, 2001).

To obtain this wealth index, information about variables that are associated with a household's relative position in the distribution is needed. Often these variables are household ownership of consumer durables, characteristics of the household's dwelling and household landownership (Rutstein et.al, 2004).

Educational level is directly constructed from the questionnaire, by grouping educational level into a binary variable, the first label being not and primary educated, the second, secondary and higher education.

Often *status of women* is measured by information about education, employment, literacy, and participation in society. In this research the status of women is constructed differently by using questions that measure opinions about gender issues. In particular, whether a woman thinks a husband is allowed to hit his wife seven particular situations, i.e. when she goes out to see friends without telling him; when she leaves town/village without telling him; when she neglects the children; when she argues with him; when she refuses to have sex with him when he wants it; when she didn't prepare the food properly; and, when she spends any money without first consulting him

All respondents above age 15 can agree or disagree on these statements, or answer that they don't know. Because the number of persons that answered the latter is small (less than 10 percent), it is decided that this category is recoded as missing.

The index is based on the answers of female respondents only, because then it reflects somehow their opinion about their rights and situation. If including men in the construction of the index, factor scores might be distorted by their values.

For the analysis of self efficacy, the index is based on the responses of males and females, resulting in a different scores and distribution.

All these three variables are constructed on basis of the situation given at the time of interview. This means that for the circumstances around the last pregnancy since 2000 it is assumed that these statuses were the same, possibly leading to anticipatory analysis.

The reason that these explanatory variables can be used with confidence in the analyses concerning the last birth is that three quarter of them took place after 2002, which implicates a relatively short duration since interview. Together with the fact that most respondents live at current place of residence for a longer time, it can be assumed that their wealth status remained more or less the same since 2000, although the effects of displacement through conflict on wealth might put this assumption under discussion.

The status of women is assumed to be stable along this period (2000-2006). This variable is based on subjective ideas which can change over time, but concerning these type of questions can assumed to be stable opinions over one's life because they are learned and internalised at younger ages. Therefore assuming to be dependent on someone's personal context.

6.3.2.3 Displacement history

The explanatory variables that cover the displacement history of the respondent are constructed for the moment of delivery of the last birth since 2000, as for the time of interview. This reconstruction is mainly done on basis of the century months by which *age at first displacement* and *duration of stay* are obtained.

The *number of displacements* can be constructed directly from the dataset, as for the number of displacements at last birth the situation has to be reconstructed. The same is done for *displacement status*.

Concerning the utilisation of family planning methods, displacement status also distinguishes for those that have been returned after displacement because the findings obtained from the explorative research found that this particular group has the lowest utilisation.

6.3.2.4 Proximate determinants

As already shown in the conceptual model. not all proximate determinants of Kunst and Houweling are used for the four analyses. The content of the data does not allow taking into take into account those proximate determinates in the grey part of the box. Further, of the operationalisable concepts not all are used in each analysis. Perceived health for example is only incorporated in the analysis of utilisation of family planning methods for the reason that these might vary too much over time and is only appropriate to take into account for a very small period around the interview to avoid anticipatory analysis.

Then, *autonomy* is again an index, this time based on nine questions that cover who in the household makes decisions about particular aspects like; the need of health care, of respondent or child; education of daughter or son; major and daily household purchases; migration; marriage of daughter or son; and, what food should be cooked each day. More details are to be found in Appendix B3.

Individual score 1 if only the respondent makes the decision, and 0 when the respondent together with others, or only others decide. Again, the index is based on the answers of females only. For the analysis on self efficacy the responses of males are included, resulting in different scores and distribution.

Need at moment of last pregnancy and delivery, as at interview is constructed by adding three types of circumstances into one variable. According to the WHO a women is in need for (additional) maternal health care if she is relatively young or old, i.e. under 18 or above 35 years (WHO, 2006). Then she is in need if she expects her first or sixth or higher order child. Finally, additional attention is needed when the birth interval between the last birth and birth under study is less than two years (WHO, 2005).

6.3.2.5 Self efficacy

The last independent variable to be operationalised is self efficacy. For this research limitations of the dataset do not enable to use a domain specific index of self efficacy (see discussion in chapter 5.1 on page 56). Therefore, a general self efficacy index is applied in all the analyses.

On basis of four general self efficacy related questions an index is constructed as described in Appendix B4. The questions cover whether the respondent thinks he or she is able; to solve most problems if is tried hard enough; to deal effectively with unexpected events; to find the means and ways to get what he or she wants, if someone opposes the person; and to find several solutions, when being confronted with a problem.

For the last analysis, this self efficacy is the dependent variable. Because this last analysis is conducted on the whole population, i.e. including men, new scores are calculated, leading to a variable with different frequencies and distributions.

7. Analyses on the utilisation of maternal health services and modern family planning methods

This chapter describes the regression analyses conducted on the five dependent variables of interest. Based on described theory, the conceptual model, and formulated hypotheses, a set of independent variables are used in order to obtain a model that predicts whether; a) at least four antenatal care checks were provided for the last pregnancy since 2000, b) a doctor was present during the delivery of this last born child since 2000, c) a woman was visited at least five times by a midwife at home, d) a modern family planning method was used in the past 12 months, and e) a person scores above the average level of self efficacy.

The obtained models are shown in tables that present odds ratios together with their significance level. The analysis on each dependent variable is covered in separate sections of this chapter.

Before describing these models, each section starts with a discussion on the gross effects of each independent variable on the variable to explain. These gross effects are obtained by bivariate analysis, i.e. logistic regression with only one independent variable, thus not controlling for addition factors.

It must be mentioned that only those cases that score on every independent variable in the model are taken into account in the analyses. In this way no cases are lost during the modelling process.

For the reason that the inclusion of status of women leads to a selective loss of cases[15], it is chosen not to include this variable to avoid biased results. For the same reason autonomy is not incorporated in the analysis on utilisation of modern family planning methods.

7.1 Antenatal care: receiving at least four antenatal care checks

Given the descriptive information on utilisation of antenatal care given in chapter 4.4.1, it seems that displaced women less often received at least four antenatal care checks than non displaced women received for their last pregnancy since 2000. To discover whether this group is indeed underserved in antenatal care, it has to be controlled for various factors that additionally might contribute to the explanation of these differences. Table 7.1 shows the odds ratios obtained for this dependent variable.

Resulting from bivariate regression, model 0 shows that displaced women are half as likely to have received at least four antenatal care checks than non displaced women are, reflecting the outcomes of the descriptives, as confirming the hypothesis that receiving the prescribed number of antenatal checks differ by displacement status.

Then, model 0 shows that there are no differences found for age. This indicates that the health care system does not discriminate for age. Interesting is the fact that of all independent variables ethnicity has the highest predictive power, i.e. 53.68 percent which is very high. The bivariate model shows that Muslim women have only three percent of the likelihood of Sinhalese women to have received at least four checks. As the hypothesis expected differences between the ethnicities, this strong effect of Muslim women is remarkable, and might possibly refer to the presence of discrimination against Muslims within the health system on the one hand, while on the other hand Muslim women themselves might reject the utilisation of antenatal care checks or have less access to health care.

One of the factors that might influence this strong effect of ethnicity, is place of residence at time of childbearing. Especially in this research this factor might refer to the impact of conflict and displacement on the health care system, as indicated in the previous background chapters.

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[15] Because the status of women is based on sensitive questions, and the 'don't know' category is recoded as missing, a large group of the surveyed population does not score on this variable, leading to a loss of cases to be analysed. Exploring the characteristics of this lost group, it is found that the majority of these missing values are Muslim women. Therefore, it can be concluded that it is a selected group that is excluded from of the model when including the status of women.

In addition to this non randomness, it is not the case that particular questions used for the construction of this variable score missing. The majority of the missing cases are attributed to the non response of the whole set of questions used for the construction of the index. This indicates that the decision to recode the answer 'don't know' into a missing value did not lead to a large number of missing values on the status of women.

Table 7.1: Odds ratios and significance level of receiving at least four antenatal care checks, last pregnancy since 2000

	Model 0 N= 378	Model 1 N= 378	Model 2 N= 378	Model 3 N= 378	Model 4 N= 378	Model 5 N= 378	Model 6 N= 378	Model 7 N= 378	Model 8 N= 378
	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio
Displacement status									
Non displaced	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Displaced	0.51**	0.51**	0.20***	0.32**	0.30**	0.28**	0.25**	0.22**	0.22**
Age at delivery									
14-24 years	0.96	0.93	1.64	1.45	1.44	1.50	1.47	1.55	1.74
25-29 years	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30-34 years	0.61	0.63	1.00	0.92	0.91	0.87	1.28	1.18	1.22
35-54 years	0.63	0.60	0.87	0.91	0.90	0.85	1.32	1.30	1.25
Ethnicity									
Sinhalese	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sri Lankan Tamil	2.81		3.84*	0.42	0.42	0.45	0.42	0.40	0.42
Indian Tamil	1.37		2.16	0.19	0.19	0.18	0.17	0.18	0.15
Muslim	0.02***		0.02***	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***
Place of residence									
Mannar	1.00			1.00	1.00	1.00	1.00	1.00	1.00
Vavuniya	0.97			1.02	1.03	1.00	0.98	1.04	1.27
Trincomalee and other	0.00***			0.03***	0.02***	0.02***	0.02***	0.01***	0.01***
Anaradhapura	0.03***			0.09**	0.09**	0.08**	0.08**	0.07**	0.10**
Polonnaruwa	0.01***			0.03***	0.03***	0.02***	0.02***	0.02***	0.02***
Wealth Status									
Poorest	1.00				1.00	1.00	1.00	1.00	1.00
Middle	0.65				1.05	1.10	1.02	0.97	0.91
Richest	0.97				0.92	0.99	0.89	0.80	0.84
Education									
None and primary	1.00					1.00	1.00	1.00	1.00
Secondary and higher	2.18***					0.65	0.62	0.62	0.62
Need									
No Need	1.00						1.00	1.00	1.00
Need	1.21						0.48	0.58	0.58
Period of childbirth									
Before ceasefire	1.00							1.00	1.00
After ceasefire	0.70							0.41*	0.46
Self efficacy									
Lowest	1.00								1.00
Middle	0.47***								0.66
Highest	0.61								0.32*
Log likelihood model	-247.10	-245.02	-107.41	-92.69	-92.66	-92.23	-91.11	-89.63	-88.00
LR		4.16	275.22	29.44	0.06	0.86	2.24	2.96	3.26
Degrees of freedom (df)	1	4	7	11	13	14	15	16	18
delta df		3	3	4	2	1	1	1	2
chi2<LR (95 % CI)		No imp	Imp	Imp	No imp	No imp	No imp	No imp	No imp
Pseudo R2	0.0124	0.0207	0.5707	0.6295	0.6297	0.6314	0.6358	0.6418	0.6483

*** : p < 0.01   ** : p < 0.05   * : p < 0.1

Source: Own calculations based on data UNHCR MDG project, 2006.

Model 0 shows that women living in Trincomalee, Anaradhapura, and Polonnaruwa at the moment of their last delivery have a very low likelihood of having received at least four antenatal checks compared to those women who lived in Mannar. Women living in Vavuniya do not differ from this district.

Against all theoretical expectations, but in accordance with the Sri Lankan health care system, wealth status does not seem to make a difference in predicting the utilisation of antenatal care checks in the bivariate model referring to the egalitarian health system, not discriminating for wealth.

As theoretically also expected, the effect of educational level significantly differ from each other, i.e. higher educated women are two times more likely to have received at least four antenatal care checks. As expected, higher educated women possibly have more knowledge and access to the health care system

Then, women in need of antenatal checks, referring to their increased risk of complications relating to their age, parity, or birth interval, do not differ from women without this need.

Also the gross effect of period of childbirth does not contribute to the prediction of the dependent variable.

Finally, self efficacy does show some differences in the bivariate model, where middle self efficacious women are half as likely than low efficacious women are to have received at least four antenatal checks. This is contrast to the hypothesis that self efficacy would have a positive effect on the number of antenatal checks.

When adding above factors one by one to the model, it becomes clear that the difference between non displaced and displaced women increases. When controlling for all explanatory factors, model 8 shows that displaced women have one fifth of the likelihood of non displaced women to have received at least four antenatal checks, thereby confirming the hypothesis that the utilisation of this service differs for displaced and non displaced women.

The table shows that very low odds ratios especially for Muslims are obtained, and together with those women living in Trincomalee, Anaradhapura, and Polunnaruwa these features are the strongest predictors of receiving at least four antenatal checks.

In addition to this, self efficacy has some explanatory power, because after controlling for the other independent variables, high self efficacious women have one third of the likelihood of the lowest efficacious women to have received the prescribed number of antenatal care checks. Although the middlest level of self efficacy is not significant, it is in line with the direction of the highest one. Thus, it seems that there is a negative relationship for self efficacy and receiving the appropriate number of antenatal checks.

Interesting is to see that the effect of education is lost, even changing direction. This loss is obtained when controlling for place of residence. This means that educational differences between districts contribute to the predictive effect.

When ignoring the effect of self efficacy, model 7 shows that the period of childbirth has a significant different influence, namely those women that gave birth after the ceasefire have almost one third of the likelihood of receiving at the appropriate number of antenatal care checks of women that gave birth before that particular moment in time. This is a remarkable result, because it is expected that the situation would have been improved since the agreement on the ceasefire. The reduction of humanitarian aid after 2002 might contribute to the explanation of this result, together with the possible long term pressure put the health system, partly caused the impact of conflict and displacement.

Finally it is remarkable that the last model, model 9, has a predictive power of 65 percent, which is quite high knowing that usually in social sciences a model's predictive power of 25-30 percent is reasonable. The reason of this high R^2 might be that ethnicity itself has a very high predictive power, indicating that the explanative effect on the utilisation by Muslim women is very strong.

For the reason that displaced persons are less likely to have received the prescribed number of antenatal care checks, a new model is created for only those women being displaced. In this way it can be determined whether it are in particular displacement related factors that might contribute to this lower utilisation or that other factors have a different influence.

Table 7.2 shows the obtained odds ratios, where in the first place it seems that those women who are displaced more than ones have lower likelihoods to have received at least four antenatal checks than those who are displaced ones. Without controlling for any factor, duration of stay has a positive effect

on the utilisation of antenatal care, but it becomes clear that this positive effect is replaced by a non significant negative effect if controlling for several factors.

Except for need and period of childbirth, the gross effects of the independent variables are more or less the same for this selected population as for the total sample.

Table 7.2: Odds ratios and significance level of receiving at least four antenatal care checks, last pregnancy since 2000, displaced women only

	Model 0 N= 288 Odds ratio	Model 1 N= 288 Odds ratio	Model 2 N= 288 Odds ratio	Model 3 N= 288 Odds ratio	Model 4 N= 288 Odds ratio	Model 5 N= 288 Odds ratio	Model 6 N= 288 Odds ratio	Model 7 N= 288 Odds ratio	Model 8 N= 288 Odds ratio	Model 9 N= 288 Odds ratio
Number of displacements										
One	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Two	0.59	0.59	0.64	0.32	0.26*	0.26*	0.27*	0.33*	0.49	0.52
Three	0.35**	0.35**	0.36**	0.36	0.23*	0.23*	0.24	0.27	0.32	0.33
Four or more	0.67	0.66	0.73	0.60	0.41	0.41	0.44	0.55	0.86	0.94
Duration of stay										
Less than 5 years	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5 to 10 years	1.01	0.94	0.99	0.68	0.81	0.79	0.76	0.72	0.67	0.66
More than 10 years	1.35	1.09	1.21	0.40	0.35	0.34	0.34	0.34	0.40	0.43
Age at delivery										
14-24 years	0.93		0.88	1.67	1.54	1.52	1.68	1.62	1.58	1.75
25-29 years	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30-34 years	0.59		0.57*	0.88	0.78	0.75	0.75	0.35	1.06	1.10
35-54 years	0.52		0.53	0.87	0.85	0.84	0.75	0.54	1.44	1.47
Ethnicity										
Sinhalese	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sri Lankan Tamil	2.76			3.55	0.70	0.71	0.97	1.01	0.60	0.68
Indian Tamil	1.32			1.67	0.27	0.28	0.34	0.39	0.26	0.26
Muslim	0.01***			0.01***	0.04***	0.04***	0.04***	0.03***	0.03***	0.03***
Place of residence										
Mannar	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Vavuniya	0.98				1.25	1.12	1.12	1.01	1.08*	1.18
Trincomalee and other	0.01***				0.03***	0.02***	0.02***	0.02***	0.01***	0.01***
Anaradhapura	0.03***				0.14	0.16	0.16	0.18	0.10*	0.14
Polonnaruwa	0.01***				0.03***	0.03***	0.03***	0.03**	0.02***	0.02**
Wealth Status										
Poorest	1.00					1.00	1.00	1.00	1.00	1.00
Middle	0.56**					0.98	0.98	0.85	0.81	0.77
Richest	0.95					1.35	1.35	1.17	1.00	1.05
Education										
None and primary	1.00						1.00	1.00	1.00	1.00
Secondary and higher	2.03***						0.50	0.45	0.44	0.43
Need										
No Need	1.00							1.00	1.00	1.00
Need	0.95							0.31*	0.41	0.39
Period of childbirth										
Before ceasefire	1.00								1.00	1.00
After ceasefire	0.60*								0.25*	0.29*
Self efficacy										
Lowest	1.00									1.00
Middle	0.40***									0.70
Highest	0.59									0.45
Log likelihood model	-191.65	-191.60	-189.41	-75.18	-67.06	-67.01	-66.15	-64.53	-62.41	-61.93
LR		0.10	4.38	228.46	16.24	0.10	1.72	3.24	4.24	0.10
Degrees of freedom (df)	3	5	8	11	15	17	18	19	20	22
delta df		2	2	3	3	4	2	1	1	2
chi2<LR (95 % CI)		No imp	No imp	Imp	Imp	No imp	No imp	No imp	Imp	No imp
Pseudo R2	0.0185	0.0188	0.0300	0.6150	0.6566	0.6568	0.6612	0.6695	0.6804	0.6428

*** : p < 0.01 ** : p < 0.05 * : p < 0.1

Source: Own calculations based on data UNHCR MDG project, 2006.

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Where need had a positive effect on the whole sample, it has a small negative effect for only those displaced, although this difference is not significant.

Then the gross effect of period of delivery has a negative effect, i.e. displaced women who gave birth after the ceasefire are forty percent less likely to have received at least four antenatal care checks. When controlling for the other factors this likelihood even reduces to one third, indicating that displaced women had less access to health care after the ceasefire than they did before, which is an important outcome providing additional information to the explanation the lower number of antenatal care checks of displaced women.

This additional model shows that for displaced women, displacement related factors like the number of displacements and the duration of stay do not significantly contribute to the explanation of this lower utilisation. Some other variables do, and especially period of delivery shows to be of imporance for this population, but in an unexpected way. After the ceasefire displaced women are one third less likely to have received at least four antenatal checks than they did before. This effect is not obtained in the previous models where non displaced women are included.

In addition, it are again Muslims and women living in Trincomalee and Polonnaruwa at the moment of their delivery, being very less likely to have received the appropriate number of antenatal checks.

7.2 Skilled attendance during delivery: being assisted by a doctor

For the analysis on the presence of a doctor at delivery of the last birth since 2000, the same method as in the previous section is applied, thereby also including the same independent variables. Before discussing the results, it has to mentioned again that the fast majority, i.e. 98 percent, of the deliveries is attended by a skilled assisted, e.g. a doctor, nurse or midwife. In this analysis is distinguished whether a doctor was present at delivery or not. Therefore it has to be kept in mind that when a doctor was not present, the woman was not necessarily underserved. Generally it can be said that this analysis tells more about the health care system in general, than it does for explaining the utilisation of services. This because it can be assumed that when no doctor was present, the health care system might be inadequately working.

Table 7.3 shows a sequence of nine models, of which the last has a predictive power of 19 percent in which in total 371 out of 402 cases are remained. Here is are the factors ethnicity, place of residence, and self efficacy having the highest predictive power, respectively 7.83, 7.20, and 6.73 percent. This is mentioned because it shows that self efficacy is of importance in the prediction of being attended by a doctor.

In contrast to the previous analysis, there is not an a priory significant difference found between displaced and non displaced women in being assisted by a doctor at delivery. Also between the categories of the independent variables age at delivery, need, and period no significant differences are obtained for the gross effects.

Indian Tamils show to be different from Sinhalese, i.e. they have a quarter of the likelihood of Sinhalese women to be assisted by a doctor in the bivariate model.

Women living in the districts Anaradhapura and Pollonnaruwa show to be respectively four and six times as likely to be assisted by a doctor than women living in Mannar. For the other three districts no differences are found.

Concerning wealth status, model 0 shows that only women of the middle wealth category are significantly different from those with lower wealth status. They are almost two times more likely than the reference group.

Education shows again the theoretically expected effect, where women with secondary and higher education are more likely than women without or only primary education are.

In the bivariate model, the different levels of self efficacy are highly significant from each other, where women with a middle level of self efficacy are significantly over two times more likely to be assisted by a doctor than low self efficacious women. For high efficacious women this likelihood is even ten times higher. These results confirm the hypothesis that higher efficacious women are possibly more able to insist on getting the care they need, where in this case it is a doctor being present during the delivery of their child.

Table 7.3: Odds ratios and significance level of the attendance of a doctor at delivery, last birth since 2000

	Model 0 N= 371	Model 1 N= 371	Model 2 N= 371	Model 3 N= 371	Model 4 N= 371	Model 5 N= 371	Model 6 N= 371	Model 7 N= 371	Model 8 N= 371
	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio
Displacement status									
Non displaced	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Displaced	0.93	0.94	1.13	1.24	1.05	1.18	1.20	1.21	1.21
Age at delivery									
14-24 years	1.20	1.20	1.09	1.06	0.98	0.91	0.92	0.92	0.83
25-29 years	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30-34 years	0.97	0.97	0.86	0.87	0.80	0.82	0.77	0.79	0.74
35-54 years	0.80	0.80	0.67	0.66	0.65	0.73	0.67	0.69	0.69
Ethnicity									
Sinhalese	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sri Lankan Tamil	0.71		0.73	0.70	1.44	1.26*	1.23*	1.24	0.89
Indian Tamil	0.26**		0.25**	0.49	0.36	0.38	0.36	0.36	0.31
Muslim	1.74		1.81	2.04	1.99	1.90	1.90	1.86	1.72
Place of residence									
Mannar	1.00			1.00	1.00	1.00	1.00	1.00	1.00
Vavuniya	1.17			1.65	1.80*	1.93*	1.96*	1.94*	1.62*
Trincomalee and other	0.97			0.65	0.47	0.69	0.70	0.71	0.46
Anaradhapura	3.82***			3.42*	3.15	3.28*	3.22*	3.23*	1.78*
Polonnaruwa	5.96***			4.42**	4.06**	5.25**	5.15**	5.19**	4.18**
Wealth Status									
Poorest	1.00				1.00	1.00	1.00	1.00	1.00
Middle	1.87**				1.51	1.59	1.61	1.62	1.48
Richest	1.10				0.61	0.53*	0.54*	0.54*	0.43**
Education									
None and primary	1.00					1.00	1.00	1.00	1.00
Secondary and higher	1.72**					2.29**	2.30**	2.31**	2.35**
Need									
No Need	1.00						1.00	1.00	1.00
Need	0.92						1.14	1.12	1.31
Period of childbirth									
Before ceasefire	1.00							1.00	1.00
After ceasefire	1.19							1.11	0.92
Self efficacy									
Lowest	1.00								1.00
Middle	2.28***								2.42**
Highest	10.35***								10.18***
Log likelihood model	-202.04	-202.46	-186.62	-179.79	-176.60	-173.21	-173.12	-173.07	-162.79
LR		-0.84	31.68	13.66	6.38	6.78	0.18	0.10	20.56
Degrees of freedom (df)	1	4	7	11	13	14	15	16	18
delta df		3	3	4	2	1	1	1	2
chi2<LR (95 % CI)		No imp	Imp	Imp	No imp	Imp	No imp	No imp	Imp
Pseudo R2	0.0001	0.0030	0.00765	0.1103	0.1260	0.1428	0.1433	0.1435	0.1944

*** : p < 0.01   ** : p < 0.05   * : p < 0.1
Source: Own calculations based on data UNHCR MDG project, 2006.

If looking into more details to what happens with above odds ratios when the independent factors are incorporated into the model it immediately becomes clear that no significant difference between non displaced and displaced women is obtained. Although the direction of the difference is remarkable, because after controlling for age, displaced women become more likely to be assisted by a doctor, in model 8 this likelihood is 20 percent higher than for the non displaced women.

As mentioned, in the model without controlling for any additional effect, Indian Tamils are significant less likely to be attended by a doctor during delivery. This significant difference is lost when controlling for place of residence, which indicates that this ethnic population particularly live in districts where the attendance of a doctor at delivery is lower, i.e. Mannar and Vavunyia.

When controlling for several factors, women living in Polonnaruwa when giving birth to their last child were over five times more likely to be assisted by a doctor than women in Mannar. Also in Anuradhapura this likelihood is high, although not being significant in all models.

Women with high wealth status become more than half as likely than low wealth status women to be attended by a doctor.

The strength of the effect of education increases by the incorporation of independent variables, leading to the finding that secondary or higher educated women are more than two times more likely to be assisted by a doctor than women without or with primary education.

The factors need and period of birth do not seem to make a difference in the prediction of being attended by a doctor or not.

Then, the inclusion of the variable being of most interest of the research, namely self efficacy, leads to a significant improvement of the model. Women with a middle level of self efficacy are significantly over two times more likely to be assisted by a doctor than low self efficacious women are. For high efficacious women this likelihood is even almost a significant ten times higher. The impact of one's efficaciousness on the ability to find the appropriate health care might be an explanation for these results.

7.3 Ante- and postnatal care: receiving at least five visits of a midwife at home

The last analysis concerning maternal health circumstances of the last pregnancy since 2000 is conducted on the number of visits of a midwife at home. As mentioned, these visits are dichotomously defined as receiving at least five of these visits, or less. As shown in the descriptive overview, displaced women are less often visited at home by a midwife. This further analysis aims to discover which factors contribute to these differences. Table 7.4 shows that by inclusion of the previous independent variables the predictive power of the model accumulates to a narrow 14 percent, by covering again 378 cases scoring on each variable.

Starting again with a description of the odds ratios obtained from bivariate analysis, model 0 shows that displaced women are significantly less likely to have received at least five visits at home by a midwife.

Differences in age, education and need do not contribute to the prediction whether a woman was visited at least five times at home by a midwife.

Model 0 shows that Sri Lankan and Indian Tamils have respectively one third and one quarter of the likelihood of Sinhalese women to haven been visited at least five times at home by a midwife.

Also for this dependent variable a clear division is found between the Northern and Eastern districts (Mannar/Vavuniya/Trincomalee) and the North Central districts (Anuradhapura /Polonnaruwa). The latter two have a higher likelihood for being visited at least five times at home by a midwife, while between the former three no differences exist.

Referred to the poorest women, women with middle or higher wealth are more likely to be visited at home, both having remarkably the same strength.

For giving birth before or after the ceasefire, model 0 shows that women who delivered after the ceasefire where one and a half times more likely to have been visited by a midwife at home for at least five times than women who gave birth before this agreement.

Finally, self efficacy contributes again to the prediction of this dependent variable, where higher self efficacious women show to be more likely to have been visited at least five times at home by a midwife than low efficacious women. For middle and high levels of self efficacy this is respectively almost two and three times higher than the lowest level.

Table 7.4: Odds ratios and significance level of receiving at least five visits of a midwife at home, last pregnancy since 2000

	Model 0 N= 378 Odds ratio	Model 1 N= 378 Odds ratio	Model 2 N= 378 Odds ratio	Model 3 N= 378 Odds ratio	Model 4 N= 378 Odds ratio	Model 5 N= 378 Odds ratio	Model 6 N= 378 Odds ratio	Model 7 N= 378 Odds ratio	Model 8 N= 378 Odds ratio
Displacement status									
Non displaced	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Displaced	0.64*	0.62*	0.66	0.63	0.66	0.66	0.62	0.64	0.63
Age at delivery									
14-24 years	0.95	0.92	0.76	0.68	0.70	0.70	0.68	0.68	0.62
25-29 years	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30-34 years	1.24	1.27	1.11	1.09	1.09	1.09	1.31	1.46	1.48
35-54 years	1.22	1.19	0.99	0.94	0.94	0.94	1.18	1.32	1.36
Ethnicity									
Sinhalese	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sri Lankan Tamil	0.37**		0.35**	0.73	0.73	0.73	0.77	0.76	0.61
Indian Tamil	0.26***		0.26**	0.59	0.62	0.62	0.67	0.64	0.60
Muslim	1.34		1.32	1.05	1.05	1.05	1.06	0.95	0.90
Place of residence									
Mannar	1.00			1.00	1.00	1.00	1.00	1.00	1.00
Vavuniya	0.77			0.75	0.74	0.74	0.71	0.68	0.58
Trincomalee and other	1.50			1.08	1.06	1.06	1.02	1.16	0.91
Anaradhapura	3.63***			2.51	2.41	2.41	2.51	2.56	1.83
Polonnaruwa	4.58***			3.35**	3.25**	3.25**	3.45**	3.58**	3.06**
Wealth Status									
Poorest	1.00				1.00	1.00	1.00	1.00	1.00
Middle	1.76**				1.35	1.35	1.29	1.32	1.30
Richest	1.76**				1.23	1.23	1.15	1.19	1.12
Education									
None and primary	1.00					1.00	1.00	1.00	1.00
Secondary and higher	0.90					1.00	0.99	0.99	0.98
Need									
No Need	1.00						1.00	1.00	1.00
Need	0.98						0.66	0.57	0.58
Period of childbirth									
Before ceasefire	1.00							1.00	1.00
After ceasefire	1.54*							1.76**	1.60*
Self efficacy									
Lowest	1.00								1.00
Middle	1.89**								1.56*
Highest	2.78***								2.95***
Log likelihood model	-260.41	-259.62	-239.17	-233.75	-233.15	-233.15	-232.01	-229.89	-225.17
LR		1.58	40.90	10.84	1.20	0.00	2.28	4.24	9.44
Degrees of freedom (df)	1	4	7	11	13	14	15	16	18
delta df		3	3	4	2	1	1	1	2
chi2<LR (95 % CI)		No imp	Imp	Imp	No imp	No imp	No imp	No imp	Imp
Pseudo R2	0.0060	0.0090	0.0871	0.1078	0.1101	0.1101	0.1144	0.1225	0.1405

***: $p < 0.01$ **: $p < 0.05$ *: $p < 0.1$
Source: Own calculations based on data UNHCR MDG project, 2006.

The significant difference between displaced and non displaced women disappears when adding additional these factors into the model.

Also the found effects for Sri Lankan and Indian Tamils are removed when controlling for place of residence, indicating that these ethnicities are living in districts in which the likelihood of being visited by a midwife at home at least five times is low.

Wealth also looses its significant impact when controlling for age, ethnicity and place of residence, thereby confirming the hypothesis that the Sri Lankan health care system does not discriminate for these characteristics.

As said, women giving birth after the ceasefire are more likely to have received this number of visits than women giving birth before the ceasefire are. This possibly indicates that a stabilising situation enables midwifes to do their work better. Because the model controls for place of residence, it means that in all districts this effect is obtained.

Finally, when controlling for all above factors, the positive impact of self efficacy is remained. Thus, women being middle or high self efficacious are respectively one and a half and three times as likely to have been visited by a midwife than low self efficacious women.

7.4 Family planning: utilisation of modern methods in the past 12 months

The analysis to be conducted on the utilisation of modern family planning methods of women in the past 12 years is somewhat different from the previous three analyses for the reason that another group of respondents is selected. Here, it are not only women who gave birth to a child since 2000, but all female respondents aged 15-54 years are taken into account in the analysis. This means that the sample size is larger than for the previous analyses, i.e. 1,137 cases. The analysis covers 1,003 of these cases, because the remaining 134 score a missing on at least one of the incorporated variables. Table 7.5 shows that the last model has a cumulative predictive power of 25 percent. As mentioned in chapter 6, the use of modern family planning methods of males is taken into account in the analysis by the inclusion of the prevalence of family planning methods of couples in constructing the dependent variable.

As shown in the table, a distinction between displaced and returned displaced women is made for the reason that they showed disparities in their utilisation in the descriptive part of this research, see chapter 4.4.4. The bivariate model shows that there exists indeed a difference between them. Displaced and returned women are less likely to have used modern family planning methods in the past 12 months than non displaced women.

The gross effect model shows that, as expected, age at interview has a positive effect on the utilisation of modern methods. Very young women are very less likely to have made any use of modern family planning methods. After age 30, the differences in likelihood do not increase much. This finding can be explained by the fact that the data showed that the most commonly used methods are the pill, for younger women, and female sterilisation for the older ones. For the reason that in Sri Lanka fertility is relatively low (TFR at replacement level), and the age at childbearing quite high (around 27 years), women start their childbearing at high age, and are able control their reproduction after a short reproductive time span to limit their number of children. This is reflected by the odds ratios, which do not increase that much after age 35, indicating that most women in these age groups control their fertility permanently by making use of female sterilisation as was shown before.

The categories belonging to marital status show to be significantly different. This factor has the highest predictive power, i.e. 8 percent, where as expected, married women are most likely to have used modern methods.

Parity, or number of children, raises the odds ratios substantially. Where women with one child are almost 10 times as likely than women without children to use modern methods, women with three children 23 times more likely than the reference group to have used modern methods in the past 12 months.

Of the four categorised ethnicities, Muslim women are the only group being significantly different from Sinhalese women, having a quarter of their likelihood.

Concerning place of residence, the gross effects show differences between the districts are less clear than for the analyses on utilisation of maternal health services. In the districts where the assistance of a doctor and the number of visits of a midwife at home were most likely, i.e. Anaradhapura and Polonnaruwa, the odds ratios of utilisation of modern methods are much lower. Provision and access of these methods, or the presence of a certain ethnic group in these districts might be the explanation of this. Probably this becomes clear when controlling for several independent variables.

Table 7.5: Odds ratios and significance level of utilisation of modern contraceptives in the past 12 months, women including couple prevalence

	Model 0 N=1003	Model 1 N=1003	Model 2 N=1003	Model 3 N=1003	Model 4 N=1003	Model 5 N=1003	Model 6 N=1003	Model 7 N=1003	Model 8 N=1003	Model 9 N=1003
	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds	Odds ratio	Odds ratio	Odds ratio
Displacement status										
Non displaced	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Displaced	1.24	1.20	1.16	0.98	0.90	0.93	0.96	0.96	0.98	0.98
Displaced and returned	0.62**	0.55**	0.85	0.72	0.75	0.62	0.66	0.65	0.64	0.66
Age at interview										
14-19 years	0.22***	0.22***	0.70	1.15	1.00	1.01	1.00	1.01	1.01	0.96
20-25 years	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25-29 years	1.72*	1.78**	1.29	0.83	0.67	0.75	0.74	0.70	0.71	0.69
30-34 years	2.20***	2.39***	1.59	0.88	0.65	0.76	0.75	0.73	0.75	0.74
35-39 years	2.43***	2.53***	1.64	0.83	0.70	0.80	0.78	0.75	0.78	0.76
40-54 years	2.19***	2.26***	1.41	0.70	0.55*	0.64*	0.62	0.60	0.63	0.60
Marital status										
Never married	0.03***		0.05***	0.22**	0.26**	0.27**	0.28**	0.28**	0.28**	0.30*
Married	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cohabiting	0.23***		0.26***	0.25***	1.39	1.19	1.22	1.15	1.14	1.18
Divorced. separated. Widowed	0.19***		0.19***	0.21***	0.24***	0.23***	0.23***	0.23***	0.23***	0.23***
Parity										
No child	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
One child	9.70***			5.49***	5.98***	5.95***	6.03***	5.96***	6.00***	6.17***
Two children	17.16***			10.05***	12.27***	11.97***	12.23***	12.13***	12.07***	11.80***
Three children	23.56***			14.70***	17.83***	16.92***	17.42***	17.47***	17.57***	17.29***
Four and more children	19.42***			13.59***	17.67***	17.35***	18.15***	17.77***	17.66***	17.11***
Ethnicity										
Sinhalese	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Sri Lankan Tamil	1.10				1.27	0.70	0.72	0.71	0.70	0.79
Indian Tamil	1.32				1.23	0.77	0.82	0.78	0.77	0.82
Muslim	0.26***				0.14***	0.11***	0.11***	0.11***	0.11***	0.11***
Place of residence										
Mannar	1.00					1.00	1.00	1.00	1.00	1.00
Vavuniya	0.60***					0.56***	0.54***	0.54***	0.55***	0.57**
Trincomalee	0.09*					0.35	0.36	0.35	0.35	0.41
Anaradhapura	0.31***					0.33**	0.34**	0.33**	0.34**	0.39*
Polonnaruwa	0.26***					0.86	0.87	0.83	0.85	0.91
Wealth status										
Poorest	1.00						1.00	1.00	1.00	1.00
Middle	0.82						0.94	0.94	0.93	0.96
Richest	1.03						1.16	1.20	1.16	1.24
Education										
No education	1.00							1.00	1.00	1.00
Primary education	0.95							0.67	0.67	0.65

Secondary and higher	0.81							0.66	0.65	0.64
Perceived general health										
Excellent/good	1.00								1.00	1.00
Fair	1.35*								0.94	1.03
Poor/Very Poor	0.97								0.69	0.67
Self efficacy										
Lowest self efficacy	1.00									1.00
Middle self efficacy	0.58***									0.68**
Highest self efficacy	0.45***									0.58**
Log likelihood model	-585.45	-556.07	-491.33	-477.41	-437.67	-450.66	-450.14	-448.05	-444.47	-444.19
LR		58.76	129.48	27.84	79.48	-25.98	1.04	4.18	7.16	0.56
Degrees of freedom (df)	2	7	10	14	17	21	23	25	27	29
delta df		5	3	4	3	4	2	2	2	2
chi2<LR (95 % CI)		Imp	Imp	Imp	Imp	Imp	No imp	No imp	No imp	No imp
Pseudo R2	0.0127	0.0622	0.1681	0.1979	0.2282	0.2406	0.2409	0.2428	0.2438	0.2493

*** : $p < 0.01$ ** : $p < 0.05$ * : $p < 0.1$

Modern methods: pill, IUD, male and female condom, male and female sterilisation, injectables, implants, foam tablets, diaphragm, and jelly.

Non modern, or traditional methods: rhythm, natural family planning, withdrawal, abstinence, and other.

Source: Own calculations based on data UNHCR MDG project, 2006.

Surprisingly, model 0 shows that there are no significant differences between the levels of wealth status, neither for educational level. This is against all expectations and knowledge obtained from previous research on the utilisation of family planning methods. Increasing wealth, as increasing education is expected to relate to more knowledge, means, and thereby access to family planning methods.

For perceived general health the gross effect show that compared with women who perceive their health as good or excellent, women with perceived fair health are more likely to have used modern methods.

In contrast with the hypotheses, increasing self efficacy leads to a lower likelihood of having used modern methods in the past 12 months.

When controlling for the various factors, and especially for marital status, the difference within displacement status and age are lost. Interesting is to see that the effect of age changes direction during this process, where after controlling for marital status and parity age has a negative effect on the utilisation of modern family planning methods.

Concerning marital status, after controlling for parity, never married, separated, divorced, and widowed women show a lower likelihood compared to those being married in having used modern methods in the past years, which is a reasonable finding.

As expected, parity remains its powerful predictive value, having a positive effect on the utilisation of modern methods. Thus, increasing number of children make women more willing to use family planning methods in order to control their fertility. This finding is in accordance with the low Sri Lankan TFR. Muslim women are least likely to do so, as shown in all models.

Also after controlling for the selected factors, differences remain between the districts for the utilisation of modern methods. A result which is difficult to interpret, except for the reason that in these districts modern methods might be more difficult to access due to lack of provision or infrastructural problems.

After controlling, different levels of wealth, education and perceived health do not have predictive value for the differences in utilisation, while self efficacy has. The odds ratios of this latter variable are decreasing by increasing level of self efficacy, i.e. higher self efficacious women are less likely to have used any modern family planning method the past 12 months than lower self efficacious women. This result might be explained by the idea that higher efficacious women might think that they are more able to control their fertility by other means than modern family planning methods like abstinence, withdrawal or rhythm. As stated, self efficacy is related to the knowledge people have about the outcomes of alternative behaviours. In addition, higher self efficacious women might be more able to negotiate with their partner about their sexuality, as the appropriate method to use in order plan their fertility.

Although this analysis shows that no difference exist in the utilisation of modern family planning methods for the three displacement statuses, an additional analysis is conducted on only displaced women in order to explore the effects of displacement on this utilisation. This means that 830 cases remain to which last model has a predictive power of 30 percent. Resulting table 7.6 shows that after controlling for the various factors, see model 10, those women being displaced two times are almost twice as likely as those who are displaced ones to have used modern methods in the past year.

Also when considering displaced women only, Muslims are least likely to have used modern methods, together with almost the same results obtained for place of residence, wealth status, education, perceived health and self efficacy.

Outstanding is the effect of parity on the utilisation of modern methods, which has again a positive effect. But its effect is much stronger for this specific population, as shown in the binary model. And when controlling for the various factors, and especially for ethnicity, the level of the odds ratios are raising substantially. These outcomes indicate that displaced women have stronger incentives to limit their fertility.

Table 7.6: Odds ratios and significance level of utilisation of modern contraceptives in the past 12 months, women including couple prevalence, displaced women only

	Model 0 N=830	Model 1 N=830	Model 2 N=830	Model 3 N=830	Model 4 N=830	Model 5 N=830	Model 6 N=830	Model 7 N=830	Model 8 N=830	Model 9 N=830	Model 10 N=830
	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds	Odds ratio	Odds ratio	Odds ratio	Odds ratio
Displacement status											
Once	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Twice	1.13	1.23	1.27	1.87**	1.72**	1.80**	1.84**	1.83**	1.81**	1.81**	1.91**
Three	0.90**	0.93	0.98	1.47	1.41	1.57	1.55	1.54	1.52	1.51	1.58
Four and more	1.04	1.17	1.28	1.96**	1.79*	1.68*	1.51	1.53	1.47	1.47	1.58
Duration of stay											
Less than 5 years	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5 to 10 years	1.43*	1.48**	1.57**	0.90	0.87	0.69	0.76	0.76	0.77	0.76	0.80
More than 10 years	1.21	1.29	1.29	1.08	1.09	1.15	1.30	1.19	1.19	1.18	1.28
Age at interview											
14-19 years	0.17***		0.16***	0.59	1.64	1.19	1.17	1.19	1.25	1.24	1.11
20-25 years	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25-29 years	1.70*		1.73*	1.38	0.74	0.55	0.62	0.62	0.56	0.56	0.83
30-34 years	2.29***		2.28**	1.72	0.85	0.58	0.70	0.69	0.66	0.66	0.63
35-39 years	2.53***		2.49***	1.88*	0.84	0.69	0.82	0.80	0.75	0.76	0.72
40-54 years	2.21***		2.17**	1.46	0.66	0.49*	0.59	0.57	0.53	0.54	0.50
Marital status											
Never married	0.03***			0.04***	0.45	0.67	0.74	0.83	0.83	0.81	0.89
Married	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cohabiting	0.22***			0.18***	0.17***	1.21***	0.90	0.92	0.84	0.86	0.90
Divorced. separated. Widowed	0.16***			0.14***	0.15***	0.18***	0.17***	0.17***	0.16***	0.17***	0.16***
Parity											
No child	1.00				1.00	1.00	1.00	1.00	1.00	1.00	1.00
One child	23.50***				29.30***	35.33***	37.78***	41.01***	40.61***	39.79***	43.38***
Two children	50.07***				66.28***	93.16***	95.27***	106.32***	107.94***	104.83***	110.23***
Three children	69.15***				94.81***	129.94***	125.52***	141.15***	146.68***	144.17***	148.74***
Four and more children	55.40***				88.39***	137.04***	141.45***	163.00***	163.66***	160.06***	165.94***
Ethnicity											
Sinhalese	1.00					1.00	1.00	1.00	1.00	1.00	1.00
Sri Lankan Tamil	1.13					1.51	0.95	0.96	0.94	0.92	1.06
Indian Tamil	1.31					1.36	0.99	1.06	1.00	0.98	1.05
Muslim	0.25***					0.11***	0.09***	0.08***	0.08***	0.08***	0.08***
Place of residence											
Mannar	1.00						1.00	1.00	1.00	1.00	1.00
Vavuniya	0.55***						0.46***	0.44***	0.43***	0.44***	0.46***
Trincomalee	0.81**						0.39	0.43	0.38	0.37	0.50
Anaradhapura	0.25***						0.33*	0.34*	0.33*	0.32*	0.40*
Polonnaruwa	0.24***						0.95	1.01	0.93	0.91	1.10
Wealth status											
Poorest	1.00							1.00	1.00	1.00	1.00
Middle	0.75							0.93	0.92	0.90	0.93
Richest	1.01							1.29	1.35	1.32	1.41
Education											
No education	1.00								1.00	1.00	1.00

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Primary education	1.08								0.88	0.88	0.83
Secondary and higher	0.86								0.73	0.72	0.70
Perceived general health											
Excellent / Good	1.00									1.00	1.00
Fair	1.49*									1.02	1.14
Poor / Very Poor	0.97									0.76	0.74
Self efficacy											
Lowest self efficacy	1.00										1.00
Middle self efficacy	0.52***										0.58**
Highest self efficacy	0.47***										0.59*
Log likelihood model	-488.30	-485.99	-460.73	-398.32	-376.61	-355.30	-347.74	-346.72	-344.89	-344.61	-341.06
LR		4.62	50.52	124.82	43.42	42.62	15.12	2.04	3.66	0.56	7.10
Degrees of freedom (df)	3	5	10	13	17	20	24	26	28	30	32
delta df		2	5	3	4	3	4	2	2	2	2
chi2<LR (95 % CI)		No imp	Imp	Imp	Imp	Imp	Imp	No imp	No imp	No imp	No imp
Pseudo R2	0.0012	0.0060	0.0576	0.1853	0.2297	0.2733	0.2887	0.2908	0.2927	0.2933	0.3005

*** : $p < 0.01$ ** : $p < 0.05$ * : $p < 0.1$

Modern methods: pill, IUD, male and female condom, male and female sterilisation, injectables, implants, foam tablets, diaphragm, and jelly.

Non modern, or traditional methods: rhythm, natural family planning, withdrawal, abstinence, and other.

Source: Own calculations based on data UNHCR MDG project, 2006.

7.5 Self efficacy

For answering the last research question objecting to get insight in the factors that contribute to the prediction of the level of self efficacy, another logistic regression model is created where the binary dependent variable reflects whether a person belongs to the surveyed population scoring the average or lower (0), or scoring above this average level (1) of self efficacy. As mentioned in the previous chapter, for this analysis the self efficacy index is based on males as well in order to see whether a difference exists between males and females. In total 2,619 cases score on this variable, of which 1,940 remain for the analysis when excluding those cases where at least one of the independent variables has a missing value. It must be mentioned that the final model has a very weak predictive power, i.e. 4.7percent.

Discussing the obtained gross effects in table 7.7 first, model 0 shows that no significant differences exist between the likelihoods of displaced and non displaced persons to score above the average level of self efficacy. Remarkable is the negative relation of age, i.e. the likelihood of scoring above the average level of self efficacy is decreases by age, together with the finding that no differences exist between the sexes.

The gross effects of marital status show that never married and cohabiting women and men have a higher likelihood of scoring above the average value of self efficacy than those who are married.

Then, it are Sri Lankan Tamils and Muslims who are more likely to obtain this score than Sinhalese or Indian Tamils are. Here the positive effect of displacement might interact in such a way that it are especially these ethnic groups who have a higher score.

In confirmation with the hypotheses, increasing wealth corresponds to a higher likelihood of scoring above the average level of self efficacy. Where only the richest groups is significantly different from the poorest.

For education, no significant differences are found for the three different levels of self efficacy. This is in contrast with the hypothesis that higher education is related to higher self efficacy

Finally model 0 also shows that the gross effects of whether a person lives in a welfare camp or not, does not make a difference on the prediction of self efficacy.

When controlling for the selected independent variables it is interesting to see that differences between non displaced and those displaced become significant, where displaced persons are one third more likely to score above the average level of self efficacy than non displaced persons do.

The predictive effect of age remains, i.e. the odds ratios are decreasing by increasing age.

The table also shows that the significant difference of never married persons is lost when controlling for age. Interesting is that the higher likelihood of cohabitation remains through the whole model, indicating that cohabiting people are more likely to score above the average level of self efficacy. This effect can be interpreted that if women in a society like Sri Lanka with traditional values concerning marriage and sexuality, one has to have a strong personality, i.e. self efficacy, to make the decision not to marry, but to cohabit with a partner instead.

The higher odds ratios of Sri Lankan Tamils and Muslims remain when controlling for the various factors. For place of residence, the differences are remained and become even stronger when controlling for these other factors. In Vavunyia, Anuradhapura and Polunnaruwa persons are almost two times more likely to score above the average level of self efficacy than those living in Mannar. For the reason that the model already controls for important factors as age and ethnicity it is difficult to find an explanation for these findings.

As expected and discussed above, those persons having the highest level of wealth are more likely to score above the average level of self efficacy than low wealth persons are. Because the unknown causality it is difficult to interpret these results.

When controlling for the several factors, the negative effect of education on self efficacy becomes significant, which is in contrast with the expectations. Model 10 shows that primary educated persons are less likely to score above the average level of self efficacy than uneducated persons are, which is an finding difficult to interpret.

Another interesting finding is that after controlling, those persons living in welfare camps are one fifth more likely to score above the average level of self efficacy.

Table 7.7: Odds ratios and significance level of scoring above the average level of self efficacy, both sexes

	Model 0 N= 2582 Odds ratio	Model 1 N= 2582 Odds ratio	Model 2 N= 2582 Odds ratio	Model 3 N= 2582 Odds ratio	Model 4 N= 2582 Odds ratio	Model 5 N= 2582 Odds ratio	Model 6 N= 2582 Odds ratio	Model 7 N= 2582 Odds ratio	Model 8 N= 2582 Odds ratio
Displacement status									
Non displaced	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Displaced	1.17	1.17	1.17	1.14	1.20*	1.20*	1.34**	1.35**	1.36**
Age at interview									
14-24 years	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25-34 years	0.99	0.99	0.99	0.99	0.95	0.95	0.93	0.93	0.94
35-44 years	0.89	0.89	0.89	0.91	0.83	0.83	0.80	0.81	0.81
45-54 years	0.68***	0.68***	0.68***	0.74*	0.67**	0.67**	0.65**	0.66**	0.67**
55 years and older	0.59***	0.60***	0.59***	0.65**	0.60**	0.60*	0.59***	0.58**	0.59**
Sex									
Male	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Female	0.92		0.91	0.93	0.93	0.93	0.92	0.91	0.91
Marital Status									
Never Married	1.40***			1.22	1.09	1.11	1.08	1.08	1.10
Married	1.00			1.00	1.00	1.00	1.00	1.00	1.00
Cohabiting	1.68***			1.66***	1.52**	1.52**	1.52 **	1.53**	1.54**
Divorced, separated. widowed	0.80			0.94	0.89	0.89	0.94	0.94	0.96
Ethnicity									
Sinhalese	1.00				1.00	1.00	1.00	1.00	1.00
Sri Lankan Tamil	1.57***				2.04**	2.04***	2.18***	2.17***	2.06**
Indian Tamil	0.88				0.99	0.99	1.17	1.16	1.05
Muslim	1.85***				1.49**	1.49**	1.52**	1.51**	1.40*
Place of residence									
Mannar	1.00					1.00	1.00	1.00	1.00
Vavuniya	1.52***					1.81***	1.70***	1.69***	1.70***
Trincomalee	1.68**					1.60	1.78*	1.21	1.87
Anaradhapura	1.53**					1.93***	2.02***	1.72**	1.84**
Polonnaruwa	1.70**					1.61**	1.70**	1.71**	1.82**
Wealth status									
Poorest	1.00						1.00	1.00	1.00
Middle	1.15						1.04	1.04	1.07
Richest	1.51***						1.46***	1.46***	1.52***
Education									
No education	1.00							1.00	1.00
Primary education	0.81							0.75*	0.76*
Secondary and higher	1.01							0.85	0.86
Living in welfare camp									
No	1.00								1.00
Yes	1.00								1.21*
Log likelihood model	-1786.32	-1775.49	-1774.74	-1761.87	-1748.27	-1731.99	-1724.34	-1722.50	-1721.10
LR		21.66	1.50	25.74	27.20	32.56	15.30	3.68	2.80
Degrees of freedom	1	5	6	9	12	16	18	20	21
delta df		4	1	3	3	4	2	2	1
chi2<LR (95 % CI)		Imp	No imp	Imp	Imp	Imp	Imp	No imp	No imp
Pseudo R2	0.0007	0.0067	0.0072	0.01414	0.0220	0.0311	0.0354	0.0364	0.0372

***: p < 0.01   **: p < 0.05   *: p < 0.1
Source: Own calculations based on data UNHCR MDG project, 2006.

Table 7.8: Odds ratios and significance level of scoring above the average level of self efficacy, both sexes, displaced persons

	Model 0 N=2029 Odds ratio	Model 1 N=2029 Odds ratio	Model 2 N=2029 Odds ratio	Model 3 N=2029 Odds ratio	Model 4 N=2029 Odds ratio	Model 5 N=2029 Odds ratio	Model 6 N=2029 Odds ratio	Model 7 N=2029 Odds ratio	Model 8 N=2029 Odds ratio	Model 9 N=2029 Odds ratio	Model 9 N=2029 Odds ratio
Number of displacements											
One	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Two	1.09	1.18	1.17	1.17	1.17	1.05	0.97	1.03	1.01	1.01	1.03
Three	1.55***	1.68***	1.68***	1.68***	1.68**	1.55**	1.36*	1.57**	1.53**	1.54**	1.56**
Four or more	1.49**	1.64***	1.59***	1.59**	1.59**	1.45**	1.26	1.51**	1.50**	1.51**	1.53**
Duration of stay											
Less than 5 years	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5 to 10 years	0.98	1.01	1.03	1.03	1.03	1.25*	1.30**	1.36**	1.34**	1.35**	1.40**
More than 10 years	1.12	1.26*	1.27*	1.27*	1.27*	1.38**	1.49***	1.39*	1.31*	1.31*	1.33**
Age at first displacement											
0-14 years	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15-24 years	0.88		0.92	0.79	0.79	0.78	0.76	0.68**	0.68**	0.69**	0.69**
25-34 years	0.78**		0.79*	0.69	0.69	0.66*	0.64*	0.57**	0.56**	0.57**	0.57**
35 years and older	0.55***		0.56***	0.55**	0.55*	0.50**	0.46**	0.40***	0.38***	0.39**	0.39**
Age at interview											
14-24 years	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25-34 years	1.03			1.22	1.22	1.22	1.20	1.26	1.24	1.24	1.24
35-44 years	0.91			1.24	1.24	1.27	1.26	1.31	1.30	1.30	1.29
45-54 years	0.69**			1.08	1.08	1.22	1.24	1.32	1.35	1.33	1.33
55 years and older	0.60***			1.05	1.05	1.21	1.27	1.44	1.49	1.46	1.46
Sex											
Male	1.00				1.00	1.00	1.00	1.00	1.00	1.00	1.00
Female	0.93				0.93	0.96	0.95	0.94	0.94	0.93	0.93
Marital Status											
Never Married	1.44***					1.26*	1.64	1.12	1.11	1.10	1.09
Married	1.00					1.00	1.00	1.00	1.00	1.00	1.00
Cohabiting	1.81***					1.98***	1.78***	1.83***	1.82***	1.84***	1.83***
Divorced, separated. widowed	0.90					0.98	0.93	0.93	0.95	0.96	0.95
Ethnicity											
Sinhalese	1.00						1.00	1.00	1.00	1.00	1.00
Sri Lankan Tamil	2.01***						2.05***	2.70***	2.77***	2.76***	2.78***
Indian Tamil	1.11						1.17	1.32	1.46	1.46	1.52
Muslim	2.27***						1.85**	1.45	1.44	1.41	1.47
Place of residence											
Mannar	1.00							1.00	1.00	1.00	1.00
Vavuniya	1.71***							2.19***	2.08**	2.09**	2.09***
Trincomalee	1.47							1.85	2.02*	2.05*	1.96
Anaradhapura	1.46**							2.16**	2.25**	2.31**	2.41**
Polonnaruwa	1.93***							2.85***	2.99***	3.07***	2.97***
Wealth status											
Poorest	1.00								1.00	1.00	1.00
Middle	1.13								1.04	1.04	1.02
Richest	1.56***								1.32**	1.32**	1.28*
Education											

No education	1.00									1.00	1.00
Primary education	0.86									0.82	0.82
Secondary and higher	1.07									0.94	0.93
Living in welfare camp											
No	1.00										1.00
Yes	0.82**										0.90
Log likelihood model	-1397.88	-1395.93	-1385.09	-1384.13	-1383.78	-1367.82	-1354.49	-1332.87	-1330.03	-1329.15	-1328.91
LR		3.90	21.68	1.92	0.70	31.92	26.66	43.24	5.68	1.76	0.48
Degrees of freedom	3	5	8	12	13	16	19	23	25	27	28
delta df		2	3	5	2	3	3	4	2	2	1
chi2<LR (95 % CI)		No imp	Imp	No imp	No imp	Imp	Imp	Imp	No imp	No imp	No imp
Pseudo R2	0.0056	0.0070	0.0147	0.0154	0.0156	0.0270	0.0365	0.0518	0.0539	0.0545	0.0547

***: $p < 0.01$ ** : $p < 0.05$ * : $p < 0.1$

Source: Own calculations based on data UNHCR MDG project, 2006.

Because displaced persons are more likely to be more self efficacious, another model is created in order to explore whether displacement related factors have an additional contribution to this differences. Table 7.8 shows that this is indeed the case. When including three displacement related factors, i.e. the number of displacements, duration of stay, and age at first displacement, the last model has a, still very low, predictive power of 5.5 percent, in which 2,029 cases remain.

This analysis shows that in addition to the previous effects of age, marital status, ethnicity, and wealth, additional explanation is given by the displacement related factors.

First it becomes clear that the number of displacements has a positive effect on the dependent variable, i.e. those who are displaced three or more times, are one and a half times more likely to score above the average level of self efficacy.

Also duration of stay has a positive influence, the longer a persons lives at the place of residence, the higher the likelihood of scoring above the average level of self efficacy.

Then it is interesting to see that the effect of place of residence is stronger for this selected population than it is for the whole sample.

Finally, within this population, living in a welfare camp or not, does not contribute in the prediction of self efficacy.

7.6 Main results obtained from the analyses

This chapter tried to find some explanations for the found differences in the utilisation of three types of maternal health services, and of modern family planning methods, thereby focusing in particular on the differences between displaced and non displaced persons. For each of these dependent variables a model is constructed in order to get insight in the contributions of selected factors to the explanation these utilisation. Thereby the contribution of the concept self efficacy of major interest. In addition, an analysis is conducted on this concept in order to get insight in the factors contributing to its prediction.

It can be concluded that for the four analyses conducted on the utilisations, some important findings are obtained concerning the differences between displaced and non displaced women.

Only for the number of antenatal checks a significant difference between displacement status exist, in which displaced women seem to be underserved in this important service for the reason that after controlling for various factors they remain to have one fifth of the likelihood of non displaced women to have received at least four antenatal checks.

For the attendance of a doctor at delivery, the number of visits of a midwife at home, and the use of modern family planning methods, no significant differences are found in the utilisation for these two populations under study.

Of all dependent variables included in the models, place of residence and ethnicity are most important predictors for the utilisation of maternal services. Between the five surveyed districts, a clear distinction can be made between the Northern and Eastern region (Mannar, Vavuniya, Trincomalee), and the North Central area (Anaradhapura, Polonnaruwa).

Although the LLTE occupies major parts of the Northern and Eastern districts, it can not be concluded that the found differences can be explained by this situation in particular, because also the north of Anaradhapura falls under their occupation. In addition, the surveyed population does not represent the situation of the whole district due to the fact that the survey is conducted in very selected places within these districts. Therefore it is difficult to draw conclusion on district level. But some speculations can be made about the possible interpretations of these findings.

In Anaradhapura and Polonnaruwa utilisation of at least four antenatal care checks is very low, while the attendance of a doctor at delivery, together with the number of visits of a midwife at home are more common. This might refer to the situation that the health care system is working more adequate in these two regions through the relatively higher presence of doctors and midwifes. On the other hand, the pressure put on the health centres, possibly through an inflow of people might disturb antenatal care provided in these districts.

Besides this, antenatal care might be more adequately provided in those areas that are most severely affected by conflict. The presence of humanitarian aid might contribute to this. This aid is possibly also reflected in the finding that after the ceasefire antenatal care is less provided to (displaced) women, which might be the consequence of reduced humanitarian aid assistance

resulting from the (assumed) stabilised situation. This speculation is not further explored in this research. In contrast to the above, the likelihood of being attended by a doctor at delivery is higher after the ceasefire which might in indicate that in this respect the health care structure has improved an therefore working more adequate, although these interpretations remain speculations.

Concerning ethnicity, it are especially Muslim women who seem to be underserved in receiving antenatal care checks, as they also have a very low likelihood of using modern family planning methods. Social exclusion, difficulties in access, pronatalist values on reproduction, and unequal gender and power relations might be the explanation for the obtained findings for this ethnic group.
Against all theoretical expectations, wealth and educational status do not show to be of expected influence. Wealth seems to have no effect on the number of antenatal checks and visits of a midwife, as not for the utilisation of modern contraceptives. It does influence the attendance of a doctor during delivery, but only if controlling for all the other factors. Women with the highest wealth status are less likely to be assisted by a doctor. But taking into account that almost all deliveries are attended by skilled assistance it can not be said that women with lower wealth are less adequately served.
In contrast to above reflection, higher educated women are more likely to be attended by a doctor during their last delivery than lower educated women are. Education has no significant effect on the other utilisations. Especially for the use of family planning this is an unexpected result.

From these findings it can be generalised that age and socioeconomic characteristics to not contribute to the explanation of the utilisation of selected services. In fact, in accordance with the hypotheses, these findings show that for the population under study maternal health services and modern family planning methods are equally provided through the Sri Lankan health system. The equity objectives of the national health policies in relation to full provision and access, not discriminating for any factor is more or less valid for the population living in conflict affected areas. Only for Muslims this consideration has to be taken more carefully.

For the prediction of the utilisation of modern methods, it is parity (in addition to mentioned ethnicity) that is a very important factor in explaining it utilisation. The likelihoods of use are therefore increasing substantially by parity. For displaced women the effect of parity is remarkably strong. Interestingly this indicates that controlling or limiting the number of children is of more importance for those being displaced.

The explanatory variable of most interest in this research, namely self efficacy leads to significant contributions to the prediction of all dependent variables, although the direction of its effects are not consistent. For the assistance of a doctor during delivery, together with the number of visits of a midwife at home, self efficacy has positive effects. Higher efficacious women are more likely to have received these services than lower efficacious women.
In contrast to above findings, the likelihoods of receiving at least four antenatal care checks, as the utilisation of modern family planning methods are decreasing by increasing level of self efficacy.
These effects are difficult to interpret, although some speculations can be made. Concerning the use of modern family planning methods, higher efficacious persons might think they are able to control their fertility by using traditional methods instead of using modern methods. Moreover, higher self efficacious women might have a higher status, a factor for which the model was unable to control for. This means that in relation to their knowledge of their own reproduction, they might also be more able to discuss and negotiate with their partner about how to deal with sexuality and reproduction. As said, these are speculations and need to be explored further in order to make statements.

When trying to get insight in the contributions of the conceptualised variables to the prediction of self efficacy itself, it can be concluded that these variables have a very weak predictive power.

Nevertheless, the analysis showed that displacement has a positive impact on self efficacy. Being displaced more than two times, together with increasing duration of stay at place of residence, result in higher likelihoods to score above the average level of self efficacy.

In addition to the positive effect of these displacement factors, cohabiting persons have a significantly higher likelihood, although causality has to be considered. Then Sri Lankan Tamils are more likely, and place of residence contributes also to the prediction of self efficacy, although this finding is very difficult to interpret, especially after controlling for various relevant factors.
It is easier to interpret the positive contribution of wealth status to the level of self efficacy, although here causality plays a role. On the one hand wealth might enhances the performance of chances and opportunities, thereby increasing self efficacy. On the other hand, self efficacy might contribute to the ability to accumulate wealth. Nevertheless, wealthier persons are more likely to have a higher score on self efficacy than poorer persons.

Finally, table 7.9 gives an overview of the obtained results on the hypotheses that were defined in chapter five. Based on these findings together with all the information covered in the background chapters, subsequent chapter covers the conclusions of this research, followed by some recommendations that can be made.

Table 7.9: Testing of hypotheses

Utilisation of:	*Confirmed/Rejected*
Maternal health care services	
- does not differ by age	Confirmed
- does not differ by ethnicity	Rejected
- does not differ by place of residence	Rejected
- does not differ by wealth	Confirmed[1] / Rejected[2]
- does not differ by education	Confirmed[3] / Rejected[4]
- does not differ by status of women	n.a.
- does differ by displacement status	Confirmed[5] / Rejected [6]
- does differ by the number of displacements	Rejected
- does differ by duration of stay	Rejected
- does differ by relative need	Rejected
- does differ by self efficacy	Confirmed
Modern Family Planning Methods	
- does differ by age	Rejected
- does differ by marital status	Confirmed
- does differ by parity	Confirmed
- does differ by ethnicity	Confirmed
- does not differ by place of residence	Rejected
- does differ by wealth	Rejected
- does differ by education	Rejected
- does differ by status of women	n.a.
- does differ by displacement status	Rejected
- does differ by the number of displacements	Confirmed
- does differ by duration of stay	Rejected
- does differ by perceived health	Rejected
- does differ by autonomy	n.a.
- does differ by self efficacy	Confirmed

1: Antenatal care checks, visits of a midwife at home
2: Assistance of a doctor at delivery
3: Antenatal care checks, visits of a midwife at home
4: Assistance of a doctor at delivery
5: Antenatal care checks
6: Assistance of a doctor at delivery, visits of a midwife at home

8. Conclusion and recommendations

The overall objectives of this research are to explore the extent to which internally displaced persons living in different settings are underserved in maternal health and family planning services, and how these found equalities or inequalities in utilisation of maternal health care services and family planning methods can be explained, thereby including two additional explanatory factors to the analyses, i.e. self efficacy and displacement related factors.

This study showed that Sri Lankan socioeconomic and health policies led to an overall improvement of health circumstances. Nowadays a broad network of health facilities exist throughout the whole island, to which every individual is supposed to have free and equal access. When exploring the contributions to the changes of crude death rates over time by age, it found that direct improvement in mortality of women within their reproductive ages contributed for an extensive period to the overall improvement of mortality. For the reason within these reproductive ages the majority of females deaths are attributed to pregnancy and delivery, these direct improvements most probably indicate that the maternal health situation in Sri Lanka has improved substantially.

Nevertheless, it is also a fact that this positive development is not equally distributed within the country. When exploring Sri Lankan studies concerning population and development, it becomes immediately clear that in the majority of studies the situation of Northern and Eastern regions is not taken into account. It are especially these regions that show relatively high maternal mortality rates, which are most likely the consequences of the already two decades lasting conflict between the Sri Lankan government and the Liberation Tigers of Tamil Eelam resulting in a disruption of (health) infrastructure, but also leading to large scale and long term displacement.

For getting insight in a set of factors that might cause these high maternal mortality rates, it is chosen to explore and analyse the utilisation of maternal health services. The three services, known as being the most powerful predictors of maternal health are the number of antenatal checks, the attendance of a skilled assistant at delivery, together with the number of visits of a midwife at home. In addition, utilisation of modern family planning methods gives information whether individuals are able to plan their fertility in order to avoid unwanted or unplanned pregnancies, increasing the risk of complications.

The main conclusions that can be drawn from this exploration in order to answer the first research question *"how often do displaced and non displaced women living in conflict affected areas make use of reproductive health facilities in order to attain a healthy reproductive status?"* are that the number of antenatal checks, together with the number of visits of a midwife at home are seem to be lower for displaced women than for non displaced women. Concerning the attendance of a doctor at birth the same observation is made. For the reason that the majority of deliveries is attended by a skilled assisted, i.e. if not a doctor, but a nurse or midwife, it must be kept in mind that utilisation of this maternal health indicator does not seem to have important differences between non displaced and displaced women. Thus, all women are adequately skilled attended at delivery.
Regarding the utilisation of family planning methods, frequency distributions showed that the utilisation of modern as traditional family planning methods is low, i.e. 20 percent of all respondents aged 15-54 used a modern method the past 12 months. In comparison with the national statistics reporting that at least 70 percent of the population used family planning methods, this is an important finding for this population under study. When distinguishing this use for displacement status, displaced women have the highest utilisation, while returned displaced women have less often used a modern family planning method.

To understand the underlying mechanisms of these findings, conclusions that can be drawn from the second research question *"which factors contribute to the explanation of found similarities of disparities in the utilisation of maternal health services and family planning methods of displaced and non displaced women? Do self efficacy and displacement have an additional contribution to*

this explanation?" are, that the above differences found for displaced and non displaced women are partly attributed to displacement.

This can be concluded because when controlling for other factors no significant differences are found for the different displacement statuses and their prediction of the dependent variables, except for one. It are the appropriate number of four antenatal checks which are provided significantly less often to displaced women.

Of these other independent variables ethnicity and place of residence seem to be the most important explanatory factors for the utilisation of maternal health services, while for family planning it are marital status, parity, and ethnicity contributing most to the explanation of use.

For the reason that almost no differences are found concerning age, wealth, and education, it can be seen as a confirmation that the Sri Lankan health system does not discriminate for these features. Also in those areas affected by conflict the aim of Sri Lankan policy to provide an egalitarian health system is more or less fulfilled.

Then, self efficacy is the factor to which most attention is given in the research design in order to include individual processes of behaviour into the analysis. Interestingly the concept has predictive value in all four models, although its effect is not consistent. Self efficacy has a positive impact on the attendance of a doctor at delivery and the number of visits of a midwife at home. The ability of women to receive the care they need is therefore an important finding in the research, contribution to the explanation of found differences in utilisation.

Another aim of the research is to get insight in the factors contributing to the prediction of this self efficacy itself by answering the research question *"do demographic, socioeconomic, and displacement related factors contribute to the predictive value in understanding the level of perceived self efficacy at the time of interview?"*

Although the constructed model has a very low predictive power, displacement related factors do make a difference in the prediction of self efficacy. When controlling for various factors, displaced persons have a higher self efficacy than those non displaced, and being displaced more than two times results in an even higher level of self efficacy. In addition, duration of stay at place of residence make displaced persons have a higher likelihood to score above the average level of self efficacy. Reflecting these results on theory it can be concluded that displacement enforces one's ability to perform specific behaviour. By overcoming barriers and challenges during tensions, displacement, and building a new life, it seems that persons become more self efficacious.

Finally, one last question has to be answered,

does self efficacy matter to go safely through pregnancy and delivery?

The answer is 'yes'. In this research self efficacy proved to be an important predictor to the utilisation of maternal health care services. In relation to displacement it seems to be an essential characteristic to take into account for the reason that displaced persons show to be more self efficacious. Therefore the following recommendations for different purposes can be made.

Recommendations for governments or organisations
First, within the design and implementation of health policies it has to be taken into account that it are especially Muslim women, either displaced or not, who are underserved in the number of antenatal care checks.

Then it has to be kept in mind that after the ceasefire (displaced) women remain (more) underserved in the number of antenatal checks, which is an unexpected and important finding.

Concerning the utilisation of family planning methods, overall utilisation is very low. For the reason that according to the World Bank over 70 percent of women in their reproductive age use family planning methods, either modern or traditional it becomes clear this is different for the population under study, where only 20 percent have used one of the methods within the past 12 months. This indicates that the population which is poorly covered in national statistics has a very deviant outcome comparing to the general statements made about the Sri Lankan situation.

It is clear that the problems in measuring and monitoring the living and health situation in conflict affected areas lead to bias results of the national situation. Therefore, it is recommended to retrieve more information about the living and health situation of the population difficult to reach. Only then this population can be served more adequately, because based on the national information Sri Lanka seems to be doing well.

Recommendations for further research
Recommendations that can be made in relation to further research are that this research proved that in addition to the commonly used factors to explain utilisation of health care services, self efficacy has a clear and strong predictive effect. Then it is found that that displaced persons have a higher self efficacy, possibly through overcoming complex obstacles and experiences relating to this event. Therefore, it is recommended that this concept, as possibly other psychological aspects have to be taken into account in understanding health care seeking and utilisation in relation to maternal or reproductive health, possibly other behaviours to be studied. Because the concept has a strong effect, it is of interest to explore its determinants more carefully in order to understand which particular (displacement related) factors do make a difference.

In addition, for the reason that this research has used a general index of self efficacy, it is of interest to explore the effects of a domain specific indicator referring to someone perceived abilities of health care seeking and use of family planning methods in order to get a more reliable insight in its effect. This research showed that this general indicator has strong predictive effects, thus it can be expected that a domain specific one has even a more powerful influence in prediction health seeking behaviour.

Reflecting on further research to be conducted on these findings, especially for the situation of displaced persons, it is of interest to get a deeper understanding how experiences during conflict and displacement have affected the ability of persons to make decisions and to perform behaviour. In relation to reproductive health this is of importance for the reason that it is known that these population face very specific problems concerning pregnancy, delivery and sexuality. In order to better allocate assistance in accordance to their needs and abilities, further research can enhance this.

Insight in changing life course patterns can, for example, give an indication of the reproductive health risks people are exposed to in particular stages in their lives. Then, qualitative research could give more in dept information about the value of children, relationships, and sexuality in particular living situations. This insight could contribute to a better allocation of interventions according to the related reproductive health needs. In addition it would give insight in decision making processes for the reason that it are values and beliefs that motivate (reproductive) behaviour.

Then, it is of interest to know why parity has such a strong positive effect on the utilisation of modern family planning methods of displaced persons. Again, what are the specific needs and motivation of this group to get or prevent children? Are children a burden or an enrichment to their lives? And what about postponement of fertility? Answers to these questions are needed in order to fulfil the reproductive rights of this population that suffer from a complex and possibly long term instable situation. Especially because also this particular population has the right to be able to have a satisfying and safe sex life and to have the capability to reproduce and the freedom to decide if, when and how often to do so, as defined in the ICPD Programme of Action.

If taken into account the fact that the number of (internally) displaced persons is increasing worldwide it is of high importance to get more insight in their reproductive health outcomes, risks, needs and motivations. When having insight in these aspects, possible problems and complications in these situation can be better predicted, after which (maternal) health services and family planning methods can be better allocated.

9. Reflection on the thesis

Reflecting on the research, it has to be considered whether the obtained results and conclusions are valid and reliable, i.e. is reality measured in such a way that was aimed at stated in the research objectives? and are the used methods appropriate and used in such a way that when the research is conducted again the same results obtained?

Starting with the validity of the research it must be mentioned that the used data partly reflects the reality of the research questions where aimed at. The dataset is not especially designed to answer these particular questions, which limited the operationalisation of concepts. Only information of the last birth since 2000 was available, which means that it is not possible to have a retrospective insight of the behaviours of women giving birth before that period, therefore restricting the results to a selected proportion of the sample. Nevertheless, it gives an up to date overview of the present situation. This is a beneficial aspect for the reason that not much is known about the situation populations living in conflict affected areas because the low coverage of these areas in national statistics and (Demographic and Health) surveys.

Then it has to be considered that the results are only valid for the surveyed population, i.e. those displaced registered by the government. This means that the situation of displaced persons who are not registered might be completely different and cannot be generalised upon.

Due to difficulties in operationalising some explanatory variables, like for example wealth, status of women, need, autonomy, and self efficacy, reliability of the study can be considered. Because of the decision to construct indexes leading to particular inclusion of questions and considerations in its incorporation, it is very much likely that if the research is conducted by someone else, different results are obtained.

Then the lack of methodological knowledge possibly restricted the preciseness of the analyses.

Reflecting personally on the process of conducting these analysis and writing the thesis, I gained a lot of new insights in the topic, but also in doing research in general. Especially conducting data analyses. Starting with a lot of ideas of what to explore and which interesting questions to be asked put me into trouble. I wanted to do too much, thereby posing too broad questions and objectives. And I did not know the restrictions of the dataset and time yet.

I spend a lot of time on conducting the regression due to lack of knowledge now and then.

Then, I discovered that it is hard to work on a topic of which the context is unfamiliar to me. I found it hard to get a feeling with the topic, especially during the analyses because it makes results very hard to interpret. For me, it becomes more a way of generalising the results, completely not sure about the interpretation. In addition, models that try to capture reality strengthen to this feeling; the variables are constructed in such a way that you think you measure something, but you're not sure whether this is really the case. Especially the interpretation of the constructed indexes, which already had a low coverage of variability, put this work into question.

Thus, I realised that when conducting research you have to be careful with using data that is collected for other purposes than answering your research questions. I know that when I want to have better results, I would need a dataset that is especially designed for these particular questions, with having broader indebt knowledge of the context, possibly through qualitative research.

Nevertheless, the topic caught my attention, and these experiences motivate me even more to conduct a research that validates the research problem and questions in such a way that I would dare to give more reliable results.

In addition I learned that a lot needs to be explored further to understand the reproductive health situation of displaced persons better in order to make recommendations to policy and aid organisation in order to improve their reproductive health situation.

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Appendix A: Decomposition of averages

A1. Decomposition of averages
In chapter 3.3 demographic averages are decomposed. These averages are the mean age at childbearing and crude death rates for females. The crude death rate is an average of the force of mortality by age. The change in averages and rates over time can be decomposed in a level 1, direct effect and a level 2, structural effect that contribute each to the explanation in the change of the indicator of interest over time.

The general proposition for derivatives of averages is:

$$\dot{\bar{v}} = \bar{\dot{v}} + v \cap \overset{'}{W}$$

Where the change in average exist of a direct component of change and the structural (or compositional) component of change. This component accounts for the effects of heterogeneity. The covariance exists between the variable of interest and the intensity of the weight function. The intensity of the absolute number of the weight function is the growth rate of that function and gives therefore a lot of information (Vaupel et.al, forthcoming).

Within the proposition the change in the average is given by:

$$\dot{\bar{v}} = \frac{\partial}{\partial y} \frac{\int_0^\infty v(x,y)W(x,y)dx}{\int_0^\infty W(x,y)dx}$$

Where the average change is
$$\bar{\dot{v}} = \frac{\int_0^\infty [\frac{\partial}{\partial y}v(x,y)]W(x,y)dx}{\int_0^\infty W(x,y)dx}$$

And the covariance $\quad v \cap \overset{'}{W} = E[(v-\bar{v})(\overset{'}{W}-\overset{'}{\bar{W}})] \quad = \quad E[(v\overset{'}{W}) - E(v)E(\overset{'}{W})]$

$$= \frac{\int_0^\infty v(x,y)\overset{'}{W}(x,y)W(x,y)dx}{\int_0^\infty W(x,y)dx} - \frac{\int_0^\infty v(x,y)W(x,y)dx}{\int_0^\infty W(x,y)dx} \frac{\int_0^\infty \overset{'}{W}(x,y)W(x,y)dx}{\int_0^\infty W(x,y)dx}$$

(Vaupel et.al, forthcoming)

A2. Decomposition of mean age at childbearing

The following equation is applied for this decomposition:

$$\dot{\bar{a}}_B = Cov_B(a, b + \overset{'}{r_f}),$$ where $r_f(a,t)$ is the age specific growth rate of the population of women.

The covariance has the property that:

$$Cov(v, w_1 + w_2) = Cov(v, w_1) + Cov(v, w_2).$$

This means that the formula can be expressed in a different way;

$$\dot{\overline{a}}_B = Cov_B(a,b) + Cov(a,r_f')$$

This function gives two compositional effects, which describe the extent to which change in the average age at childbearing is due to change in age-specific births rates versus the change in age composition of the female population (Canudas Romo, 2003).

Table A1: Average age at childbearing $\overline{a}_{B(t)}$: decomposition of the annual change over time for the periods 1956-1963, 1963 - 1984 and 1984 – 1995

	1956 - 1963	1963 - 1984	1984 - 1995
Mean age at childbearing (t)	27.670	28.247	27.376
Mean age at childbearing (t + 1)	28.247	27.376	28.030
Average change per year	0.072	-0.041	0.059
Direct effect	0.064	-0.032	0.059
Structural effect	0.009	-0.01	0
Both effects	0.072	-0.041	0.059

Source: Own calculations based on United Nations: Demographic Yearbook, 1997
Historical supplement

A3. Decomposition of crude death rates by population size

The crude death rate is an average of the age specific death rates d (a,t):

$$d(t) = \frac{D(t)}{N(t)} = \frac{\int_0^\infty \mu(a,t)N(a,t)da}{\int_0^\infty N(a,t)da} = \overline{\mu}(t),$$

Decomposing this average by a direct effect of mortality changes and compositional change of the population the proposition discussed in the second section looks like:

$$\dot{\overline{\mu}} = \overline{\dot{\mu}} + \mu \cap r, \quad \text{where } \overline{N} = r$$

Table 2 shows the decomposition of the change in crude deaths rate by sex for Sri Lanka for the periods 1956-1968, 1968-1978, 1978-1988, and 1988-1995.

Table A2: Decomposition of annual change over time in crude death rates by sex in Sri Lanka for the periods 1956-1968, 1968-1978, 1978-1988, and 1988-1995

	Females
CDR (1956)	11.522
CDR (1968)	8.716
CDR (1978)	7.026
CDR (1988)	5.593
CDR (1995)	4.383

	Level 1	Level 2	L1 and L2
1956-1968	-0.192	-0.039	-0.231
1968-1978	-0.163	0.023	-0.14
1978-1988	-0.185	0.017	-0.168
1988-1995	-0.167	-0.003	-0.17

Source: Own calculations based on United Nations: Demographic Yearbook, 1997 Historical supplement

At first glace the CDR for these years it is clear that survivorship was improving. The results of the decomposition show that for all periods a direct improvement in survival exists. Compositional effects account for the other part of the explanation, although their effect is much smaller. For some periods the direct is effect of improvement in survival for females is supplemented with the change in the age structure of the population.

A4. Decomposition of crude death rates by population size and age

To get more insight in the composition of level 1 and level 2 effects, age decomposition of the crude death rate is conducted according to the same procedure as above, but the two terms are decomposed further by age. This is done by separating the integral from age zero to the last age in different integrals that account for the different age groups, (0,x1), (x1,x2), (x2, x3) and so on until the last age group (Canudas Romo, 2003).

$$\int_0^\infty \mu(a,t)da = \int_0^{x1} \mu(a,t)da + \int_{x1}^{x2} \mu(a,t)da + \int_{x2}^{x3} \mu(a,t)da + ... + \int_{xn}^{\omega} \mu(a,t)da$$

Now the average change and the covariance component are defined over these integrals.

$$\dot{\bar{\mu}} = \frac{\int_0^{x1}[\frac{\partial}{\partial y}\mu(a,t)]N(a,t)da}{\int_0^\infty N(a,t)da} + \frac{\int_{x1}^{x2}[\frac{\partial}{\partial y}\mu(a,t)]N(a,t)da}{\int_0^\infty N(a,t)da} + ... + \frac{\int_{xn}^\infty[\frac{\partial}{\partial y}\mu(a,t)]N(a,t)da}{\int_0^\infty N(a,t)da} = [\dot{\bar{\mu}}]_0^{x1} + .. + [\dot{\bar{\mu}}]_{xn}^{\omega}$$

and

$$\mu \cap r = \frac{\int_0^{x1}[\mu(a,t)-\bar{\mu}(t)][\bar{N}(a,t)-\bar{\bar{N}}(t)]N(a,t)da}{\int_0^\omega N(a,t)da} + ... + \frac{\int_{xn}^\omega[\mu(a,t)-\bar{\mu}(t)][\bar{N}(a,t)-\bar{\bar{N}}(t)]N(a,t)da}{\int_0^\omega N(a,t)da}$$

$$= [\mu \cap r]_0^{x1} + [\mu \cap r]_{x1}^{x2} + ... + [\mu \cap r]_{xn}^{\omega}$$

The final decomposition formulas expressed by using these two parts:

$$\dot{\bar{\mu}} = [\dot{\bar{\mu}} + \mu \cap r]_0^{x1} + [\dot{\bar{\mu}} + \mu \cap r]_{x1}^{x2} + ... + [\dot{\bar{\mu}} + \mu \cap r]_{xn}^{\omega}$$

Table to figures 3.10: Age decomposition of annual change over time in crude death rates by sex in Sri Lanka for the periods 1956-1968, 1968-1978, 1978-1988, and 1988-1995

	1956-1968			1968-1978		
Age (years)	Level 1	Level 2	L1 and L2	Level 1	Level 2	L1 and L2
0-4	-0,1489	0,0570	-0,0919	-0,0556	-0,0020	-0,0576
5-9	-0,0182	0,0080	-0,0102	-0,0095	0,0020	-0,0075
10-14	-0,0030	0,0040	0,0010	-0,0013	0,0020	0,0007
15-19	-0,0016	0,0050	0,0034	-0,0010	0,0040	0,0030
20-24	-0,0061	0,0040	-0,0021	-0,0028	0,0050	0,0022
25-29	-0,0073	0,0020	-0,0053	-0,0015	0,0040	0,0025
30-34	-0,0096	0,0050	-0,0046	0,0000	0,0010	0,0010
35-39	-0,0067	0,0050	-0,0017	-0,0036	0,0020	-0,0016
40-44	-0,0028	0,0040	0,0012	-0,0030	0,0030	0,0000
45-49	-0,0020	0,0050	0,0030	-0,0056	0,0040	-0,0016
50-54	-0,0023	0,0050	0,0027	0,0000	0,0040	0,0040
55-59	-0,0028	0,0080	0,0052	-0,0041	0,0070	0,0029
60-64	-0,0053	0,0110	0,0057	0,0016	0,0030	0,0046
65-69	-0,0008	0,0120	0,0112	-0,0126	0,0160	0,0034
70-74	-0,0029	0,0130	0,0101	-0,0102	0,0180	0,0078
75-79	-0,0027	0,0090	0,0063	0,0041	0,0090	0,0131
80+	0,0304	0,0450	0,0754	-0,0802	0,0710	-0,0092
	1978-1988			1988-1995		
	Level 1	Level 2	L1 and L2	Level 1	Level 2	L1 and L2
0-4	-0,0785	0,0070	-0,0715	-0,0231	0,0050	-0,0181
5-9	-0,0061	0,0000	-0,0061	-0,0048	0,0010	-0,0038
10-14	-0,0048	0,0000	-0,0048	-0,0016	0,0010	-0,0006
15-19	-0,0043	0,0020	-0,0023	-0,0031	0,0010	-0,0021
20-24	-0,0031	0,0030	-0,0001	-0,0059	0,0010	-0,0049
25-29	-0,0057	0,0040	-0,0017	-0,0037	0,0010	-0,0027
30-34	-0,0059	0,0050	-0,0009	-0,0022	0,0010	-0,0012
35-39	-0,0023	0,0020	-0,0003	-0,0033	0,0010	-0,0023

40-44	-0,0032	0,0020	-0,0012	0,0007	0,0010	0,0017
45-49	-0,0017	0,0020	0,0003	0,0024	0,0020	0,0044
50-54	-0,0046	0,0050	0,0004	0,0020	0,0020	0,0040
55-59	-0,0029	0,0050	0,0021	-0,0020	0,0030	0,0010
60-64	-0,0033	0,0080	0,0047	0,0015	0,0030	0,0045
65-69	-0,0031	0,0080	0,0049	0,0073	0,0040	0,0113
70-74	-0,0019	0,0070	0,0051	0,0116	0,0060	0,0176
75-79	-0,0125	0,0160	0,0035	0,0099	0,0040	0,0139
80+	-0,0192	0,0450	0,0258	-0,1527	0,0190	-0,1337

Source: Own calculations based on United Nations: Demographic Yearbook, 1997 Historical supplement

A5. Figures and tables to chapter 3

Figure A1: Age decomposition of annual change over time in crude death rates for females in Sri Lanka for the periods 1956 -1968, 1968 -1978, 1978 -1988 and 1988 -1995
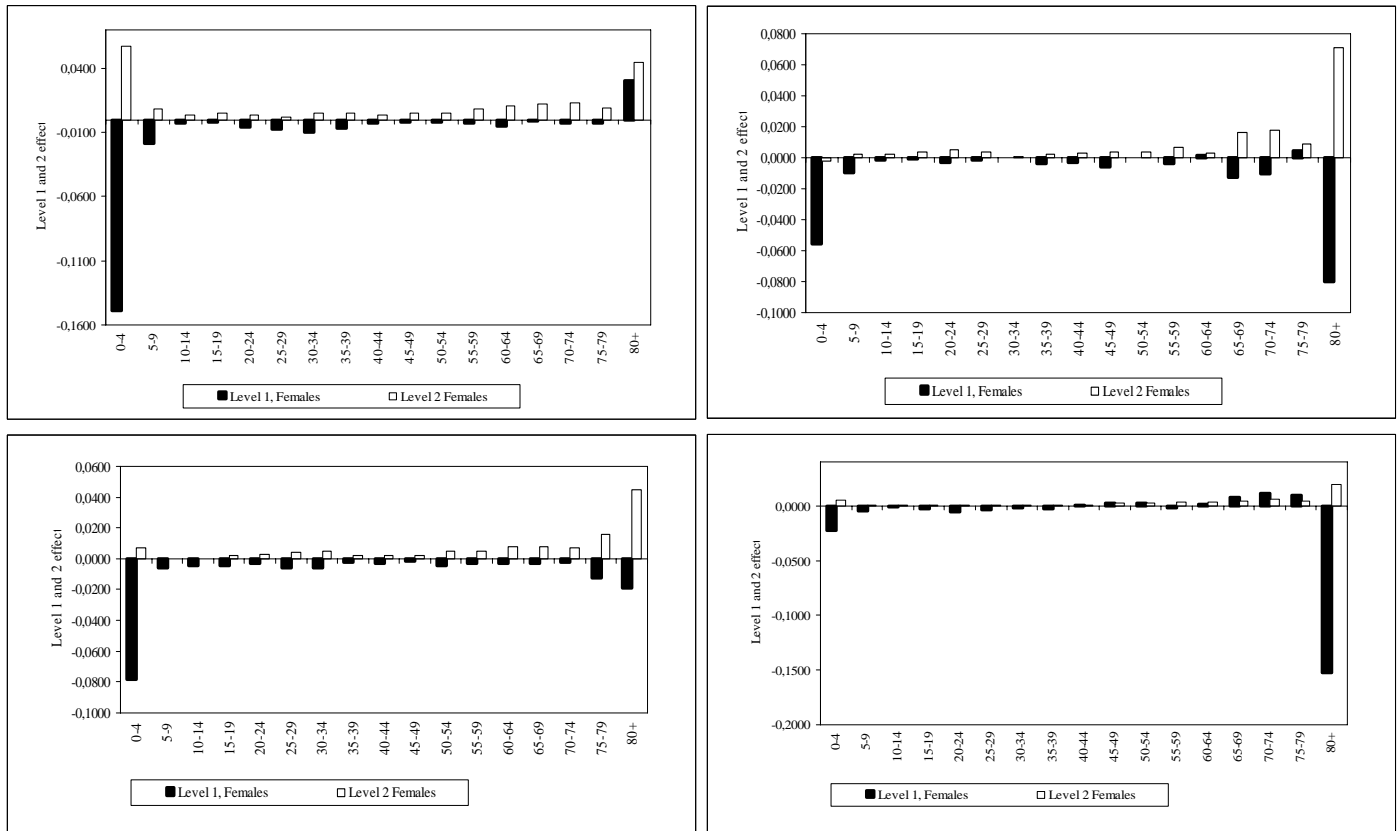
Source: Own calculations based on United Nations: Demographic Yearbook, 1997 Historical supplement

Figure A2: Population structures Sri Lanka 1955 and 2001
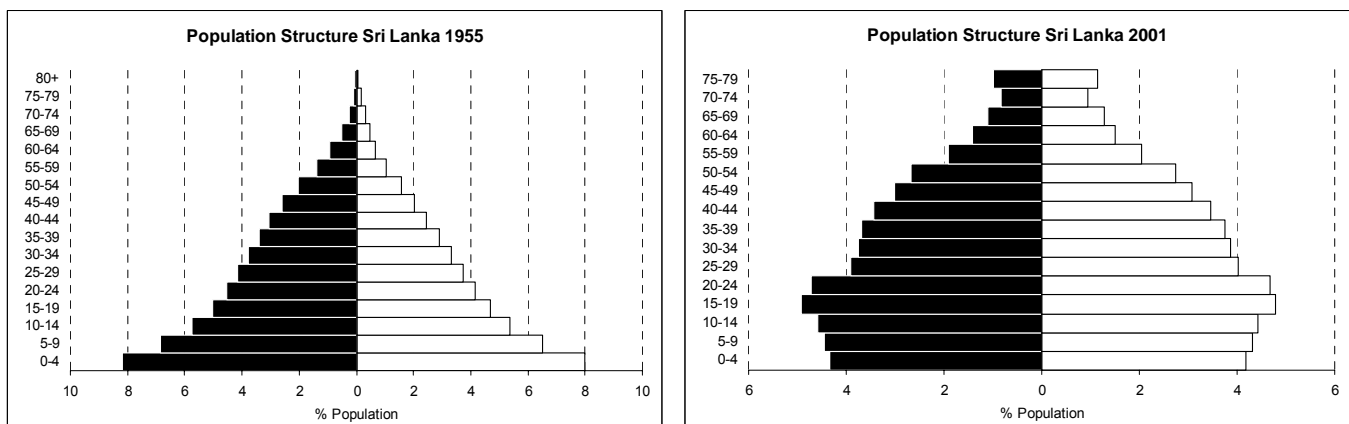
101

Source: Own calculations based on United Nations: Demographic Yearbook, 1997 Historical supplement, and Department of Census and Statistics, 2005

Appendix B: Construction of indexes

B1. Wealth index

For consumer durables, it is asked whether the household owns 23 kinds of consumer durables, see table B2, or not.

For the construction of a wealth index, these 23 assets are too many to take into account; the DHS usually uses around 15 or 16 variables in the construction (Filmer and Pritchet, 1999).

For the construction of a wealth index it is important to first asses the assets that discriminate for economic difference in the context of the surveyed population. Dealing with the fact that surveyed households lives in rural as urban areas, assets concerning land ownership and the possession of stock do not discriminate in wealth for these different living situations, the same is valid for non farms business. Then a boat or a ship is sensitive to the context, and together with the fact that a very low proportion of households owning a boat or ship, this variable is not selected. Then some variables are not selected due to low ownership; e.g., personal computer, washing machine, and tractor/two wheel tractor/motor/car/van/jeep/truck/three wheeler. After this selection, the remaining 13 assets, colored in grey, are kept for the construction of the wealth index assuming to be discriminating in economic status in rural as well in urban areas.

In addition to these assets, the wealth index usually covers some characteristics of the dwelling. Because dichotomous variables are most suitable for the construction of the wealth index, these characteristics are conceptualized and operationalised as presented in underlying table B1. Material of roof and floor, appropriate (owned) source of drinking water and sanitation facilities, and main source of energy are grouped in such a way that they discriminate for economic status in both rural as urban areas.

For the construction of the wealth index, the variables house ownership, separate kitchen, durable material of floor and roof, drinking water and sanitation are selected. The reason for not taking into account of the number of rooms is that this might be very different in rural and urban areas. Finally, the use of solid fuel is not be incorporated, because mainly wood and straw are used.

Table B1: Dichotomous categorisation of housing characteristics

	Yes=1	**No=0**
House ownership		
Number of rooms (excl. kitchen)		
Separate kitchen		
Durable material of floor	Ceramic tiles, cement, concrete, vinyl	Earth/sand, raw wood planks/bamboo, prepared clay (dung), stone, other
Durable material of roof	Galvanized iron/metal/tin/zinc, asbestos, tiles, cement	Shingles, wood, mud, earth, staw/leaves/tatch, canvas/plastic sheets, other
Appropriate drinking water*	Piped water, protected well, (tube well?)	Spring, river/stream, pond/lake, rainwater, bottled water, other, Appropriate, but not on the premise
Owns improved sanitation facilities**	Flush toilet, water toilet, traditional PIT, ventilated PIT	No facility/bush/field, other, improved, but not on premise
Main cooking and heating not fuel biomass***	Electricity, lpg/natural gas, biogas, kerosene	Coal, lignite, charcoal, wood, straw, dung and other
Land ownership		

* The proportion of the population with sustainable access to an improved water source, urban and rural, is the percentage of the population who use any of the following types of water supply for drinking: piped water, public tap, borehole or pump, protected well, protected spring or rainwater. Improved water sources do not include vendor-provided waters, bottled water, tanker trucks or unprotected wells and springs (World Bank: Goal 7, Target 10, Indicator 30).

** Proportion of the population with access to improved sanitation refers to the percentage of the population with access to facilities that hygienically separate human excreta from human, animal, and insect contact. Facilities such as sewers or septic tanks, poor-flush latrines and simple pit or ventilated improved pit latrines are assumed adequate, if they are not public. To be effective, facilities must be correctly constructed and properly maintained. (World Bank: Goal 7, Target 10, Indicator 31).

*** Proportion of population using solid fuels is the proportion of the population that relies on biomass (wood, charcoal, crop residues and dung) and coal as the primary source of domestic energy for cooking and heating (World Bank: Goal 7, Target 9, Indicator 29).

Table B2: Distribution of ownership assets and household characteristics by displacement status

	Displacement status		
Ownership of Assets	IDP	Non IDP	Total
Radio*	59.86	74.02	63.64
Watch*	65.06	80.66	69.28
Television*	29.66	42.24	33.06
Telephone*	3.96	17.18	7.54
Mobile phone*	5.72	14.94	8.21
Refrigerator*	2.58	8.71	4.24
Sewing machine*	7.07	17.18	9.93
Gas/electric stove*	2.21	9.29	4.13
Electric iron*	11.46	21.83	1.26
Electric fan*	18.10	29.79	21.26
Bicycle/scooter/motorcycle*	61.59	62.90	61.94
Tractor/two wheel tractor/ motor/ car/van / jeep/truck/three wheeler	2.24	6.89	3.50
Boat, ship	0.71	2.57	1.21
Computer	0.68	2.24	1.10
VCR/DVD*	3.56	6.06	4.24
Washing machine	0.09	2.00	0.61
Cows	6.95	10.12	7.80
Goats/sheep	7.81	8.88	8.10
Poultry	4.61	7.22	5.32
Pigs	0.34	0.25	0.31
Horses/donkeys	1.44	0.66	1.23
Non farm business	20.90	25.96	2.96
Jewellery*	43.79	49.17	45.24
Housing characteristics			
House ownership*	52.28	40.80	61.18
Average number of rooms	1.94	2.56	2.11
Separate kitchen*	31.76	52.07	37.24
Durable floor*	63.52	74.24	66.43
Durable roof*	51.77	75.72	58.27
Appropriate drinking water*	20.10	32.86	23.55
Own sanitation facility*	30.49	40.80	33.28
Non biomass fuel	13.60	18.39	14.89
Land ownership	19.51	30.22	22.48

*Selected variables for the construction of the wealth index
Source: Own calculations based on data UNHCR MDG project, 2006.

This means that of housing characteristics six variables are selected, which together with the durable goods make the selection for the construction of the wealth index 19. These 19 variables are dichotomously labelled by 0 "No(t owned)" and 1"Yes/owned".
Crombach's alpha, or scale reliability, for this total set of variables is 0.79, which means that the variables measure the same issue quite well.
For the construction of the wealth index for this dataset factor analysis with the principal component function is applied in STATA to determine this first component that represents wealth.

Table B3: Eigenvalues of 19 components

Factor	Eigenvalue	Difference	Proportion	Cumulative
1	4.9104	3.2034	0.2584	0.2584
2	1.7071	0.2412	0.0898	0.3483
3	1.4659	0.3943	0.0772	0.4254
4	1.0716	0.0666	0.0564	0.4818
5	1.0050	0.0447	0.0529	0.5347
6	0.9603	0.0254	0.0505	0.5853
7	0.9349	0.1096	0.0492	0.6345
8	0.8253	0.0452	0.0434	0.6779
9	0.7801	0.0502	0.0411	0.7190
10	0.7300	0.0251	0.0384	0.7574
11	0.7048	0.0594	0.0371	0.7945
12	0.6454	0.0588	0.0340	0.8285
13	0.5866	0.0556	0.0309	0.8593
14	0.5310	0.0193	0.0279	0.8873
15	0.5117	0.0185	0.0269	0.9142
16	0.4932	0.0801	0.0260	0.9402
17	0.4130	0.0247	0.0217	0.9619
18	0.3884	0.0531	0.0204	0.9824
19	0.3353	.	0.0176	1.0000

Source: Own calculations based on data UNHCR MDG project, 2006.

Figure B1: Screeplot of 19 eigenvalues
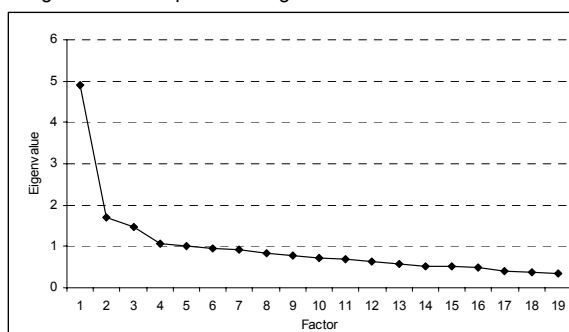
Source: Own calculations based on data UNHCR MDG project, 2006.

For the combination of selected assets, the proportion of variance explained by the first component is 25.84percent of the total variance, as shown in above table B3.

If comparing this value with the values of a comparative study conducted by Filmer and Pritchett (1999), where they studied the effect of household wealth on educational attainment in 35 countries out of DHS data, it corresponds with the calculated proportion of variance for countries within the same region, i.e. India 25.60 percent, Nepal 21.9 percent, and Bangladesh 30.9 percent. For the total set of studied countries the explained proportion of variance lied between 18.7 percent and 31.1 percent (Filmer and Pritchett, 1999).

The screeplot shown in figure B1 shows that a second and a third factor have an additional meaning, i.e. the difference between the first and the second eigenvalue is not that huge, and this the second (as 3rd, 4th and 5th) eigenvalue does not fall under 1.

Thus, while the first factor covers long term wealth, there are components that cover additional meaning about the set of selected variables. Due that fact that the second component explains almost 9 percent of the variance, it is worthwhile to explore where these factor might refer to. If looking at the factor loadings and scores of the second component, table B4 and B5, the values might refer to the availability of electricity or not, due the fact that the assets with a negative linear relationship need electricity.

Table B4: Factor loadings of components with an eigenvalue >1

Variable	Factor1	Factor2	Factor3	Factor4	Factor5	Uniqueness
Radio	0.4498	0.2457	-0.4167	0.0148	0.1627	0.5370
Watch	0.4875	0.4379	-0.3006	-0.0423	0.2448	0.4184
Television	0.6737	0.1127	-0.2443	-0.0886	-0.1396	0.4464
Telephone	0.6780	-0.2562	0.1047	0.2049	0.1287	0.4051
Mobile phone	0.6234	-0.1612	-0.0939	-0.0521	-0.0992	0.5640
Refrigerator	0.6591	-0.3774	0.2167	0.1925	0.1865	0.3044
Sewing machine	0.5658	-0.2065	0.1122	0.0060	0.1726	0.5948
Gas/electric stove	0.6579	-0.3818	0.2129	0.1162	0.1502	0.3400
Electric iron	0.7367	-0.1911	-0.0495	-0.1856	-0.1229	0.3687
Electric fan	0.5886	-0.2164	0.0643	-0.4483	-0.1556	0.3774
Bicycle/scooter/motorcycle	0.2899	0.2042	-0.4971	0.4628	0.0769	0.4070
VCR/DVD	0.4047	-0.1560	-0.2698	-0.2554	-0.2435	0.6145
Jewellery	0.2767	0.1710	-0.3566	-0.0963	0.2934	0.6716
House ownership	0.1530	0.3609	0.4584	-0.2917	0.4677	0.3324
Separate kitchen	0.4034	0.4253	0.1657	-0.1449	0.1547	0.5840
Durable floor	0.4415	0.3677	0.0250	0.0221	-0.5208	0.3975
Durable roof	0.3640	0.5301	0.3987	-0.1018	-0.2159	0.3705
Appropriate drinking water	0.3996	0.0839	0.2409	0.4576	-0.1663	0.5382
Own sanitation facility	0.3065	0.3265	0.3298	0.3406	-0.0820	0.5679

Source: Own calculations based on data UNHCR MDG project, 2006.

Of the factor loadings, scoring factors are calculated, which indicate that the factor is obtained as a weighted sum of the standardized versions of the 19 variables of which each has its weight (Stata Press, 2005). Underlying table B5 shows the summary statistics of each variable, together with the scoring factors of the first two components

Table B5: Summary statistics and factor scorings of the first two components

Variable	Mean	SD	Min	Max	Scoring F1	Scoring F2
Radio	0.6179	0.4861	0	1	0.0916	0.1440
Watch	0.6692	0.4707	0	1	0.0993	0.2565
Television	0.3241	0.4683	0	1	0.1372	0.0661
Telephone	0.0817	0.2741	0	1	0.1381	-0.1501
Mobile phone	0.0856	0.2798	0	1	0.1270	-0.0944
Refrigerator	0.0485	0.2149	0	1	0.1342	-0.2211
Sewing machine	0.0951	0.2934	0	1	0.1152	-0.1210
Gas/electric stove	0.0456	0.2088	0	1	0.1340	-0.2237
Electric iron	0.1416	0.3488	0	1	0.1500	-0.1119
Electric fan	0.2072	0.4055	0	1	0.1199	-0.1268
Bicycle/scooter/motorcycle	0.5837	0.4932	0	1	0.0590	0.1196
VCR/DVD	0.0447	0.2067	0	1	0.0824	-0.0914
Jewellery	0.4430	0.4970	0	1	0.0564	0.1002
House ownership	0.6122	0.4875	0	1	0.0312	0.2114
Separate kitchen	0.3650	0.4817	0	1	0.0822	0.2492
Durable floor	0.6606	0.4737	0	1	0.0899	0.2154
Durable roof	0.5922	0.4917	0	1	0.0741	0.3106
Appropriate drinking water	0.2395	0.4270	0	1	0.0814	0.0492
Own sanitation facility	0.3270	0.4693	0	1	0.0624	0.1913

Source: Own calculations based on data UNHCR MDG project, 2006.

Then the 'value of wealth' for each household is predicted out of the factor scores of the first component, sorted and split into quintiles, which result in approximately 210 households within each quintile, table B6. Then the level of the household index is linked to all members of the household, which result in the following individual wealth distribution for all female respondents and respondents aged 15+, tables B7 and B8.

Table B6: Wealth index by household

Wealth index	N	Proportion
Poorest	211	20.06
Second	210	19.96
Middle	211	20.06
Fourth	212	20.15
Richest	208	19.77
Total	1,052	100.00

Source: Own calculations based on data UNHCR MDG project, 2006.

Table B7: Wealth index for all individuals

	N	Proportion
Poorest	781	17.69
Second	900	20.39
Middle	934	21.16
Fourth	932	21.11
Richest	867	19.64
Total	4,414	100.00

Table B8: Wealth index for all females 15 years and older

	N	Proportion
Poorest	257	17.85
Second	275	19.10
Middle	296	20.56
Fourth	299	20.76
Richest	313	21.74
Total	1,440	100.00

Source: Own calculations based on data UNHCR MDG project, 2006.

B2. Status of women

The index that reflects the status of women is constructed using the same method as above, but in this case only seven variables are selected, dealing with the opinion of the women whether her husband is allowed to hit his wife in particular situations, or not.

Again binary variables are constructed by recoding the 'don't know' level as missing, which for every has a proportion of below 10 percent of the whole sample, i.e. a proportion that can be neglected.

This index is based on the answers of the women only. Which means that concerning the gender questions, it is perceived status that is measured. The Crombach's alpha scale reliability of these seven variables is 0.8181, which indicates that the selected variables measure the same issue quit well.

Underlying table B9 shows the eigenvalues of the seven factors resulting from the analysis. The first component covers 48.77 percent of the total variance, the table, as figure B2 show that the second component contributes to 18.53 percent of the total variance.

Table B9: Eigenvalues of 7 components

Factor	Eigenvalue	Difference	Proportion	Cumulative
1	3.4142	2.1168	0.4877	0.4877
2	1.2974	0.6048	0.1853	0.6731
3	0.6925	0.0443	0.0989	0.7720
4	0.6482	0.1853	0.0926	0.8646
5	0.4629	0.1939	0.0661	0.9307
6	0.2690	0.0531	0.0384	0.9692
7	0.2159	.	0.0308	1.0000

Source: Own calculations based on data UNHCR MDG project, 2006.

Figure B2: Screeplot of 7 eigenvalues
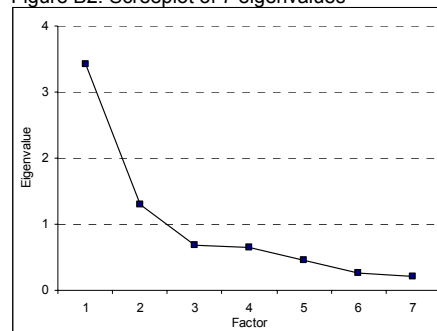
Source: Own calculations based on data UNHCR MDG project, 2006.

The scoring and factor loadings, tables B10 and B11, of this second component show that a negative relationship exists between the first three variables.

Table B10: Factor loadings of components with an eigenvalue >1

Variable	Factor1	Factor2	Uniqueness

Goes out to see friends	0.7516	-0.4075	0.2691
Leaves to town	0.7680	-0.4484	0.2091
Neglects children	0.6565	-0.3642	0.4364
Argues with husband	0.7109	0.0766	0.4888
Refuses sex	0.6533	0.6462	0.1556
Prepared food not properly	0.6637	0.6116	0.1854
Spends money	0.6751	0.0106	0.5441

Source: Own calculations based on data UNHCR MDG project, 2006.

Table B11: Summary statistics and factor scorings of the first two components

Variable	Mean	SD	Min	Max	Scoring F1	Scoring F2
Goes out to see friends	0.4365	0.4962	0	1	0.2201	-0.3141
Leaves to town	0.4025	0.4906	0	1	0.2249	-0.3456
Neglects children	0.3327	0.4714	0	1	0.1923	-0.2807
Argues with husband	0.6052	0.4890	0	1	0.2082	0.0590
Refuses sex	0.8429	0.3641	0	1	0.1914	0.4981
Prepared food not properly	0.8274	0.3781	0	1	0.1944	0.4715
Spends money	0.4976	0.5002	0	1	0.1977	0.0082

Source: Own calculations based on data UNHCR MDG project, 2006.

Then the scores of the first component are predicted for each individual, resulting in a status of women index. The predictions are sorted and split into three equal categories for female respondents 15 years and older, table B12. Because the analyses only concerns women, it is not necessary to link their values to other members of the household.

Table B12: Status of women index for all females 15 years and older

	N	Proportion
Lowest	362	35.11
Middle	370	35.89
Highest	299	29.00
Total	1,031	100.00

Source: Own calculations based on data UNHCR MDG project, 2006.

B3. Autonomy

The index that represents autonomy of the individual is constructed from nine questions concerning who (in the household) makes decisions about particular issues. Dichotomous variables are again constructed; 1 is scored if only the respondent makes the decision about a particular issue, 0 if the respondent together with others, or only others make the decision about the issue.

The Crombach's alpha scale reliability of these seven variables is 0.8973, indicating that the selected variables measure the same issue quit well.

Underlying table C13 shows the eigenvalues of the nine factors resulting from the analysis. The first component covers 57.13 percent of the total variance, the table, as figure B3 show that the second component contributes to 15.39 percent of the total variance.

Table B13: Eigenvalues of 9 components

Factor	Eigenvalue	Difference	Proportion	Cumulative
1	5.1415	3.7564	0.5713	0.5713
2	1.3851	0.5590	0.1539	0.7252
3	0.8261	0.3090	0.0918	0.8170
4	0.5171	0.1066	0.0575	0.8744
5	0.4105	0.0920	0.0456	0.9200
6	0.3186	0.1481	0.0354	0.9554
7	0.1705	0.0229	0.0189	0.9744
8	0.1476	0.0646	0.0164	0.9908
9	0.0830	.	0.0092	1.0000

Source: Own calculations based on data UNHCR MDG project, 2006.

Figure B3: Screeplot of 9 eigenvalues
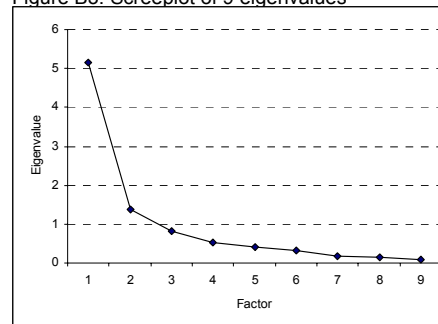
Source: Own calculations based on data UNHCR MDG project, 2006.

The scoring and factor loadings, tables B14 and B15, of this second component show that a negative relationship exists between the first three variables.

Table B14: Factor loadings of components with an eigenvalue >1

Variable	Factor1	Factor2	Uniqueness
Need health care	0.7140	-0.4864	0.2537
Child needs health care	0.7950	-0.4686	0.1484
Education daughter	0.8558	-0.3428	0.1501
Education son	0.8661	-0.2904	0.1655
Major household purchases	0.7323	0.4211	0.2864
Daily household purchases	0.7460	0.2820	0.3640
Move family	0.7626	0.4984	0.1700
Marriage daughter or son	0.7577	0.4705	0.2045
Daily food to cook	0.5186	0.0181	0.7308

Source: Own calculations based on data UNHCR MDG project, 2006.

Table B15: Summary statistics and factor scorings of the first two components

Variable	Mean	SD	Min	Max	Scoring F1	Scoring F2
Need health care	0.4647	0.4990	0	1	0.1389	-0.3512
Child needs health care	0.4043	0.4910	0	1	0.1546	-0.3383
Education daughter	0.3149	0.4647	0	1	0.1664	-0.2475
Education son	0.3013	0.4590	0	1	0.1685	-0.2097
Major household purchases	0.1821	0.3861	0	1	0.1424	0.3040
Daily household purchases	0.2511	0.4338	0	1	0.1451	0.2036
Move family	0.1209	0.3261	0	1	0.1483	0.3599
Marriage daughter or son	0.1226	0.3281	0	1	0.1474	0.3397
Daily food to cook	0.4945	0.5002	0	1	0.1009	0.0130

Source: Own calculations based on data UNHCR MDG project, 2006.

After predicting the scores for each individual, the following distribution evolves for all female respondents aged 15 and over, table B16.

Table B16: Autonomy for all individuals 15 years and older

	N	Proportion
Low	542	38.24
Middle	254	28.68
High	379	33.08
Total	1,175	100.00

Source: Own calculations based on data UNHCR MDG project, 2006.

B4. Self efficacy: analyses on utilisation of maternal health and family planning methods

For self efficacy the same method is used; four variables are used selected to construct a self efficacy index in order to reflect general self efficacy by taking into the construction only questions that are not domain specific. Concerning the data analyses, self efficacy is predicted on the basis of female respondents. The scale reliability coefficient of these variables is 0.8931. The first component covers 75.81 percent of the total variance, and as shown in table B17, the second eigenvalue is below 1, as shown in figure B4.Therefore the factor loadings are not presented here.

Table B17: Eigenvalues of 4 components

Factor	Eigenvalue	Difference	Proportion	Cumulative
1	3.0323	2.6141	0.7581	0.7581
2	0.4182	0.0945	0.1046	0.8626
3	0.3237	0.0979	0.0809	0.9436
4	0.2258	.	0.0564	1.0000

Source: Own calculations based on data UNHCR MDG project, 2006.

Figure B4: Screeplot of 4 eigenvalues
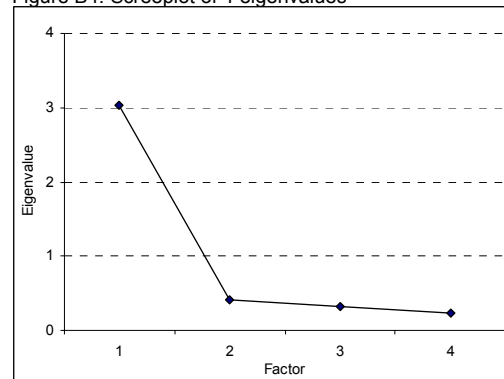
Source: Own calculations based on data UNHCR MDG project, 2006.

Table B18 shows the summary statistics together with the scores of the first factor.

Table B18: Summary statistics and factor scorings of the first component

Variable	Mean	SD	Min	Max	Factor scores
Solve problems	2.5928	0.9372	1	4	0.28708
Deal with unexpected events	2.4286	0.8824	1	4	0.29651
Means and ways to get want	2.3608	0.8810	1	4	0.28283
Find several solution	2.4087	0.9020	1	4	0.28187

Source: Own calculations based on data UNHCR MDG project, 2006.

It is chosen to split the values into three levels for the reason to keep the number of levels in the analyses as small as possible to avoid significance problems resulting from a small sample size. Table B19 shows the frequency distribution of all women aged 15 years and older.

Table B19: Self efficacy index for all females 15 years and older

	N	Proportion
Lowest	526	38.76
Middle	557	41.05
Highest	274	20.19
Total	1,357	100.00

Source: Own calculations based on data UNHCR MDG project, 2006.

B5. Self efficacy as dependent variable

For the final analyses conducted to find the factors that contribute to the prediction of self efficacy, the concept is constructed again in the same way as above, but then with the inclusion of the responses of men leading to a total number of 2,619 cases. The scale reliability coefficient of these variables is 0.8950. The first component covers 76.12 percent of the total variance, and as shown in table B20, the second eigenvalue is below 1, as shown in figure B5.Therefore the factor loadings are not presented here.

Table B20: Eigenvalues of 4 components

Factor	Eigenvalue	Difference	Proportion	Cumulative
1	3.0450	2.6271	0.7612	0.7612
2	0.4178	0.1065	0.1045	0.8657
3	0.3114	0.0855	0.0778	0.9435
4	0.2259	.	0.0565	1.0000

Source: Own calculations based on data UNHCR MDG project, 2006.

Figure B5: Screeplot of 4 eigenvalues
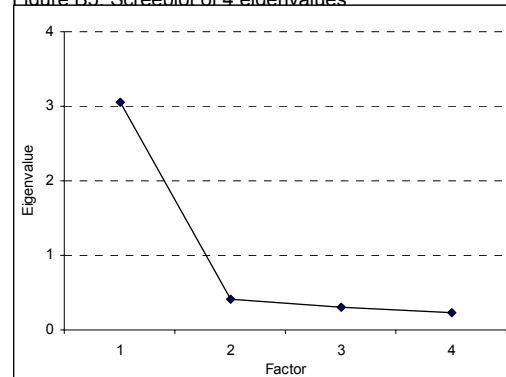
Source: Own calculations based on data UNHCR MDG project, 2006.

Table B21 shows the summary statistics together with the scores of the first factor.

Table B21: Summary statistics and factor scorings of the first component

Variable	Mean	SD	Min	Max	Factor scores
Solve problems	2.6220	0.9401	1	4	0.2858
Deal with unexpected events	2.4777	0.9069	1	4	0.2957
Means and ways to get want	2.4280	0.9086	1	4	0.2855
Find several solution	2.4910	0.9317	1	4	0.2788

Source: Own calculations based on data UNHCR MDG project, 2006.

It is chosen to split the values into three levels for the reason to keep the number of levels in the analyses as small as possible to avoid significance problems resulting from a small

sample size. Table B22 shows the frequency distribution of all women aged 15 years and older.

Table B22: Self efficacy index for all females and females 15 years and older

	N	Proportion
Average and lower	1,355	51.74
Above the average	1,264	48.26
Total	2,619	100.00

Source: Own calculations based on data UNHCR MDG project, 2006.

Appendix C: Frequency distributions of independent variables

C1. Independent variables for analysis of utilisation of maternal health services of last birth since 2000 (A, B and C)

Underlying frequency overviews are based on values scoring on the dependent variable 'receiving at least four antenatal care checks'. This is done to avoid an extensive number of tables and for the reason that the frequencies will not significantly differ for each dependent variable because this first one consists the largest number of cases (N=417).

Table C1: Individual background

Individual background	Labels	N	Proportion
Age at delivery N= 404	1: 14-24 years	142	35.15
	2: 25-29 years	113	27.97
	3: 30-34 years	96	23.76
	4: 35-54 years	53	13.12
Ethnicity N= 406	1: Sinhalese	34	8.37
	2: Sri Lankan Tamil	150	36.95
	3: Indian Tamil	58	14.29
	4: Muslim	164	40.39
Place of residence N= 396	11: Mannar	107	27.02
	12: Vavuniya	104	26.26
	16: Trincomalee or other	23	5.81
	19: Anaradhapura	64	16.16
	20: Polonnaruwa	98	24.75
Period delivery N= 406	0: Before ceasefire	106	26.11
	1: After ceasefire	300	73.89

Source: Own calculations based on data UNHCR MDG project, 2006.

Table C2: Socioeconomic status (at interview)

Socio economic status	Labels	N	Proportion
Wealth status N= 414	1: Poorest	134	32.37
	2: Middle	143	34.54
	3: Richest	137	33.09
Education N= 404	0: No or primary education	146	36.14
	1: Secondary and higher	258	63.86
Status of women N=312	1: Lowest status	127	40.71
	2: Middle status	112	35.90
	3: Highest status	73	23.40

Source: Own calculations based on data UNHCR MDG project, 2006.

Table C3: Displacement history

Displacement History	Labels	N	Proportion
Displacement status at last birth N= 417	0: Non displaced	87	20.86
	1: Displaced	330	79.12
Number of displacements at last birth N=400	0: Non displaced	90	22.50
	1: Ones	65	16.25
	2: Twice	138	34.50
	3: Three	55	13.75
	4: Four or more times	52	13.00
Duration of stay place delivery N=406	0: Non displaced	83	20.44
	1: Less than 5 years	184	45.32
	2: 5-10 years	110	27.09
	3: More than 10 years	29	7.14

Source: Own calculations based on data UNHCR MDG project, 2006.

Table C4: Proximate determinants

Proximate determinants	Labels	N	Proportion
Need (health status) N= 411	0: No, 18-35 years, >24 months, 2-5 child	230	55.96
	1: Yes, <18 / >35 years, <24 months, first / sixth or higher parity child	181	44.04

Source: Own calculations based on data UNHCR MDG project, 2006.

Table C5: Self efficacy

Self efficacy	Labels	N	Proportion
Self efficacy N= 414	1: Lowest self efficacy	162	39.13
	2: Middle self efficacy	182	43.96
	3: Highest self efficacy	70	16.19

Source: Own calculations based on data UNHCR MDG project, 2006.

C2. Independent variables for use of modern family planning methods (D)

Table C6: Individual background

Individual background	Labels	N	Proportion
Age at interview	1: 14-19 years	134	11.79
N= 1,137	2: 20-24 years	182	16.01
	3: 25-29 years	164	14.42
	4: 30-34 years	173	15.22
	5: 35-39 years	162	14.25
	6: 40-54 years	322	28.32
Marital Status	1: Never married	254	22.76
N= 1,116	2: Married	490	43.91
	3: Cohabiting	266	23.84
	4: Widowed/separated/divorced	106	9.50
Parity	0: No children	243	23.01
N= 1,056	1: One child	128	12.12
	2: Two children	207	19.60
	3: Three children	189	17.90
	4: Four and more children	289	27.37
Ethnicity	1: Sinhalese	116	10.20
N= 1,137	2: Sri Lankan Tamil	499	43.89
	3: Indian Tamil	157	13.81
	4: Muslim	365	32.10
Place of residence	11: Mannar	296	26.03
N= 1,137	12: Vavuniya	404	35.53
	16: Trincomalee	30	2.64
	19: Anaradhapura	158	13.90
	20: Polonnaruwa	249	21.90

Source: Own calculations based on data UNHCR MDG project, 2006.

Table C7: Socioeconomic status

Socio economic status	Labels	N	Proportion
Wealth status	1: Poorest	339	29.53
N= 1,148	2: Middle	399	34.76
	3: Richest	410	35.71
Education	0: No or primary education	384	34.44
N= 1,115	1: Secondary and higher	431	65.56
Status of women	1: Lowest	309	35.93
N= 860	2: Middle	307	35.70
	3: Highest	244	28.37

Source: Own calculations based on data UNHCR MDG project, 2006.

Table C8: Displacement history

Displacement History	Labels	N	Proportion
Displacement status	1: Non displaced	217	19.09
N= 1,137	2: Displaced	626	55.06
	3: Displaced and returned	294	25.86
Number of displacements at	0: Non displaced	180	16.22
interview	1: Ones	155	13.96
N= 1,110	2: Twice	432	38.92
	3: Three	167	15.05
	4: Four or more times	176	15.86
Duration of stay place interview	0: Non displaced	180	16.26
N= 1,107	1: Less than 5 years	333	30.08
	2: 5-10 years	380	34.33
	3: More than 10 years	214	19.33
Age at first displacement	0: Non displaced	217	19.93
N= 1,089	1: 0-14 years	278	25.53
	2: 15-24 years	298	27.36
	3: 25-34 years	212	19.47
	4: 35 years and older	84	7.71

Source: Own calculations based on data UNHCR MDG project, 2006.

Table C9: Proximate determinants

Proximate determinants	Labels	N	Proportion
Perceived h	1: Excellent/good	683	63.18
N= 1,081	2: Fair	331	30.62
	3: Poor/Very Poor	67	6.20
Autonomy	1: Lowest autonomy	435	45.60
N= 954	2: Middle autonomy	219	22.96
	3: Highest autonomy	300	31.45

Source: Own calculations based on data UNHCR MDG project, 2006.

Table C10: Self efficacy

Self efficacy	Labels	N	Proportion
Self efficacy N= 1,100	1: Lowest self efficacy	404	36.73
	2: Middle self efficacy	456	41.45
	3: Highest self efficacy	240	21.82

Source: Own calculations based on data UNHCR MDG project, 2006.

C3. Independent variables for self efficacy (E)

Table C11: Individual background

Individual background	Labels	N	Proportion
Age at interview N= 2,614	1: 14-24 years	762	29.15
	2: 25-34 years	627	23.99
	3: 25-44 years	561	21.46
	4: 45-54 years	360	13.77
	5: 55 years and older	304	11.63
Sex N= 2,619	1: Male	1,258	48.03
	2: Female	1,361	51.97
Marital Status N= 2,615	1: Never married	739	28.26
	2: Married	1,061	40.57
	3: Cohabiting	582	22.26
	4: Widowed/separated/divorced	233	8.91
Ethnicity N= 2,619	1: Sinhalese	276	10.54
	2: Sri Lankan Tamil	1,102	42.08
	3: Indian Tamil	370	14.13
	4: Muslim	871	33.26
Place of residence N= 2,619	11: Mannar	664	25.35
	12: Vavuniya	915	34.94
	16: Trincomalee	72	2.75
	19: Anaradhapura	406	15.50
	20: Polonnaruwa	562	21.46
Living in welfare camp N= 2,619	0: No	1,912	73.00
	1: Yes	707	27.00

Source: Own calculations based on data UNHCR MDG project, 2006.

Table C12: Socioeconomic status and autonomy

Socio economic status	Labels	N	Proportion
Wealth status N= 2,590	1: Poorest	770	29.73
	2: Middle	908	35.06
	3: Richest	912	35.21
Education N= 2,616	0: No education	296	11.32
	1: Primary education	619	23.67
	2: Secondary and higher	1,700	65.01
Status of women N= 1,963	1: Lowest	726	36.98
	2: Middle	615	31.33
	3: Highest	622	31.69

Source: Own calculations based on data UNHCR MDG project, 2006.

Table C13: Displacement history

Displacement History	Labels	N	Proportion
Displacement status N= 2,619	1: Non displaced	493	18.82
	2: Displaced	1,444	55.14
	3: Displaced and returned	682	26.04
Number of displacements at interview N= 2,590	0: Non displaced	407	15.71
	1: Ones	376	14.52
	2: Twice	991	38.26
	3: Three	412	15.91
	4: Four or more times	404	15.60
Duration of stay place interview N= 1,107	0: Non displaced	407	15.75
	1: Less than 5 years	760	29.41
	2: 5-10 years	885	34.25
	3: More than 10 years	532	20.59
Age at first displacement N= 2,541	0: Non displaced	493	19.40
	1: 0-14 years	695	27.35
	2: 15-24 years	535	21.05
	3: 25-34 years	416	16.37
	4: 35 years and older	402	15.82

Source: Own calculations based on data UNHCR MDG project, 2006.

Appendix D: Questionnaire Sri Lanka

UNHCR Survey on Living Conditions of Refugees, Asylum-seekers and Internally Displaced Persons

Netherlands Interdisciplinary Demographic Institute (NIDI), The Netherlands
UNHCR Yerevan, Armenia
Health Policy Research Associates (HPRA), Sri Lanka
Centro de Estudios de Poblacion y Desarollo Social (CEPAR), Equador

HOUSEHOLD QUESTIONNAIRE
(HEAD OF THE HOUSEHOLD)

DISTRICT NAME . . . .
(SPECIFY)

CITY/TOWN/VILLAGE NAME . . . .
(SPECIFY)

GN AREA . . . .
(SPECIFY)

HOUSEHOLD NUMBER . . . .

IS HOUSEHOLD IN AN IDP WELFARE CENTRE?   YES 1
                                                      NO 2

NAME OF HOUSEHOLD HEAD _____

LINE NUMBER OF PERSON WHO PROVIDES THE HOUSEHOLD-LEVEL INFORMATION (SEE A01) . . . .

	1	2	3	FINAL VISIT CODES
DATE	_____	_____	_____	DAY
				MONTH
INTERVIEWER'S NAME	_____	_____	_____	INTERVIEWER CODE
RESULT*	_____	_____	_____	RESULT
NEXT VISIT: DATE	_____	_____		TOTAL NUMBER
TIME	_____	_____		OF VISITS

*RESULT CODES:

1   COMPLETED
2   PARTLY COMPLETED
3   NO HOUSEHOLD MEMBER AT HOME OR NO COMPETENT RESPONDENT
4   ENTIRE HOUSEHOLD ABSENT FOR EXTENDED PERIOD OF TIME
5   POSTPONED
6   REFUSED
7   DWELLING VACANT OR ADDRESS NOT A DWELLING
8   DWELLING DESTROYED
9   DWELLING NOT FOUND
10 COULD NOT COMPLETE INTERVIEW FOR SECURITY REASON
11 HOUSEHOLD IS SAMPLED AS IDP HOUSEHOLD, BUT DOES
        NOT APPEAR TO BE AN IDP HOUSEHOLD
12 HOUSEHOLD IS SAMPLED AS A NON-IDP HOUSEHOLD, BUT APPEARS
        TO BE AN IDP HOUSEHOLD
13 OTHER

INTERVIEWER, AFTER COMPLETING MODULE A, ENTER:

HH1 TOTAL PERSONS IN HOUSEHOLD (SEE A01)

HH2 TOTAL NUMBER OF IDPs IN HOUSEHOLD (SEE A11)

HH3 TOTAL PERSONS 15 YEARS AND OLDER IN HOUSEHOLD (SEE A12)

HH4 TOTAL PERSONS 14 YEARS OR YOUNGER IN HOUSEHOLD (SEE A13)

HH5 HOUSEHOLD TYPOLOGY CODE (A,B,C or D) (SEE A16)

SUPERVISOR CODE

OFFICE EDITOR

KEYED BY

HH 1 of 10   9/1/2006

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MODULE A: HOUSEHOLD SCHEDULE (HEAD OF HOUSEHOLD)

INTERVIEWER: Now I would like to have some information about the people who usually live and sleep in this household

LINE NO.	USUAL RESIDENTS IN THIS HOUSEHOLD	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	AGE	DATE OF BIRTH		ETHNICITY	RELIGION	SURVIVAL OF MOTHER		IDP STATUS	INTERVIEWER: INSTRUCTIONS		
	Please give me the names of all persons who usually live and sleep in your household, starting with the head of the household. INTERVIEWER: Also include: 1. Children who were placed in institutions, less than one year ago (e.g. hospital, hostel, school) 2. Maids, servants who usually sleep here 3. Household members who usually sleep here 4. Members temporarily working or living away from this home	What is the relationship of <NAME> to the head of the household?"	Is <NAME> male or female?	How old is <NAME>? RECORD AGE IN COM-PLETED YEARS SEE CODES BELOW	In which year and month was <NAME> born?		To which ethnic group does <NAME> belong? 1 = Sinhalese 2 = SL Tamil 3 = Indian Tamil 4 = Muslem 6 = Other	What is <NAME'S> religion? 1 = Buddhist 2 = Hindu 3 = Catholic 4 = Christian 5 = Islam 6 = Other 7 = None	Is <NAME'S> biological mother alive?	IF ALIVE Does <NAME'S> biological mother live in this house-hold? IF YES: What is her name? RECORD MOTHER'S LINE NUMBER	Is <NAME> an IDP?	CIRCLE LINE NUMBER OF ALL PERSONS OF AGE 15 YEARS AND OLDER	CIRCLE LINE NUMBER OF ALL PERSONS OF AGE 14 AND BELOW	IF A13 IS CIRCLED WRITE LINE NUMBER OF MOTHER, IF LISTED (A10). OTHERWISE, GIVE LINE NUMBER OF CHILD'S PRINCIPAL CARETAKER IN THE HOUSEHOLD (SEE A01)
			M F	Years	Month	Year			Y N DK	NUMBER	Yes No			
(A01)	(A02)	(A03)	(A04)	(A05)	(A06a)	(A06b)	(A07)	(A08)	(A09)	(A10)	(A11)	(A12)	(A13)	(A14)
01		0 1	1 2						1 2 8		1 2	01	01	
02			1 2						1 2 8		1 2	02	02	
03			1 2						1 2 8		1 2	03	03	
04			1 2						1 2 8		1 2	04	04	
05			1 2						1 2 8		1 2	05	05	
06			1 2						1 2 8		1 2	06	06	
07			1 2						1 2 8		1 2	07	07	
08			1 2						1 2 8		1 2	08	08	

CODES FOR A03
01 = HEAD
02 = WIFE OR HUSBAND
03 = SON OR DAUGHTER
04 = SON / DAUGHTER-IN-LAW
05 = GRANDCHILD
06 = PARENT
07 = GRAND PARENT
08 = PARENT-IN-LAW
09 = BROTHER OR SISTER
10 = BROTHER / SISTER IN LAW
11 = NEPHEW OR NIECE
12 = OTHER RELATIVE
13 = ADOPTED/FOSTER/STEPCHILD
14 = DOMESTIC SERVANT   16 = NOT RELATED
15 = BOARDER / LODGER   98 = DON'T KNOW

CODES FOR A05
RECORD YEARS COMPLETED
00 = LESS THAN 1 YEAR SINCE BIRTH
97 = 97 OR OLDER
98 = DON'T KNOW

IN A10, RECORD '00' IF MOTHER IS NOT LIVE IN THIS HOUSEHOLD

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HOUSEHOLD SCHEDULE (CONT.)

LINE NO.	USUAL RESIDENTS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	AGE	DATE OF BIRTH	ETHNICITY	RELIGION	SURVIVAL OF MOTHER		IDP STATUS	INTERVIEWER: INSTRUCTIONS		
	Please give me the names of all persons who usually live in your household, starting with the head of the household. INTERVIEWER: Also Include: 1. Children who were placed in institutions, less than one year ago (e.g. hospital, hostel, school) 2. Maids, servants who usually sleep here 3. Household members who usually sleep here 4. Members temporarily working or living away from this home	What is the relationship of <NAME> to the head of the household?"	Is <NAME> male or female? M F	How old is <NAME>? RECORD AGE IN COMPLETED YEARS SEE CODES BELOW Years	In which year and month was <NAME> born? YEAR MONTH	To which ethnic group does <NAME> belong? 1 = Sinhalese 2 = SL Tamil 3 = Indian Tamil 4 = Muslem 6 = Other	What is your religion? 1 = Buddhist 2 = Hindu 3 = Catholic 4 = Christian 5 = Islam 6 = Other 7 = None	Is <NAME'S> biological mother alive? Y N DK	IF ALIVE Does <NAME'S> biological mother live in this household? IF YES: What is her name? RECORD MOTHER'S LINE NUMBER	Is <NAME> an IDP? Yes No	CIRCLE LINE NUMBER OF ALL PERSONS OF AGE 15 YEARS AND OLDER	CIRCLE LINE NUMBER OF ALL PERSONS OF AGE 14 AND BELOW	IF A13 IS CIRCLED WRITE LINE NUMBER OF MOTHER, IF LISTED (A10). OTHERWISE, GIVE LINE NUMBER OF CHILD'S PRINCIPAL CARETAKER IN THE HOUSEHOLD (SEE A01)
(A01)	(A02)	(A03)	(A04)	(A05)	(A06)	(A07)	(A08)	(A09)	(A10)	(A11)	(A12)	(A13)	(A14)
09			1 2					1 2 8		1 2	09	09	
10			1 2					1 2 8		1 2	10	10	
11			1 2					1 2 8		1 2	11	11	
12			1 2					1 2 8		1 2	12	12	
13			1 2					1 2 8		1 2	13	13	
14			1 2					1 2 8		1 2	14	14	
15			1 2					1 2 8		1 2	15	15	
16			1 2					1 2 8		1 2	16	16	
17			1 2					1 2 8		1 2	17	17	
18			1 2					1 2 8		1 2	18	18	

FOR CODES, SEE FIRST SHEET OF HOUSEHOLD SCHEDULE   INTERVIEWER: IF HOUSEHOLD HAS MORE THAN 18 RESIDENTS, COMPLETE LISTING ON ANOTHER SHEET

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MODULE A (Cont.): SUMMARY INFORMATION		
NO.	QUESTIONS AND FILTERS　　　　　　　　　　　　　　　　　　CODING CATEGORIES	SKIP
A15	INTERVIEWER:　EXAMINE MODULE A AND COUNT THE NUMBERS OF THE FOLLOWING PERSONS, 　　　　　　　　　　AND ENTER THESE NUMBERS ON THE COVER PAGE a. TOTAL NUMBER OF PERSONS IN THE HOUSEHOLD (SEE A01; ENTER IN HH1) b. TOTAL NUMBER OF IDPs IN HOUSEHOLD (SEE A11; ENTER IN HH2) c. TOTAL NUMBER OF PERSONS 15 YEARS OLD OR OLDER (SEE A12; ENTER IN HH3) d. TOTAL NUMBER OF PERSONS 14 YEARS OLD OR YOUNGER (SEE A13; ENTER IN HH4)	
A16	INTERVIEWER, DETERMINE HOUSEHOLD TYPE AND CIRCLE HOUSEHOLD TYPOLOGY CODE (HTC) 　　　　　　　　　AND ENTER THIS CODE ON COVER PAGE a. ALL HOUSEHOLD MEMBERS ARE IDPs ─────────────────→ A b. HEAD OF HOUSEHOLD IS AN IDP, AND ONE OR MORE OTHERS ARE NON-IDPs ───────→ B c. HEAD OF HOUSEHOLD IS NOT AN IDP AND ONE OR MORE OTHERS ARE IDPs ────→ C d. ALL HOUSEHOLD MEMBERS ARE NON-IDPs ─────────────────→ D	→A18
A17	INTERVIEWER:　IF 'HTC' IS **A, B** OR C AND THE SELECTED HOUSEHOLD **SHOULD BE** 　　　　　　　　A HOUSEHOLD WITH IDPs 　　　　　　　IF 'HTC' IS **A, B** OR C AND THE SELECTED HOUSEHOLD SHOULD **NOT** BE 　　　　　　　A HOUSEHOLD WITH IDPs	GO TO MOD B → A19
A18	INTERVIEWER:　IF 'HTC' IS **D** AND THE SELECTED HOUSEHOLD SHOULD **NOT** BE A HOUSEHOLD WITH IDPs 　　　　　　　IF 'HTC' IS **D** AND THE SELECTED HOUSEHOLD SHOULD BE A HOUSEHOLD **WITH** IDPs	GO TO MOD B → A19
A19	INTERVIEWER:　THE HOUSEHOLD TYPOLOGY CODE (HTC) DOES NOT CORRESPOND TO THE TYPE OF 　　　　　　　　HOUSEHOLD TO BE INTERVIEWED 　　　　　　　CHECK QUESTION A11 AND, IF NECESSARY, CORRECT ANSWERS TO A11, A15b AND HH2, 　　　　　　　AND THEN REPEAT A16-A17/A18 　　　　　　　IF THE HTC AND THE TYPE OF HOUSEHOLD INTERVIEWED STILL DO NOT CORRESPOND, 　　　　　　　END THIS INTERVIEW AND FILL IN THE RELEVANT RESULT CODE ON THE COVER SHEET	

	MODULE B: HOUSING AND ECONOMIC SITUATION OF THE HOUSEHOLD		
	HEAD OF HOUSEHOLD		
	Housing conditions		
NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP

B01	Is the dwelling owned by any member of this household, or in shared ownership with someone outside the household, or is it not owned by any household member?	OWNED BY HOUSEHOLD MEMBER ... 1
		
		OWNED BY HOUSEHOLD MEMBER
		    AND SOMEONE ELSE 2
		NOT OWNED BY ANY HOUSEHOLD
		    MEMBER 3
			B03

B02	Who in this household is the main owner of this dwelling?	LINE NUMBER OF OWNER... (HOUSEHOLD SCHEDULE, A01)	
B03	In how many rooms in this housing unit do members of this household live (exclude room used as kitchen)	NUMBER OF ROOMS	
B04	How many rooms are used to sleeping	NUMBER OF ROOMS	

B05	Where do you cook?	INSIDE DWELLING, SEPARATE
		    KITCHEN 1
		INSIDE DWELLING, IN LIVING
		    OR SLEEPING ROOM 2
		OUTSIDE DWELLING 3	

B06	Main material of the floor of the dwelling	EARTH/SAND .... 1 RAW WOOD PLANKS/BAMBOO .... 2 POLISHED WOOD .... 3 VINYL .... 4 CERAMIC TILES .... 5 CEMENT/CONCRETE .... 6 CARPET .... 7 PLASTIC/CANVAS .... 8 PREPARED CLAY (DUNG) .... 9 STONE 10 OTHER, SPECIFY 96	
B07	What is the main material of the roof of this dwelling	GALVANIZED IRON/METAL/TIN/ZINC ... 1 ASBESTOS .... 2 TILES .... 3 CEMENT .... 4 SHINGLES .... 5 WOOD .... 6 MUD/EARTH .... 7 STRAW/LEAVES/THATCH .... 8 CANVAS/PLASTIC SHEETS .... 9 OTHER, SPECIFY 96	
B08	How many members of this household sleep under bednets?	PERSONS SLEEPING UNDER BEDNETS	IF 00 → B10
B09	When were these nets last treated with an insecticide?	LESS THAN 6 MONTHS AGO .... 1 6 MONTHS AGO OR LONGER .... 2 NEVER .... 3 DON'T KNOW 8	
B10	What is the main source of drinking water for members of your household?	PIPED WATER .... 1 WATER FROM PROTECTED WELL ... 2 WATER FROM UNPROTECTED WELL 3 SPRING .... 4 RIVER/STREAM .... 5 POND/LAKE .... 6 RAINWATER .... 7 TANKER TRUCK .... 8 BOTTLED WATER .... 9 TUBE WELL .... 10 OTHER, SPECIFY 96	
B11	Is this main drinking source located on the premise of this dwelling or elsewhere?	ON THE PREMISE .... 1 ELSEWHERE 2	

B12	Do you boil the drinking water?	ALWAYS .... 1 SOMETIMES .... 2 NEVER 3	
B13	What kind of toilet facilities does your household have in this dwelling?	FLUSH TOILET .... 1 WATER-SEALED TOILET .... 2 TRADITIONAL PIT TOILET .... 3 VENTILATED IMPROVED PIT (VIP) .... 4 NO FACILITY/BUSH/FIELD .... 5 OTHER, SPECIFY 6	→ B16
B14	Is this toilet facility located on the premise of this dwelling or elsewhere?	ON THE PREMISE .... 1 ELSEWHERE 2	
B15	Do you share these facilities with persons who do not belong to this household?	YES .... 1 NO 2	
B16	What types of fuel are used by this household for cooking, heating or other applications? INTERVIEWER: RECORD ALL ANSWERS	YES NO a ELECTRICITY .... 1 2 b LPG/NATURAL GAS .... 1 2 c BIOGAS .... 1 2 d KEROSENE .... 1 2 e COAL, LIGNITE .... 1 2 f CHARCOAL .... 1 2 g WOOD, STRAW .... 1 2 h DUNG .... 1 2 i OTHER, SPECIFY 1 2	

General Economic Conditions

B17	Which operating assets are currently owned by the household?
	
	INTERVIEWER: VERIFY WITH RESPONDENT THE PRESENCE OF EACH ASSET AND WHETHER THE ASSET IS WORKING
	
	IF NOT WORKING CIRCLE 'NO'
		YES NO
		a RADIO 1 2
		b WATCH 1 2
		c TELEVISION 1 2
		d TELEPHONE 1 2
		e CELLULAR PHONE 1 2
		f REFRIGERATOR 1 2
		g SEWING MACHINE 1 2
		h GAS/ELECTRIC STOVE 1 2
		i ELECTRIC IRON 1 2
		j ELECTRIC FAN 1 2
		k BICYCLE/SCOOTER/
		   MOTOR CYCLE 1 2
		l TRACTOR/TWO-WHEEL TRACTO 1 2
		   MOTOR/CAR/VAN/JEEP/TRUCK/
		m THREE WHEELER 1 2
		   BOAT/SHIP 1 2
		n COMPUTER 1 2
		o VCR/DVD PLAYER 1 2
		p COWS 1 2
		q GOATS/SHEEP 1 2
		r POULTRY 1 2
		s PIGS 1 2
		t HORSES, DONKEYS 1 2
		u NON-FARM BUSINESS 1 2
		v JEWELLERY 1 2
		w WASHING MESHINE 1 2	

B18	Do you have produce from agricultural land you work on here in the vicinity?	YES .... 1 NO 2	→ B21
B19	Do you own this land?	YES .... 1 NO 2	→ B21

B20	What is the total size of land currently owned by the household in this vicinity?	a LAND SIZE ☐☐☐☐
		
		b SIZE MEASURE
		    ACRES 1
		    PERCH 2	

B21	Overall, is the current financial situation of the household more than sufficient, sufficient, barely sufficient or insufficient to buy all the basic needs?	MORE THAN SUFFICIENT .... 1 SUFFICIENT .... 2 BARELY SUFFICIENT .... 3 INSUFFICIENT 4	

B22	Within two years from now, do you think the financial situation of this household will be better, the same or worse?	BETTER .... 1 SAME .... 2 → B24 WORSE .... 3 DON'T KNOW .... 4 → B24
B23	What is the main reason why you expect things will be different in the future?	REASON: _____ _____ ☐☐
B24	On average per month, is the net total household income between Rs 3000 Rs 5000, or is it more or less than that? INTERVIEWER: VERIFY WHETHER ESTIMATE INCLUDES INCOME FROM LAND, INTEREST, REMITTANCES, AID	IN THAT RANGE .... 1 → B27 MORE .... 2 → B25 LESS .... 3 → B26
B25	Is it in the range of Rs 5000-Rs 10,000?	IN THAT RANGE .... 1 MORE .... 2 → B27
B26	Is it in the range of Rs <1500>-Rs <3000>?	IN THAT RANGE .... 1 LESS 2
B27	How do you rate the current financial situation of the household compared to that of other households in this neighbourhood?	MUCH BETTER .... 1 SOMEWHAT BETTER .... 2 SAME .... 3 SOMEWHAT WORSE .... 4 MUCH WORSE 5
B28	Did the household manage to accumulate savings in the past 12 months, including jewelry?	YES .... 1 NO 2
B29	In the past week, about how much money was spent by the household on the following food items? INTERVIEWER: ENTER 999996 IF DON'T KNOW a　　STAPLE FOODS (RICE, FLOUR, BREAD, CEREALS) b　　　　　　　　　　VEGETABLES/FRUITS c　　　　　　　　　　　　　　MEAT/FISH d　　　　　　　　　　　DAIRY PRODUCTS e　　　　　　　　　　COOKING OIL/FAT f　　　　　　　　　　　　　BEVERAGES g　　　　　　　　　　　　　　　SUGAR h　　　　　　　　　　　　　　　OTHER	RUPEES a ☐☐☐☐☐ b ☐☐☐☐☐ c ☐☐☐☐☐ d ☐☐☐☐☐ e ☐☐☐☐☐ f ☐☐☐☐☐ g ☐☐☐☐☐ h ☐☐☐☐☐
B30	So, about how much money was spent in total on food and drinks consumed by this household in the past week? INTERVIEWER: ENTER 9999998 IF DON'T KNOW	RUPEES ☐☐☐☐☐☐☐
B31	How many meals did the members of this household get yesterday?	NUMBER OF MEALS .... ☐
B32	How many meals a day do members of this household usually get?	MEALS PER DAY .... ☐
B33	These days, what would you say about the availability of food to eat for all persons in this household?	USUALLY ENOUGH .... 1 SOMETIMES ENOUGH .... 2 SELDOM ENOUGH .... 3 NEVER ENOUGH 4
B34	In the past month, about how much money was spent by the household on the following main non-food items INTERVIEWER: ENTER 999996 IF DON'T KNOW a　　　　　　　HOUSING (RENT, MAINTENANCE) b　　　　　　　ELECTRICITY, WATER, GAS c　　MEDICAL COSTS (PHYSICIAN, MEDICINES, ETC.) d　　　　　　　　　　　　　CLOTHES e　　　　HOUSEHOLD ITEMS AND SUPPLIES f　　EDUCATION (TUITION, BOOKS, UNIFORMS, PENCILS) g　　　　　　　　　TRANSPORTATION h　　　　　　　　　　　　　　TAXES i　　　　　　　　　　　　　　DEBTS j　　　SOCIAL OR RELIGIOUS FUNCTIONS k　　　　　　　　　　　　　　OTHER	RUPEES a ☐☐☐☐☐ b ☐☐☐☐☐ c ☐☐☐☐☐ d ☐☐☐☐☐ e ☐☐☐☐☐ f ☐☐☐☐☐ g ☐☐☐☐☐ h ☐☐☐☐☐ i ☐☐☐☐☐ j ☐☐☐☐☐ k ☐☐☐☐☐

B35	So, about how much money was spent on non-food items by this household in the past month?	RUPEES	
B36	Would you say the amount of outstanding debt of members of this household is high, fair or low?	HIGH .... 1 FAIR .... 2 LOW .... 3 NO DEBTS 4	

B37	Where would you go when you are in sudden financial need, e.g. when the household faces a major crises resulting from health or other problems, of because of theft and robbery, floods or other natural disaster?
	
	INTERVIEWER: READ OUT ALL ITEMS AND CIRCLE
	                            APPROPRIATE ANSWER CODE
		Yes No
		CLOSE FAMILY MEMBERS
		   (SPOUSE/PARENT/BROTHER/
		   SISTER/CHILD) 1 2
		OTHER RELATIVES 1 2
		FRIENDS 1 2
		NEIGHBOURS 1 2
		CREDIT COOPERATIVE 1 2
		BANK 1 2
		COMMERCIAL FUND 1 2
		MONEY BROKER/pa PAWNPAWN 1 2
		OTHER, SPECIFY 1 2
		
		_____	

B38	In the past 12 months, did the household face such a crisis?	YES .... 1 NO .... 2 → B40	
B39	What happened? INTERVIEWER: READ OUT ALL ITEMS AND CIRCLE APPROPRIATE ANSWER CODE	Yes No FINANCIAL 1 2 HEALTH 1 2 THEFT/ROBBERY 1 2 TSUNAMI 1 2 NATURAL DISASTER 1 2 DEATH IN THE FAMILY 1 2 OTHER, SPECIFY 1 2 _____	

Support from others

B40	In the past 12 months, did the household regularly receive money from relatives or friends living elsewhere?	ONCE A MONTH OR MORE .... 1 A FEW TIMES (UNSPECIFIED) .... 2 ONLY ONCE .... 3 DID NOT RECEIVE ANY MONEY .... 4 → B48	
B41	When was the last time the household received money?	LAST WEEK .... 1 LAST MONTH .... 2 MORE THAN 2 MONTHS AGO .... 3 MORE THAN 6 MONTHS AGO 4	
B42	How much did you receive then?	LOCAL RUPEES	
B43	How many times altogether did you receive money in the last 12 months?	TIMES	
B44	In your opinon, how important is the money received from relatives for the well-being of this household?	VERY IMPORTANT .... 1 IMPORTANT .... 2 FAIRLY IMPORTANT .... 3 NOT IMPORTANT 4	
B45	What kind of persons sent money to this household? INTERVIEWER: WRITE THE NUMBER OF MALE AND FEMALE PERSONS WHO SENT THE MONEY	male female a SPOUSE (ABROAD) .... b CHILD (ABROAD) .... c BROTH./SISTER (ABROAD) d OTHERS (ABROAD) .... e SPOUSE (THIS COUNTR ...... f CHILD (THIS COUNTR .... g BROTH/SIST(THIS CNTRY) h OTHERS (THIS COUNTRY) ...	

B46	Who in the household is/are the main recipient(s) of money received from relatives? INTERVIEWER: ASK FOR RECIPIENTS NAME AND ENTER RESPONDENTS LINE NUMBER (SEE A01 IN Module A)	a LINE NUMBER PERSON 1 .... b LINE NUMBER PERSON 2 .... c LINE NUMBER PERSON 3 .... d IF MORE THAN 3 PERSONS SPECIFY NUMBER OF PERS.	

B47	Was the received money used for any of the following purposes? INTERVIEWER: READ OUT ALL PURPOSES AND CIRCLE APPROPRIATE ANSWER CODE		YES	NO
		a. DAILY FOOD AND CLOTHS	1	2
		b. HOUSING / RENT	1	2
		c. REPAY DEBTS	1	2
		d. INVEST (LAND, AGRICULTURE)	1	2
		e. INVEST (NON-AGRO BUSINESS)	1	2
		f. EDUCATION	1	2
		g. HEALTH RELATED	1	2
		h. CONSUMER DURABLES	1	2
		I. MARRIAGE/CEREMONIES	1	2
		J. COMMUNITY ORGANISATION ...	1	2
		k. OTHER, SPECIFY:	1	2

B48	What goods or services did the household receive in the past 12 months that are not generally provided to all people and for which it does not pay? INTERVIEWER: READ OUT ALL PURPOSES AND CIRCLE APPROPRIATE ANSWER CODE		YES	NO
		a SHELTER	1	2
		b ACCESS TO LAND	1	2
		c HOUSE REPAIR	1	2
		d DRY RATIONS	1	2
		e MONEY	1	2
		f LEGAL SUPPORT	1	2
		g MOBILE CLINIC/HEALTH CARE	1	2
		h CLOTHES	1	2
		I OTHER, SPECIFY	1	2
		J NO GOODS/SERVICES RECEIVED	1	2 → HEV1

B49	From whom does your household receive these goods or services? INTERVIEWER: READ OUT ALL ITEMS AND CIRCLE APPROPRIATE ANSWER CODE		YES	NO
		a LOCAL GOVERNMENT	1	2
		b UNHCR	1	2
		c OTHER UN ORGANIZATIONS OR DONOR COUNTRIES	1	2
		d LOCAL NGOs .... FAMILY OR FRIENDS IN:	1	2
		e - this country	1	2
		f - other countries	1	2
		g OTHER	1	2

INTERVIEWER: EVALUATE THE INTERVIEW WITH THIS RESPONDENT			
HEV1	So far, how was the general atmosphere during the interview?	RELAXED .... NORMAL, NOTHING SPECIAL .... TENSE	1 2 3
HEV2	Where others present during (part of) the interview?	NO .... YES, CHILD(REN) ONLY .... YES, ONE OR MORE ADULTS	1 2 3
HEV3	Did you speak to each other during the interview in a language that both of you speak and understand well?	YES .... NO	1 2
	END OF HOUSEHOLD QUESTIONNAIRE PROCEED WITH INDIVIDUAL RESPONDENT QUESTIONNAIRE		

UNHCR Survey on Living Conditions of Refugees, Asylum-seekers and Internally Displaced Persons

Netherlands Interdisciplinary Demographic Institute (NIDI), The Netherlands
UNHCR Yerevan, Armenia
Health Policy Research Associates (HPRA), Sri Lanka
Centro de Estudios de Poblacion y Desarollo Social (CEPAR), Equador

INDIVIDUAL QUESTIONNAIRE
ALL HOUSEHOLD MEMBERS OF 15 YEARS AND OLDER

RESPONDENT NAME _____

DISTRICT NAME ....

CITY/TOWN/VILLAGE NAME ....

GN AREA ....

(SPECIFY)
HOUSEHOLD NUMBER ....

LINE NUMBER OF RESPONDENT (SEE HOUSEHOLD SCHEDULE, A01) ....

TICK IF PERSON IS MOTHER OR CARETAKER OF CHILD IN HOUSEHOLD (SEE HOUSEHOLD SCHEDULE, A14).......

IF A PROXY PERSON IS USED, ENTER LINE NUMBER OF THAT PERSON (SEE HOUSEHOLD SCHEDULE, A14)
IF NO PROXY PERSON IS USED, ENTER 00) ....

HOUSEHOLD TYPOLOGY CODE (A, B, C OR D, SEE HOUSEHOLD COVER PAGE) ....

	1	2	3	FINAL VISIT CODES	
DATE	_____	_____	_____	DAY	
				MONTH	
INTERVIEWER'S NAME	_____	_____	_____	INTERVIEWER'S CODE	
RESULT*	_____	_____	_____	RESULT	
NEXT VISIT: DATE	_____	_____		TOTAL NUMBER OF VISITS	
TIME	_____	_____			

*RESULT CODES:
1   COMPLETED
2   PARTY COMPLETED
3   NOT AT HOME
4   POSTPONED
5   REFUSED
6   INCAPACITATED
7   OTHER

	OFFICE EDITOR	KEYED BY

	MODULE C - GENERAL BACKGROUND OF THE RESPONDENT		
	ALL PERSONS AGED 15 AND ABOVE		
Q. No.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIPS
C01	FILL IN THE PERSON'S SEX	MALE ....1 FEMALE 2	
C02	How old were you at your last birthday? 97 = 97 OR OLDER; 98 = DON'T KNOW	AGE IN COMPLETED YEARS ☐☐	
C03	What is your marital status now: are you married, living with a partner, widowed, divorced, or separated, or have you never been married?	NEVER MARRIED .... 1 CURRENTLY MARRIED .... 2 LIVING WITH A PARTNER ...... 3 WIDOWED .... 4 DIVORCED .... 5 SEPARATED 6	→ C05
C04	In what year and month did you get widowed/divorced/separated?	YEAR MONTH ☐☐☐☐ ☐☐	
C05	Did you ever attend school?	YES ....11 NO 22	→ C09
C06	What is the highest level of school you attended? SEE CODING BELOW	PRIMARY ....11 SECONDARY ....22 VOCATIONAL ....33 UNIVERSITY/COLLEGE 4	
C07	What is the highest grade/form/year you completed at that level? 0 = LESS THAN 1 YEAR COMPLETED	HIGHEST GRADE/FORM/ YEAR COMPLETED .... ☐	IF AGED 25 AND ABOVE → C09
C08	IF RESPONDENT IS AGED 15 - 24 (SEE C02) Are you currently attending an educational institution?	YES .... 1 NO 2	
C09	Now I would like you to read these sentences to me. SHOW CARD TO RESPONDENT IF RESPONDENT CANNOT READ WHOLE SENTENCE, PROBE: Can you read any part of the sentence to me?	CANNOT READ AT ALL .... 1 ABLE TO READ ONLY PARTS OF SENTENCE .... 2 ABLE TO READ WHOLE SENTENCE .... 3 BLIND/VISUALLY IMPAIRED 4	
C10	Do you make use of the INTERNET?	YES, FROM PC IN THIS HOUS ..... 1 YES, FROM PC OUTSIDE THIS HOUS 2 YES, FROM DIFFERENT PLACE .... 3 NO, NEVER HEARD OF INTERNET .... 4 NO, NO INTERNET ACCESS HERE 5	

INTERVIEWER: COPY HOUSEHOLD TYPOLOGY CODE FROM COVERPAGE AND ENTER HERE

IF HTC = A OR B: → ASK C11-C18 ONLY IF RESPONDENT IS HEAD OF HOUSEHOLD

IF HTC = C: → ASK C11-C18 ONLY IF RESPODENT IS THE MOST SENIOR HOUSEHOLD MEMBER WHO WAS DISPLACED

IF HTC = D: → SKIP C11-C18 AND GO TO MODULE D

C11	Which operating assets were owned by your household when you lived in your place of usual residence before you were displaced?	

INTERVIEWER: READ OUT ALL ITEMS BELOW AND CIRCLE APPROPRIATE ANSWER AND VERIFY WHETHER EACH ITEM WAS WORKING AND FUNCTIONAL. IF NOT WORKING, CIRCLE 'NO'.

		YES	NO			YES	NO
a.	RADIO	1	2	m.	MOTOR/CAR/VAN/JEEP/TRUCK/ THREE WHEELER	1	2
b.	WATCH	1	2	n.	BOAT / SHIP	1	2
c.	TELEVISION	1	2	o.	PERSONAL COMPUTER	1	2
d.	TELEPHONE	1	2	p.	VCR / DVD PLAYER	1	2
e.	CELLULAR / MOBILE PHON	1	2	q.	COWS	1	2
f.	REFRIGERATOI	1	2	r.	GOATS / SHEEF	1	2
g.	SEWING MACHINE	1	2	s.	POULTRY	1	2
h.	GAS / ELECTRIC STOVE	1	2	t.	PIGS	1	2
i.	ELECTRIC IROI	1	2	u.	HORSES, DONKEYS	1	2
j.	ELECTRIC FAN	1	2	v.	NON-FARM BUSINESS	1	2
k.	BICYCLE / SCOOTEF	1	2	w.	JEWELRY	1	2
l.	TRACTOR / TWO-WHEEL TRACTOR	1	2	x.	WASHING MACHINE	1	2

C12	Which facilities did the household have in the place you were living before you were displaced? INTERVIEWER: READ OUT ALL ITEMS AND CIRCLE ANSWER CODE		YES	NO	
		a. ELECTRICITY	1	2	
		b. PIPED GAS ON PREMISES	1	2	
		c. PIPED WATER ON PREMISES	1	2	
		d. FLUSH TOILET ON PREMISES	1	2	
		e. PIT LATRINE ON PREMISES	1	2	

C13	Did your household own agricultural land in the place you were displaced from?	YES .... 1 NO 2	→ C18

C14	What was the total size of land owned by the household there?	a. LAND SIZE ☐☐☐☐ b. SIZE MEASURE ACRES .... 1 PERCH 2	

C15	Is this land still owned now?	YES .... 1 NO 2	→ C18

C16	Do you still work the land there?	YES .... 1 NO 2	→ C18

C17	Is someone else working the land for you?	YES .... 1 NO 2	

C18	How does the current financial situation of the household compare with the situation before you fled?	MUCH BETTER .... 1 SOMEWHAT BETTER .... 2 SAME .... 3 SOMEWHAT WORSE .... 4 MUCH WORSE 5	

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MODULE D - MIGRATION
ALL PERSONS AGED 15 AND ABOVE

D01	Since when do you live here? INTERVIEWER: IF PERSON IS NOT LIVING HERE WHOLE LIFE, PROBE FOR YEAR AND MONTH OF LAST ARRIVAL	WHOLE LIFE .... 1 SINCE: .... 2 YEAR MONTH ☐☐☐☐ ☐☐	→ D03 → FILL IN YEAR + MONTH
D02	In which place, district and country were you born?	VILLAGE/TOWN_____ DISTRICT_____ ☐☐ COUNTRY_____ ☐☐	
D03	Were you ever displaced from your usual place of residence since 1980?	YES ....1 NO 2	→ D20
D04	What was your place of usual residence before you were displaced? PROBE FOR PLACE, DISTRICT	VILLAGE/TOWN_____ DISTRICT_____ ☐☐	
D05	What were the year and month that you were displaced from your usual place of residence? INTERVIEWER: MAKE SURE THAT THIS INFORMATION REFERS TO THE FIRST DISPLACEMENT AFTER 1980.	YEAR MONTH ☐☐☐☐ ☐☐	
D06	What was the reason for displacement? INTERVIEWER: READ OUT ALL ITEMS AND CIRCLE APPROPRIATE ANSWER CODE	YES NO WAR / FIGHTS .... 1 2 EXPELLED FROM THE LAN ... 1 2 FEAR .... 1 2 DESTRUCTION OF HOME........ 1 2 TSUNAMI .... 1 2 OTHER NATURAL DISASTE... 1 2 COULDN'T MAKE A LIVING ... 1 2 OTHER 1 2	
D07	Where did you go?	VILLAGE/TOWN_____ DISTRICT_____ ☐☐	

D08 — I would like to know something about the composition of the family at the time you were displaced, and whether your family members joined you, went elsewhere or stayed behind.

INTERVIEWER: REGISTER THE NUMBER OF PERSONS. IF A BOX ENTRY IS NOT APPLICABLE, ENTER 0 OR 00, DEPENDING ON NUMBER OF BOXES

	Spouse (a)	Parent(s) (b)	Grand parent(s) (c)	Brother(s) Sister(s) (d)	Children (e)	Others (f)
a. Number of persons in the family before displacement	☐☐	☐☐	☐☐	☐☐	☐☐	☐☐
b. Persons in the family who joined you when you were displaced						
c. Persons in the family who went elsewhere						
d. Persons in the family who stayed behind						

D09 — How many of them joined you to live here since you were displaced?

	Spouse (a)	Parent(s) (b)	Grand parent(s) (c)	Brother(s) Sister(s) (d)	Children (e)	Others (f)
Number of persons from that family who joined the present household	☐	☐	☐	☐	☐	☐

D10 — With how many family members that stayed behind or went elsewhere, if any, do you have periodic contact?

	Spouse (a)	Parent(s) (b)	Grand parent(s) (c)	Brother(s) Sister(s) (d)	Children (e)	Others (f)
Periodic contact with family members who stayed behind or went elsewhere	☐	☐	☐	☐	☐	☐

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| D11 | How many times did you move from one place to another since you were displaced from your place of usual residence? | TIMES FLED .... | ☐☐ | IF 1 → D13 |

| D12 | INTERVIEWER: CHECK THE NUMBER OF MOVES THAT WERE MENTIONED IN D11 |

ASK FOR INFORMATION ABOUT THE LAST MOVES, UP TO A MAXIMUM OF FIVE MOVES.

I would like to have some information about [some of] the moves you made. I would like to know when you moved, where you came from and why you moved. I will start with your last move, when you came here.

	WHEN?		FROM WHERE?		WHY?	
	Month	Year	If from the same District, write 'Same'		(1)	(2)
Last move	☐☐	☐☐	District _____	☐☐	☐	☐
Next to last move	☐☐	☐☐	District _____	☐☐	☐	☐
Second to last move	☐☐	☐☐	District _____	☐☐	☐	☐
Third to last move	☐☐	☐☐	District _____	☐☐	☐	☐
Fourth to last move	☐☐	☐☐	District _____	☐☐	☐	☐

INTERVIEWER: IF MORE REASONS FOR MOVING WERE MENTIONED, RECORD THE TWO MOST IMPORTANT ONES ((1) and (2)).

CODES FOR 'WHY?'
1 = WAR / FIGHTS   4 = DESTRUCTION OF HOME   7 = COULDN'T MAKE A LIVING
2 = EXPELLED FROM THE LAND   5 = TSUNAMI   8 = OTHER
3 = FEAR   6 = FLOOD / NATURAL DISASTER 98 = DON'T KNOW

| D13 | Would you like to return to the place of usual residence before displacement? | YES 1
NO 2
HAS RETURNED ....3 | → D20 |

| D14 | Do you intend to return to this place or do you have to go back? | YES 1
NO ....2 | → D18 |

| D15 | When do you intend to return (or will you have to return)? | WITHIN 6 MONTHS 1
BETWEEN 6 AND 12 MONTHS 2
BETWEEN 1 AND 2 YEARS 3
AFTER MORE THAN 2 YEARS 4
NOT SURE WHEN/DON'T KNOW .... 5 | |

| D16 | Why would you return?

INTERVIEWER: READ OUT ALL ITEMS AND CIRCLE APPROPRIATE ANSWER CODE | YES NO
a. HAVE LAND THERE 1 2
b. HAVE FAMILY THERE 1 2
c. BETTER HOUSING THERE 1 2
d. EASIER TO FIND WORK ... 1 2
e. DON'T FEEL SAFE HERE ... 1 2
f. DON'T LIKE IT HERE............ 1 2
g. HAVE TO/FORCED RETURN 1 2
h. OTHER, SPECIFY 1 2
_____ | IF ONLY ONE ANSWER IS 'YES' ↓ D18 |

| D17 | What is the most important reason?
INTERVIEWER: USE AS ANSWER CODE a,b,c,d,e,f,g or h (SEE D16) | MOST IMPORTANT REASON | ☐ | |

| D18 | What are the main obstacles to return?

INTERVIEWER: READ OUT ALL ITEMS AND CIRCLE APPROPRIATE ANSWER CODE | YES NO
a. LACK OF LAND THERE........ 1 2
b. LACK OF HOUSE THERE ... 1 2
c. LACK OF WORK THER 1 2
d. HAVING WORK HERE 1 2
e. LACK OF SCHOOL FOR
    CHILD 1 2
f. LACK OF OTHER SERVICE 1 2
g. THE CONFLICT 1 2
OTHER, SPECIFY 1 2
_____
h. DON'T WANT TO RETURN ... 1 2 | IF ONLY ONE ANSWER IS 'YES' ↓ D20 |

| D19 | What is the most important obstacle?
INTERVIEWER: USE AS ANSWER CODE a,b,c,d,e,f,g or h (SEE D18) | MOST IMPORTANT OBSTACLE | ☐ | |

D20	Do you intend to move to another place in this country or abroad?	YES, IN THIS COUNTR .... 1 YES, TO ANOTHER COUNTR' .... 2 NO .... 3 → INT1
D21	Why do you want to move to another place? INTERVIEWER: READ OUT ALL ITEMS AND CIRCLE APPROPRIATE ANSWER CODE	YES NO a. LAND-RELATEC .... 1 2 b. WORK-RELATED .... 1 2 c. FAMILY / MARRIAGE- RELATED .... 1 2 d. SCHOOL / STUDY .... 1 2 e. RETIREMENT / END OF CONTRAC1........................... 1 2 f. FEAR OF WAR / CIVIL CONFLICT/PERSECUTION 1 2 g. UNCERTAIN FUTUR .... 1 2 h. DOMESTIC OR SOCIAL 1 2 CONFLICT .... I. FAMILY PRESSURE .... 1 2 J. OTHER, SPECIFY 1 2 _____
D22	When do you intend to move?	WITHIN 6 MONTHS .... 1 BETWEEN 6 AND 12 MONTHS .... 2 BETWEEN 1 AND 2 YEARS .... 3 AFTER MORE THAN 2 YEARS .... 4 NOT SURE WHEN/DON'T KNOW 5
D23	Would this be a temporary move or a more permanent settlement?	TEMPORARY .... 1 PERMANENT .... 2 DON'T KNOW.. 8
INT1	INTERVIEWER: COPY HOUSEHOLD TYPOLOGY CODE FROM COVERPAGE AND ENTER HERE	IF HTC = A OR B → ASK D24-D25 ONLY IF RESPONDENT IS HEAD OF HOUSEHOLD IF HTC = C: → ASK D24-D25 ONLY IF RESPODENT IS THE MOST SENIOR HOUSEHOLD MEMBER WHO WAS DISPLACED IF HTC = D: → SKIP D24-D25 AND GO TO MODULE E	
D24	How many other household members, if any, already moved to another place in this country or abroad? INTERVIEWER: RECORD NUMBER OF PEOPLE WRITE '00' IF NO ONE MOVED	a. MOVED ELSEWHERE IN SRI LANKA ....[ ][ ] b. MOVED ABROAD ....[ ][ ]	
D25	Did any other member of the household already return to the place of usual residence before displacement?	YES .... 1 NO 2	

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MODULE E: CURRENT AND PAST EMPLOYMENT

ALL PERSONS AGED 15 AND ABOVE

INTERVIEWER: QUESTIONS E01 TO E06 REFER TO THE PAST 7 DAYS.
IF THE RESPONDENT HAS BEEN ILL OR ON VACATION, ASK THE QUESTIONS FOR THE MOST RECENT
WEEK THAT THE RESPONDENT WAS NOT ILL OR ON VACATION

E01	Have you worked for at least four hours in the past 7 days for which you received money or payment in kind (including food) ?	YES .... 1 NO 2	→ E 06
E02	Did you do that work mainly as an employer, a wage- or salary earner with a contract, as a casual labourer without formal contract, or as worker in a family business?	EMPLOYER .... 1 CONTRACT WAGE EARNER .... 2 CASUAL LABOURER, NO CONTRACT 3 FAMILY BUSINESS WORKER .... 4 OTHER 5	
E03	In the past 7 days, what kind of work did you do for most of the time?	DESCRIBE TYPE OF WORK BELOW: _____ _____ (OFFICE CODING, ISCO CODE) ☐	
E04	What kind of business is this? INTERVIEWER: ASK WHAT KIND OF PRODUCTS OR SERVICES ARE PRODUCED	DESCRIBE TYPE OF BUSINESS BELOW: _____ _____ (OFFICE CODING, ISIC CODE) ☐	
E05	In the past 7 days, how many hours did you work for pay in this job?	HOURS WORKED .... ☐☐	→ E 07
E06	What was the main reason why you did not work for money or payment in kind in the past 7 days?	DID UNPAID WORK MOST TIME .... 1 HOUSEHOLD DUTIES / WORK .... 2 CHILD CARE .... 3 RETIRED / OLD AGE .... 4 STUDENT .... 5 DISABLED .... 6 PAID WORK WAS NOT AVAILABLE ...... 7 DIDN'T NEED TO WORK .... 8 OTHER 9	
E07	Are you currently looking for paid work?	YES .... 1 NO 2	
E08	In general, which share of total household expenditures is paid with the earnings of your work, if any?	ALMOST NONE .... 1 LESS THAN HALF .... 2 ABOUT HALF .... 3 MORE THAN HALF .... 4 ALL .... 5 NONE (DOES NOT HAVE INCOME) ...... 6 NONE (ALL EARNINGS ARE SAVED) 7	→ INT2
E09	Who usually decides how your earnings, if any, are spent?	RESPONDENT .... 1 SPOUSE / PARTNER .... 2 PARENT(S) (IN-LAW) .... 3 SOMEONE ELSE .... 4 ALL TOGETHER 5	
INT2	INTERVIEWER: ASK RESONDENT TO THINK BACK TO THE TIME WHEN (S)HE LIVED IN THE PLACE OF USUAL RESIDENCE BEFORE DISPLACEMENT. THE FOLLOWING QUESTIONS REFER TO THAT PERIOD.		
E10	In that period, did you do any work for which you received money or payment in kind?	YES .... 1 NO 2	→ E 15

E11	Did you do that work mainly as an employer, a wage- or salary earner with a contract, as a casual labourer without formal contract, or as worker in a family business?	EMPLOYER .... 1 CONTRACT WAGE EARNER .... 2 CASUAL LABOURER, NO CONTRACT 3 FAMILY BUSINESS WORKER .... 4 OTHER 5	
E12	What kind of work did you then do most of the time?	DESCRIBE TYPE OF WORK BELOW: _____ _____ (OFFICE CODING, ISCO CODE) ☐	
E13	What kind of business was that? INTERVIEWER: ASK WHAT KIND OF PRODUCTS OR SERVICES ARE PRODUCED	DESCRIBE TYPE OF BUSINESS BELOW: _____ _____ (OFFICE CODING, ISIC CODE) ☐	
E14	At that time, about how many hours per week did you do paid work?	PAID HOURS PER WEEK ☐☐	→ E 16
E15	At that time, what was the main reason why you did not work for money or payment in kind?	DID UNPAID WORK MOST TIME .... 1 HOUSEHOLD DUTIES / WORK .... 2 CHILD CARE .... 3 RETIRED / OLD AGE .... 4 STUDENT .... 5 DISABLED .... 6 PAID WORK WAS NOT AVAILABLE ...... 7 WAS TOO YOUNG TO WORK .... 8 DIDN'T NEED TO WORK .... 9 OTHER 10	→ MOD F
E16	At that time, were you looking for paid work?	YES .... 1 NO 2	
E17	At that time, which share of total household expenditures was generally financed with the money you earned?	ALMOST NONE .... 1 LESS THAN HALF .... 2 ABOUT HALF .... 3 MORE THAN HALF .... 4 ALL .... 5 NONE (DID NOT HAVE ANY INCOME) ...... 6 NONE (ALL EARNINGS WERE SAVED) 7 DON'T KNOW 8	

MODULE F: GENDER

ALL PERSONS AGED 15 AND ABOVE

INTERVIEWER: READ OUT THE FOLLOWING INTRODUCTION TO THE RESPONDENT:
A number of questions that follow may be sensitive to some people. If this is so in your case, we kindly ask you
to try to respond to these questions as your response will be of great help to government, NGO's and International
organisations to better identify certain societal problems and ways to solve them. So, with all respect for you as a
person, we ask you, with all respect for you opinion, to answer also the questions that may be sensitive to you.

F01 In your opinion, who in this household makes the decisions on the following issues:

INTERVIEWER: IF APPLICABLE, CIRCLE MORE THAN ONE ANSWER OPTION

		(a) Respon-dent	(b) Spouse	(c) Parents (In-law)	(d) Someone else
a.	If you need health care?	1	2	3	4
b.	If a child in the household would need health care?	1	2	3	4
c.	Whether a daughter should go to school?	1	2	3	4
d.	Whether a son should go to school?	1	2	3	4
e.	Major household purchases, such as TV, fridge or car?	1	2	3	4
f.	Daily household purchases?	1	2	3	4
g.	When the family should move to another place?	1	2	3	4
h.	Marriage of a daughter or son?	1	2	3	4
i.	What food should be cooked each day?	1	2	3	4

F02 In your opinion, is a man justified in hitting his wife in any of the following situations?

		YES	NO	DON'T KNOW
a.	If she goes out to see friends without telling him?	1	2	8
b.	If she leaves town/village without telling him?	1	2	8
c.	If she neglects the children?	1	2	8
d.	If she argues with him?	1	2	8
e.	If she refuses to have sex with him when he wants it?	1	2	8
f.	If she didn't prepare the food properly	1	2	8
g.	If she spends any money without first consulting him?	1	2	8

F03 If you were married and would have children, do you think that you can take the initiative to talk with your spouse about:

INTERVIEWER: IF RESPONDENT IS MARRIED, FORMULATE QUESTION ACCORDINGLY

		YES	NO	DON'T KNOW
a.	The total number of children to have?	1	2	8
b.	Postponement of a pregnancy to a later date?	1	2	8
c.	The education of your son?	1	2	8
d.	Financial problems in the family?	1	2	8
e.	The education of your daughter?	1	2	8
f.	Whether or not money should be borrowed from others?	1	2	8
g.	About ways to avoid sexually transmitted diseases (e.g. HIV)?	1	2	8

MODULE G - HEALTH AND REPRODUCTION			
ALL PERSONS AGED 15 AND ABOVE			

GENERAL HEALTH

G01	Please tell me, have you been ill with fever in the past 14 days?	YES .... 1 NO 2	→ G05
G02	What type of medicines did you take? I refer here to Western medicine, medicine of traditional practioners, self-prepared medicine or other. INTERVIEWER: CIRCLE ALL MEDICINE TYPES MENTIONED		YES NO a. WESTERN MEDICINE .... 1 2 b. MEDICINE OF TRADITIONAL PRACTIONERS .... 1 2 c. SELF-PREPARED MEDICINE 1 2 d. OTHER .... 1 2 e. NOTHING 1 2	→ G03 G04
G03	What kind of Western medicine did you take?	PARACETAMOL (PANADOL) / ASPIRINE .... 1 CHLOROQUINE .... 2 FANSIDAR .... 3 MALARIA PILLS .... 4 OTHER 5	
G04	How many times have you been ill with malaria in the past year?	TIMES ILL WITH MALARIA .... ☐	
G05	Did you have any other illness in the past 14 days?	YES .... 1 NO 2	→ G09
G06	Have you been treated for this illness?	YES .... 1 NO 2	→ G08

G07	Where did you go for treatment?
	
	 INTERVIEWER: CIRCLE ALL OPTIONS MENTIONED
			YES NO
			 PUBLIC SECTOR
			 a. GOVERMENT WESTERN
			      HOSPITAL 1 2
			 b. GOVERMENT AYURVEDIC
			      HOSPITAL 1 2
			 c. GOVTERNMENT HEALTH
			      CENTER 1 2
			 d. MOBILE CLINIC 1 2
			 e. OTHER PUBLIC 1 2
			
			 PRIVATE SECTOR
			 f. PRIVATE WESTERN
			      HOSPITAL/CLINIC 1 2
			 g. PRIVATE AYURVEDIC
			      HOSPITAL / CLINIC 1 2
			 h. MOBILE CLINIC 1 2
			 i. PHARMACY 1 2
			 j. OTHER PRIVATE 1 2
			
			 k. OTHER 1 2
				→ G09

G08	What was the <u>main</u> reason why you didn't treat the illness?	COMPLAINT WAS NOT SERIOUS 1
		 LACK OF TRANSPORT 2
		 COSTS OF TRANSPORT 3
		 COSTS OF TREATMENT 4
		 OTHER COMMITMENTS / NEED
		      TO STAY AT HOME 5
		 LACK OF CONFIDENCE IN
		      HEALTH PROVIDER 6
		 SAFETY / SECURITY 7
		 OTHER 96	

G09	Were you ever treated for tuberculosis (TB)?	YES .... 1 NO 2	
G10	How would you describe your general health condition? INTERVIEWER: IT IS THE <u>PHYSIOLOGICAL</u> HEALTH STATUS THAT MATTERS HERE, NOT THE PSYCHOLOGICAL STATE OF MIND	EXCELLENT .... 1 GOOD .... 2 FAIR (NOT GOOD NOT POOR) .... 3 POOR .... 4 VERY POOR .... 5 DON'T KNOW 8	

| G11 | Compared other persons of the same age and sex, would you say your health is better, same or worse? | BETTER 1
SAME 2
WORSE 3
DON'T KNOW .... 8 | |

G12	Do you have any of the following disabilties? INTERVIEWER: MENTAL PROBLEM MEANS A STRUCTURAL PROBLEM (E.G. MEMORY, TICKS, ETC.)					
				YES	NO	IF ALL ARE 'NO' ↓ G14
		a.	SEEING	1	2	
		b.	HEARING	1	2	
		c.	TALKING	1	2	
		d.	MOVING	1	2	
		e.	HOLDING / GRIPPING	1	2	
		f.	MENTAL PROBLEI	1	2	

G13	Do you suffer from any of the following infirmaties? INTERVIEWER, CIRCLE ALL DISABILITIES MENTIONED				
				YES	NO
		a.	MENTALLY RETARTED	1	2
		b.	BLIND	1	2
		c.	DEAF & DUMB	1	2
		d.	DEAF	1	2
		e.	DUMB	1	2
		f.	LOSS OF ONE HAND OR / AND ARM	1	2
		g.	LOSS OF BOTH HANDS OR / AND ARMS	1	2
		h.	LOSS OF ONE FOOT OR / AND LEG.......................	1	2
		i.	LOSS OF BOTH LEGS	1	2
		j.	PARALYSIS OF ONE ARM OR BOTH	1	2
		k.	PARALYSIS OF ONE LEG OR BOTH	1	2
		l.	OTHER DISABILT)	1	2

| G14 | What can you say about your state of mind in the last month?
Did you feel good or depressed/low? | GOOD 1
FAIR (NOT GOOD NOT BAD)................ 2
BAD / DEPRESSED / LOW .... 3 | |

| G15 | Please indicate how your physical health and state of mind negatively affects your work and daily activities. | ALL THE TIME...................................... 1
OCCASIONALL' 2
NOT AT ALL .... 3 | |

HIV/AIDS KNOWLEDGE AND PERCEPTIONS

| INTERVIEWER: CHECK AGE OF RESPONDENT (SEE C02): RESPONDENT IS 55 YEARS OR OLDER —————————→ INT3
RESPONDENT IS BELOW 55 YEARS ———————↵ |

| G16 | Now I would like to talk about something else.
Have you ever heard of an illness called AIDS? | YES 1
NO .... 2 | →G33 |

| G17 | Is there anything a person can do to avoid getting AIDS or the virus that causes AIDS? | YES 1
NO 2
DON'T KNOW....................................... 8 | |

	Can you please answer the following questions:	YES	NO	DK	
G18	Can people reduce their chances of getting AIDS by having just one sex partner?	1	2	8	
G19	Can people get the AIDS from mosquito bites?	1	2	8	
G20	Can people reduce the risk of getting AIDS by using a condom every time they have sex?	1	2	8	
G21	Can AIDS be transmitted by a blood transfusion?	1	2	8	
G22	Can people get AIDS by sharing food with a person who has AIDS?	1	2	8	
G23	Is it possible that a healthy-looking person has AIDS?	1	2	8	
G24	Can a person get AIDS if (s)he uses injection needles that were used by a person who has AIDS?	1	2	8	
G25	Is it possible to get AIDS by kissing a person who has AIDS?	1	2	8	
	Can the virus that causes AIDS be transmitted from a mother to her baby:				
G26	During pregnancy?	1	2	8	
G27	During delivery?	1	2	8	
G28	By breastfeeding?	1	2	8	

| G29 | Do you know someone personally who has AIDS or or someone who died of AIDS? | 1   2   8 | |

| G30 | What do you think about your own risk of getting AIDS? Is it small, moderate, great, or no risk at all? | SMALL 1
MODERATE 2
GREAT 3
NO RISK AT ALL 4
HAS AIDS .... 5 | |

| G31 | I do not want to know the results, but have you ever been tested for AIDS? | YES 1
NO .... 2 | |

| G32 | Do you know a place where you can be tested for infection with the HIV/AIDS virus? | YES 1
NO .... 2 | |

| G33 | Do you know of a place where a person can get condoms? | YES 1
NO .... 2 | → G35 |

| G34 | Where is that?   INTERVIEWER: PROBE FOR OTHER PLACES BY ASKING:
                                 Any other place?

                                        YES   NO   YES   NO
PUBLIC SECTOR   PRIVATE MEDICAL SECTOR
a.   GOVERNMENT HOSPITA .. 1   2   l.   PRIVATE HOSPITAL/CLINIC/
b.   GOVT. HEALTH CENTER .. 1   2   NURSING HOMES 1   2
c.   FAMILY PLANNING CLINIC 1   2   m. PHARMACY 1   2
d.   MOBILE CLINIC 1   2   n.   PRIVATE DOCTOF 1   2
e.   FIELDWORKER 1   2   o.   MOBILE CLINIC 1   2
f.   MCH CENTRE   1   2   p.   FIELDWORKER 1   2
g.   FAMILY HEALTH BUREAU 1   2   q.   OTHER PRIVATE MEDICAL 1   2
h.   PUBLIC HEALTH MIDWIVES 1   2
l.   PUBLIC HEALTH
         NURSING SISTER 1   2   OTHER SOURCE
J   PUBLIC HEALTH   r. SHOP 1   2
         INSPECTORS 1   2   s. FRIENDS/RELATIVE 1   2
k.   OTHER PUBLIC 1   2   t. OTHER 1   2 | |

| G35 | Can you get condoms, if you want? | YES 1
NO 2
DON'T KNOW / UNSURE .... 8 | |

KNOWLEDGE AND USE OF CONTRACEPTIVE METHODS

G36	Now I would like to talk about family planning - the ways people can delay or avoid a pregnancy. Have you ever heard about any of the following family planning methods?	G37	INTERVIEWER: CHECK G37 & CIRCLE BELOW Respondent did not hear of a single one .... 1 Respondent heard of at least one 2	→ INT3

	INTERVIEWER: READ OUT EACH ITEM AND CIRCLE ANSWER CODE
	                                                    YES NO
	a PILL 1 2
	b. IUD (Intra-uterine devices) 1 2
	c. INJECTABLES (INJECTION! 1 2
	d. IMPLANTS (NORPLANTS 1 2
	e. CONDOM 1 2
	f. FEMALE CONDOM 1 2
	g. FOAM TABLETS, DIAPHRAGM OR
	         JELLY 1 2
	h. RHYTHM OR NATURAL FAMILY
	         PLANNING 1 2
	l. WITHDRAWAL 1 2
	J. ABSTINANCE (SAFE PERIOD) 1 2
	k. FEMALE STERILISATION 1 2
	l. MALE STERILISATION 1 2
	m. OTHER METHODS 1 2
		G38	In the past 12 months, did you use any of these methods?
			                                                    YES NO
			a PILL 1 2
			b. IUD (Intra-uterine devices) 1 2
			c. INJECTABLES (INJECTION! 1 2
			d. IMPLANTS (NORPLANTS 1 2
			e. CONDOM 1 2
			f. FEMALE CONDOM 1 2
			g. FOAM TABLETS, DIAPHRAGM OR
			         JELLY 1 2
			h. RHYTHM OR NATURAL FAMILY
			         PLANNING 1 2
			l. WITHDRAWAL 1 2
			J. ABSTINANCE (SAFE PERIOD) 1 2
			k. FEMALE STERILISATION 1 2
			l. MALE STERILISATION 1 2
			m. OTHER METHODS 1 2	

| G39 | INTERVIEWER: CHECK G38 WHETHER RESPONDENT
                          USED CONDOM IN PAST 12 MONTHS | USED ....
DID NOT USE .... | → G41 |

G40	What were the main reasons to use a condom? Any other reason? CIRCLE ALL MENTIONED ANSWERS		YES	NO	
		a. PREVENT PREGNANCY	1	2	
		b. PREVENT HIV/AIDS	1	2	
		c. PREVENT other DISEASES	1	2	
		d. DO NOT TRUST PARTNER	1	2	
		e. PARTNER INSISTED	1	2	
		f. MORE EFFECTIVE THAN OTHER MEANS	1	2	
		g. LOW COSTS	1	2	
		h. AVAILABILITY	1	2	
		I. OTHER	1	2	

G41	Why didn't you use a condom? INTERVIEWER: CIRCLE ALL REASONS MENTIONED BY RESONDENT		Yes	NO	
		a. NO SEXUAL RELATION	1	2	
		b. WANTED TO GET PREGNANT	1	2	
		c. NOT AVAILABLE	1	2	
		d. TOO EXPENSIVE	1	2	
		e. PARTNER OBJECTED	1	2	
		f. DON'T LIKE THEM	1	2	
		g. USED other CONTRACEPTIVE	1	2	
		h. DIDN'T THINK IT OF IT	1	2	
		I. DIDN'T THINK IT NECESSARY	1	2	
		j. OTHER	1	2	
		k. DON'T KNOW	1	2	

INT3	INTERVIEWER: IS RESPONDENT MALE OR FEMALE?	MALE 1	→ INT4
		FEMALE, 55 YEARS OR OLDER ... 2	
		FEMALE, 54 YEARS OR YOUNGER 3	→ G42

INT4	INTERVIEWER: CHECK A14 IF RESPONDENT IS CARETAKER OF A CHILD	IS CARETAKER 1	→ MOD H
		NOT A CARETAKER 2	→ MOD I

BIRTH HISTORY AND IMMUNISATION

G42	I would like to ask about all the LIVE births you had had during your life. Have you ever given birth to a child?	YES .... 1 NO 2	 → G49
G43	Do you have any sons or daughters to whom you have given birth who are now living with you?	YES .... 1 NO 2	 → G46
G44	How many sons live with you? IF NONE, RECORD '00'.	SONS AT HOME .... ☐☐	
G45	And how many daughters live with you? IF NONE, RECORD '00'.	DAUGHTERS AT HOME .... ☐☐	
G46	Do you have any sons or daughters to whom you have given birth who are alive but do not live with you?	YES .... 1 NO 2	 → G49
G47	How many sons are alive but do not live with you? IF NONE, RECORD '00'.	SONS ELSEWHERE .... ☐☐	
G48	And how many daughters are alive but do not live with you? IF NONE, RECORD '00'.	DAUGHTERS ELSEWHERE .. ☐☐	

G49	Have you ever given birth to a boy or girl who was born alive but later died, and that you did not mention? IF NO, PROBE: Any baby who cried or showed signs of life but did not survive?	YES .... 1 NO 2	→ G52
G50	How many boys have died? IF NONE, RECORD '00'.	BOYS DEAD .... ☐☐	
G51	And how many girls have died? IF NONE, RECORD '00'.	GIRLS DEAD .... ☐☐	
G52	SUM ANSWERS TO G44-45, G47-48 AND G50-51 AND WRITE TOTAL. IF NONE, RECORD '00'.	TOTAL .... ☐☐	
G53	Just to make sure that I have it right: you have had a total of …..(SEE G52)…births during your life. Is that correct?	YES .... 1 NO .... 2 PROBE AND CORRECT ← G44-45, G47-48, G50-51 AND G52 IF NECESSARY	
G54	Are you currently pregnant?	YES .... 1 NO .... 2 I DON'T KNOW 3	
INTERVIEWER:	CHECK AND FOLLOW SKIP INSTRUCTIONS 1. G52 = 00 AND LINE NUMBER IN A14 IS NOT CIRCLED (i.e. woman has no children, is not caretaker) → Module I 2. G52 = 00 AND LINE NUMBER IN A14 IS CIRCLED (i.e. woman has no child, but is caretaker) → Module H 3. G52 HAS VALUE LARGER THAN 00 ⌐		
G55	What was the date of birth of the first-born child? INTERVIEWER ENTER 98 AND 9998 IF DATE NOT KNOWN	MONTH ☐☐ YEAR ☐☐☐☐	
G56	Is this child still alive?	CHILD IS ALIVE .... 1 CHILD IS DEAD 2	
G57	What was the date of birth of the most recently born child? INTERVIEWER ENTER 98 AND 9998 IF DATE NOT KNOWN	MONTH ☐☐ YEAR ☐☐☐☐	
G58	Is this child still alive?	CHILD IS ALIVE .... 1 CHILD IS DEAD 2	
G59	How many of the children you gave birth to were born after 1 January 2000?	BIRTHS SINCE 2000 .... ☐	IF '00' → Module H

INTERVIEWER:	ENTER IN QUESTIONS G61 AND G632THE LINE NUMBER, NAME, AND SURVIVAL STATUS OF EACH BIRTH
	FROM 1 JANUARY 2000 ONWARDS
	ASK THE QUESTIONS ABOUT ALL OF THESE BIRTHS. BEGIN WITH THE LAST BIRTH
	(IF THERE ARE MORE THAN 3 BIRTHS SINCE 2000, QUESTIONS SHOULD BE ASKED ONLY
	FOR THE LAST 3 BIRTHS).

Now I would like to ask you some questions about the health of your children born in the last five years

G60	INTERVIEWER, RECORD LINE NUMBER FROM A01	**LAST BIRTH** LINE NUMBER . ☐☐	**NEXT-TO-LAST BIRTH** LINE NUMBER . ☐☐	**SECOND-FROM-LAST BIRTH** LINE NUMBER . ☐☐
G61	INTERVIEWER, WRITE NAME AND SURVIVAL STATUS	NAME _____ LIVING ☐ DEAD ☐	NAME _____ LIVING ☐ DEAD ☐	NAME _____ LIVING ☐ DEAD ☐
G62	Did you see anyone for antenatal care for this pregnancy? IF YES: Whom did you see? Anyone else? PROBE FOR THE TYPE OF PERSON AND RECORD ALL PERSONS SEEN.	Yes No HEALTH PROFESSIONAL a. DOCTOR .... 1 2 b. NURSE .... 1 2 c. AUXILIARY (PUBLIC) HEALTH MIDWII 1 2 OTHER PERSON d. TRADITIONAL BIRTH ATTENDANT .. 1 2 e. OTHER .... 1 2 f. NO ONE .... 1 2 SKIP TO G66		
G63	How many times did you visit a clinic for this pregnancy?	NUMBER OF VISITS ☐☐		
G64	How many times were you visited at home by a public health midwife?	NUMBER OF VISITS ☐☐		
G65	How many times did you receive antenatal care during this pregnancy?	NUMBER OF TIMES ☐☐		
G66	Do you have the health card of <NAME> to show his/her birth weight? INTERVIEWER: COPY BIRTH WEIGHT FROM HEALTH CARD	GRAMS ☐☐☐☐ → G68 IF NO CARD ENTER 8888 AND ——→G67	GRAMS ☐☐☐☐ → G68 IF NO CARD ENTER 8888 AND ——→G67	GRAMS ☐☐☐☐ → G68 IF NO CARD ENTER 8888 AND ——→G67
G67	Do you remember the birth weight of <NAME> and can you tell me?	GRAMS ☐☐☐☐ IF DOESN'T REMEMBER ENTER 9998	GRAMS ☐☐☐☐ IF DOESN'T REMEMBER ENTER 9998	GRAMS ☐☐☐☐ IF DOESN'T REMEMBER ENTER 9998
G68	a. Who assisted with the delivery of <NAME>? b. Anyone else? PROBE FOR THE TYPE OF PERSON AND RECORD ALL PERSONS ASSISTING.	HEALTH PROFESSIONAL DOCTOR .... 1 NURSE .... 2 AUXILIARY (PUBLIC) HEALTH MIDWIFE 3 OTHER PERSON TRADITIONAL BIRTH ATTENDANT ...... 4 RELATIVE/ FRIEND .... 5 OTHER .... 6 NO ONE 7	HEALTH PROFESSIONAL DOCTOR .... 1 NURSE .... 2 AUXILIARY (PUBLIC) HEALTH MIDWIFE 3 OTHER PERSON TRADITIONAL BIRTH ATTENDANT ...... 4 RELATIVE/ FRIEND .... 5 OTHER .... 6 NO ONE 7	HEALTH PROFESSIONAL DOCTOR .... 1 NURSE .... 2 AUXILIARY (PUBLIC) HEALTH MIDWIFE 3 OTHER PERSON TRADITIONAL BIRTH ATTENDANT ...... 4 RELATIVE/ FRIEND .... 5 OTHER .... 6 NO ONE 7

G69	Where did you give birth to <NAME>?	HOME
		   YOUR HOME 1
		   OTHER HOME .. 2
		
		PUBLIC SECTOR
		   GOVT. HOSPITAL 3
		   GOVT. HEALTH
		      CENTER 4
		   GOVT. HEALTH
		      POST 5
		   OTHER PUBLIC .. 6
		
		PRIVATE MED. SECTOR
		   PVT. HOSPITAL /
		      CLINIC 7
		   OTHER PRIVATE
		      MEDICAL 8
		
		OTHER 9
			HOME
			   YOUR HOME 1
			   OTHER HOME .. 2
			
			PUBLIC SECTOR
			   GOVT. HOSPITAL 3
			   GOVT. HEALTH
			      CENTER 4
			   GOVT. HEALTH
			      POST 5
			   OTHER PUBLIC .. 6
			
			PRIVATE MED. SECTOR
			   PVT. HOSPITAL /
			      CLINIC 7
			   OTHER PRIVATE
			      MEDICAL 8
			
			OTHER 9
				HOME
				   YOUR HOME 1
				   OTHER HOME .. 2
				
				PUBLIC SECTOR
				   GOVT. HOSPITAL 3
				   GOVT. HEALTH
				      CENTER 4
				   GOVT. HEALTH
				      POST 5
				   OTHER PUBLIC .. 6
				
				PRIVATE MED. SECTOR
				   PVT. HOSPITAL /
				      CLINIC 7
				   OTHER PRIVATE
				      MEDICAL 8
				
				OTHER 9

G70	Did <NAME> ever receive any vaccinations to prevent him/her from getting diseases, including vaccinations received in a natio-nal immunization campaign?	YES 1
		NO 2
		   SKIP TO INT5 ←———|
		DON'T KNOW 8
			YES 1
			NO 2
			   SKIP TO INT5 ←———|
			DON'T KNOW 8
				YES 1
				NO 2
				   SKIP TO INT5 ←———|
				DON'T KNOW 8

	Please tell me if <NAME> received any of the following vaccinations:			
G71	An injection to prevent measles?	YES .... 1 NO .... 2 DON'T KNOW 8	YES .... 1 NO .... 2 DON'T KNOW 8	YES .... 1 NO .... 2 DON'T KNOW 8
G72	A BCG vaccination against tuberculosis, that is, an injection in the arm or shoulder that usually causes a scar?	YES .... 1 NO .... 2 DON'T KNOW 8	YES .... 1 NO .... 2 DON'T KNOW 8	YES .... 1 NO .... 2 DON'T KNOW 8
G73	Polio vaccine, that is, drops in the mouth?	YES .... 1 NO .... 2 DON'T KNOW 8	YES .... 1 NO .... 2 DON'T KNOW 8	YES .... 1 NO .... 2 DON'T KNOW 8
G74	A DPT vaccination, that is, an injection given in the thigh or buttocks, sometimes at the same time as polio drops?	YES .... 1 NO .... 2 DON'T KNOW 8	YES .... 1 NO .... 2 DON'T KNOW 8	YES .... 1 NO .... 2 DON'T KNOW 8
INT5		GO BACK TO G60 IN NEXT COLUMN; OR IF NO MORE BIRTHS, GO TO MODULE H	GO BACK TO G60 IN NEXT COLUMN; OR IF NO MORE BIRTHS, GO TO MODULE H	GO TO MODULE H

MODULE H - CHILD SCHEDULE (FOR MOTHERS AND OTHER CARETAKERS OF CHILDREN IN THIS HOUSEHOLD (SEE A14))
ALL CHILDREN 0-14 YEARS OLD

Now I would like to ask you some questions about your children in this household or the children of which you take care in this household – Please start with the youngest child.

	H01	H02	H03	H04	H05	H06	H07	H08	H09	H10	H11	H12	H13	H14
Name of child	Line number of child SEE HOUSE HOLD ROSTER (A01)	How old is <NAME>? CHECK WITH HOUSE-HOLD ROSTER (A05)	How many times has <NAME> been ill with fever or malaria in the past 14 days? IF 0→ H05	Which Western medicines were taken? 1=Paracetamol or Asperine 2=Choroquine 3=Fansidar 4=Malaria pills 5=Other 6= None	How many times has <NAME> been ill with malaria in the past year?	Did <NAME> have any other ill-ness in the past 14 days? 1=YES 2=NO ¬ H10	Has (s)he been treated for this illness? 1=YES 2=NO ¬ H09	Where has <NAME> been treated? SEE H08 CODES BELOW SKIP TO H10	Why didn't <NAME> go for treat-ment? SEE H09 CODES BELOW	Was <NAME> ever treated for TB? 1=YES 2=NO	Does <NAME> has any problem with: SEE H11 CODES BELOW	WEIGHT OF <NAME> KG GRAMS	HEIGHT OF <NAME> CM.	CIRCUM-FERENCE OF THE MID-UPPER ARM OF <NAME> MM.
(1) _____	☐☐	☐☐	☐	☐	☐	☐	☐	☐	☐	☐	☐☐	☐☐,☐☐☐	☐☐☐	☐☐☐
(2) _____	☐☐	☐☐	☐	☐	☐	☐	☐	☐	☐	☐	☐☐	☐☐,☐☐☐	☐☐☐	☐☐☐
(3) _____	☐☐	☐☐	☐	☐	☐	☐	☐	☐	☐	☐	☐☐	☐☐,☐☐☐	☐☐☐	☐☐☐
(4) _____	☐☐	☐☐	☐	☐	☐	☐	☐	☐	☐	☐	☐☐	☐☐,☐☐☐	☐☐☐	☐☐☐
(5) _____	☐☐	☐☐	☐	☐	☐	☐	☐	☐	☐	☐	☐☐	☐☐,☐☐☐	☐☐☐	☐☐☐
(6) _____	☐☐	☐☐	☐	☐	☐	☐	☐	☐	☐	☐	☐☐	☐☐,☐☐☐	☐☐☐	☐☐☐
(7) _____	☐☐	☐☐	☐	☐	☐	☐	☐	☐	☐	☐	☐☐	☐☐,☐☐☐	☐☐☐	☐☐☐

CODES FOR H08

PUBLIC SECTOR
1 = GOVERMENT WESTERN HOSPITAL
2 = GOVERMENT AYURVEDIC HOSPITAL
3 = GOVTERNMENT HEALTH CENTER
4 = MOBILE CLINIC
5 = OTHER PUBLIC

PRIVATE SECTOR
6 = PRIVATE WESTERN HOSPITAL/CLINIC
7 = PRIVATE AYURVEDIC HOSPITAL/CLINIC
8 = MOBILE CLINIC
9 = PHARMACY
10 = OTHER PRIVATE
11 = OTHER

CODES FOR H09
1 = COMPLAINT WAS NOT SERIOUS
2 = LACK OF TRANSPORT
3 = COSTS OF TRANSPORT
4 = COSTS OF TREATMENT
5 = NO CONFIDENCE IN HEALTH PROVIDER
6 = SAFETY / SECURITY
7 = OTHER

CODES FOR H11
1 = NO PROBLEMS
2 = SEEING
3 = HEARING
4 = TALKING
5 = MOVING
6 = HOLDING
7 = GRIPPING
8 = MENTAL PROBLEMS
9 = MULTIPLE DISABILITIES
98 = DON'T KNOW

H15	H16	H17	H18	H19	H20	H21	H22	H23	H24	H25	H26
What is the highest level of school <NAME> ever attended? 1=None 2=Primary 3=Secondary 4=Vocational IF 1 → H17	**For 6-15 year olds only** What is the highest year <NAME> comple-ted at that level? 0=No year completed	Is <NAME> currently attending school? 1=YES → H20 2=NO	Why not? 1=Working 2=Health 3= School too far / no school 4='Away' 5=Other IF 1,4,5 → H21	PROBE FOR ADDITIONAL EXPLANATION	Where was <NAME> born? RECORD: 1. VILLAGE/TOWN 2. DISTRICT 3. COUNTRY	Is <NAME>'S biological father alive? 1=YES 2=NO	Has <NAME> ever been unintendedly separated from you and lived somewhere else? 1=YES 2=NO MOD I	In which period was <NAME> unintendedly separated from you? IF THERE WERE MORE PERIODS, RECORD LAST ONE From ___ ___ To ___ ___ Month Year Month Year	Why did you get separated? SEE CODES H24 BELOW	With whom did <NAME> stay in that period? SEE CODES H25 BELOW	Where did <NAME> stay in that period? RECORD: 1. VILLAGE / TOWN 2. DISTRICT 3. COUNTRY WHEN LAST CHILD IS COMPLETED, GO TO MODULE I
☐	☐	☐	☐	____	1 ____ 2 ____ ☐☐ 3 ____	☐	☐	☐☐ ☐☐ ☐☐	☐	☐	1 ____ 2 ____ ☐☐ 3 ____
☐	☐	☐	☐	____	1 ____ 2 ____ ☐☐ 3 ____	☐	☐	☐☐ ☐☐ ☐☐	☐	☐	1 ____ 2 ____ ☐☐ 3 ____
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CODES FOR H24
1 = I (mother/caretaker) fled
2 = Child fled
3 = Child went away for safety
4 = Couldn't care for child
7 = Other

CODES FOR H26
1 = WITH RELATIVES
2 = WITH FRIENDS
3 = ORPHANAGE
4 = WITH OTHER
5 = OUTSIDE
7 = OTHER
8 = DON'T KNOW

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		MODULE I - COPING AND VULNERABILITY ALL PERSONS AGED 15 AND ABOVE	
Q. No.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIPS
INTERVIEWER: QUESTIONS I01 TO I08 APPLY TO IDPS ONLY		QUESTIONS I09-I27 REFER TO ALL RESPONDENTS	
	Now, I would like to ask you some questions about the way you were able to establish a new life here in <District (village/town)>		
I01	What needs do you have living here you cannot provide for by yourself? INTERVIEWER: PROMPT FOR DIFFERENT ANSWERS AND CIRCLE ALL THAT WERE MENTIONED	SHELTER .... 11 FOOD .... 12 MEDICAL SUPPORT .... 13 WORK .... 14 SCHOOL FOR CHILDREN .... 15 LEGAL SUPPORT .... 16 PROTECTION .... 17 ASYLUM .... 18 OTHER, SPECIFY 19 NO NEEDS 20	→ I09
I02	Did you seek help to fulfill these needs?	YES .... 1 NO 2	→ I06
I03	Did you receive help to fulfill (some) of these needs?	YES .... 1 NO 2	→ I09
I04	What help did you receive? INTERVIEWER: PROMPT FOR DIFFERENT ANSWERS AND CIRCLE ALL THAT WERE MENTIONED	SHELTER .... 11 FOOD .... 12 MEDICAL SUPPORT .... 13 WORK .... 14 SCHOOL FOR CHILDREN .... 15 LEGAL SUPPORT .... 16 PROTECTION .... 17 ASYLUM .... 18 OTHER, SPECIFY 19	

I05	Where did you get help?
	
	INTERVIEWER: CIRCLE ALL THAT WERE MENTIONED
		FAMILY LIVING HERE 1
		FRIENDS LIVING HERE 2
		GOVERNMENT 3
		UNHCR 4
		ICRC / RED CROSS 5
		CHURCH / RELIGIOUS
		        ORGANISATIONS 6
		OTHER, SPECIFY
		                                      7
			GO TO I09

I06	Why didn't you seek help?	COULD MANAGE MYSELF 1
		ALREADY HAD SUPPORT 2
		DIDN'T KNOW WHERE TO GO 3
		AFRAID / FEARING
		        REPERCUSSIONS 4
		OTHER, SPECIFY
		                                      5	

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I07	NOT APPLICABLE FOR SRI LANKA		
I08	NOT APPLICABLE FOR SRI LANKA		

INTERVIEWER: THE NEXT QUESTIONS APPLY TO ALL RESPONDENTS (IDPs and non-IDPs)

I09	Do you feel secure living here?	YES .... 1 NO 2	
I15	Have you ever been robbed or has there been a break-in when you lived here?	YES .... 1 NO 2	
I16	INTERVIEWER: QUESTION I22 FOR WOMEN ONLY Have you ever been sexually molested in this neighbourhood?	YES .... 1 NO 2	
I17	Have you ever felt threatened by any armed group in this area?	YES .... 1 NO 2	
I18	In what way did you feel threatened by them? In any way more? RECORD ALL ANSWERS	FEAR FOR ARREST/DETENTION 1 FEAR FOR BEING BEATEN .... 2 FEAR FOR BEING ROBBED .... 3 FEAR FOR SEXUAL HARASSMENT 4 OR VIOLENCE .... OTHER, SPECIFY _____ 6	
I19	Do you have difficulty with the following: Access to health care (docters, clinics / hospitals) .... Access to education .... Ability to vote / voting registration .... Obtaining official documents (birth or marriage certificates, land deeds, etc.) .... Access to places of worship .... Ability to move around freely .... Privacy in the house	YES NO 1 2 1 2 1 2 1 2 1 2 1 2 1 2	
I20	Have you ever been beaten by members in this household in the last month?	YES .... 1 NO 2	
I21	Do you participate in any local organisation or association, like a cooperative, a religious organisation, a neighbourhood council, or any other local organisation? Any other? PROMPT FOR ANSWERS RECORD ALL ORGANISATIONS MENTIONED	RELIGIOUS ORGANISATION .... 1 WOMEN'S ORGANISATION .... 2 SOCIAL ORGANISATION .... 3 COMMERCIAL / ECONOMIC COOPERATIVE .... 4 RECREATIONAL ORGANISATION (SPORTS, MUSIC, CULTURAL) ... 5 POLITICAL ORGANISATION .... 6 REFUGEE ORGANISATION .... 7 OTHER INTEREST GROUP .... 8 OTHER, SPECIFY .... 9 _____ DOES NOT PARTICIPATE IN ANY 10	

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I22	Have you drunk any alcoholic beverages in the past 30 days?	YES .... 1 NO 2	→ I25
I23	Did you ever get drunk in the last month?	YES .... 1 NO 2	→ I25
I24	In the last month, how many times did you get drunk?	NUMBER OF TIMES [ ][ ]	
I25	Did you use any drugs in the past month?	YES .... 1 NO 2	→ END
I26	How often did you use drugs in the last month?	EVERY DAY .... 1 4-6 TIMES A WEEK .... 2 2-3 TIMES A WEEK .... 3 ONCE A WEEK .... 4 2-3 TIMES IN THE LAST MONTH ... 5 ONCE IN THE LAST MONTH .... 6 DON'T KNOW 8	

I27	Please tell me to what extent the following statements are true if they would concern your own situation. Mention whether the statements I make are not at all true, hardly true, moderately true or exactly true.	NOT AT ALL TRUE	HARD-LY TRUE	MODERA-TELY TRUE	EXACT-LY TRUE	
a	I can solve most problems if I try hard enough.	1	2	3	4	
b	I am confident that I could deal effectively with unexpected events.	1	2	3	4	
c	If someone opposes me, I can find the means and ways to get what I want.	1	2	3	4	
d	When I am confronted with a problem, I can usually find several solutions.	1	2	3	4	
e	If I feel the need to move and live in another place in Sri Lanka I can find means and ways to realize that.	1	2	3	4	
f	If I feel the need to move and live in another country, I can find means and ways to realize that.	1	2	3	4	
g	If I face problems when I want to move to a better place to live, I am confident that I can think of different solutions.	1	2	3	4	
h	If I were faced with obstacles when I would like to move to a better place to live, I am confident that I can overcome most of them if I invest the necessary effort.	1	2	3	4	
i	I am confident that I can establish a living here if I stay here for a longer period.	1	2	3	4	
j	When I come to live in a new place, I am sure that I don't depend on others to make a living.	1	2	3	4	
k	If I move to another place, I feel confident that I will easily adjust there.	1	2	3	4	
l	If I ever need to flee to another place (again), I am confident that I will find means and ways to make a living.	1	2	3	4	

END OF QUESTIONNAIRE FOR THIS RESPONDENT
CONTINUE WITH NEXT PERSON OR END INTERVIEW IN HOUSEHOLD